

Draft decision

Aurizon Network's 2017 draft access undertaking

December 2017

SUBMISSIONS

Closing date for submissions: 12 March 2018

This document represents the Queensland Competition Authority's (QCA's) preliminary view and is intended to give stakeholders an insight into that view to encourage further contributions. The QCA's application of statutory assessment criteria and its thinking may change towards its final decision, which will be informed by submissions made in response to this document. This document is not a draft version of a final decision, and it has no force of itself. There should be no expectation that it presents views and recommendations as to how to amend Aurizon Network's 2017 draft access undertaking which will prevail to the end of the decision making process unless the QCA is persuaded otherwise.

Public involvement is an important element of the decision-making processes of the QCA. Therefore submissions are invited from interested parties concerning its assessment of Aurizon Network's 2017 draft access undertaking. The QCA will take account of all submissions received within the stated timeframes.

Submissions, comments or inquiries regarding this paper should be directed to:

Queensland Competition Authority
GPO Box 2257
Brisbane Q 4001

Tel (07) 3222 0555

www.qca.org.au/submissions

Confidentiality

In the interests of transparency and to promote informed discussion and consultation, the QCA intends to make all submissions publicly available. However, if a person making a submission believes that information in the submission is confidential, that person should claim confidentiality in respect of the document (or the relevant part of the document) at the time the submission is given to the QCA and state the basis for the confidentiality claim.

The assessment of confidentiality claims will be made by the QCA in accordance with the *Queensland Competition Authority Act 1997*, including an assessment of whether disclosure of the information would damage the person's commercial activities and considerations of the public interest.

Claims for confidentiality should be clearly noted on the front page of the submission. The relevant sections of the submission should also be marked as confidential, so that the remainder of the document can be made publicly available. It would also be appreciated if two versions of the submission (i.e. a complete version and another excising confidential information) could be provided.

A confidentiality claim template is available on request. Stakeholders are encouraged to use this template when making confidentiality claims. The confidentiality claim template provides guidance on the type of information that would assist our assessment of claims for confidentiality.

Public access to submissions

Subject to any confidentiality constraints, submissions will be available for public inspection at the Brisbane office, or on the website at www.qca.org.au. If you experience any difficulty gaining access to documents please contact us on (07) 3222 0555.

Contents

SUBMISSIONS	I
Closing date for submissions: 12 March 2018	i
Confidentiality	i
Public access to submissions	i
DRAFT DECISION	VII
Draft Decision	vii
Consultation on the Draft Decision	vii
INTRODUCTION	IX
Declaration for third party access	ix
Structure of draft decision	ix
THE QCA'S APPROACH TO THIS INVESTIGATION	XI
Assessment of Aurizon Network's 2017 DAU	xii
EXECUTIVE SUMMARY	XVII
Part A - Risk, revenues and reference tariffs	xvii
Part B - Draft access undertaking provisions	xix
1 PART A: RISK, REVENUES AND REFERENCE TARIFFS - OVERVIEW	1
1.1 Aurizon Network's 2017 DAU proposal	1
1.2 QCA analysis and draft decision	3
1.3 Modelling approach	6
1.4 Approach to regulatory tax expenses and tax depreciation	7
1.5 Reference tariff proposal	7
2 RISK AND THE REGULATORY FRAMEWORK	11
2.1 Aurizon Network's 2017 DAU proposal	11
2.2 Overview of factors affecting Aurizon Network's exposure to risk	12
2.3 Stakeholder submissions	19
3 THE REGULATORY ASSET BASE AND DEPRECIATION	30
3.1 Aurizon Network's 2017 DAU proposal	30
3.1 Opening asset value (as at 1 July 2017)	32
3.2 UT5 capital indicator	42
3.3 Depreciation charges	47
4 INFLATION FORECAST AND RAB INDEXATION	50
4.1 Forecasting inflation	50
4.2 Indexation of the asset base for pricing and roll-forward purposes	57
5 RATE OF RETURN	62
5.1 Aurizon Network's 2017 DAU proposal	62
5.2 Key issues identified during the QCA's investigation	62

5.3	Overview of the QCA's draft decision	62
5.4	The QCA's assessment approach	63
5.5	Risk-free rate	66
5.6	Market risk premium	78
5.7	Beta	87
5.8	Overall return on equity	127
5.9	Capital structure and credit rating	133
5.10	Cost of debt	136
5.11	Gamma	162
6	VOLUME FORECASTS	176
6.1	Aurizon Network's 2017 DAU proposal	176
6.2	Key issues identified during the QCA's investigation	176
6.3	QCA analysis and draft decision	176
7	OPERATING COST ALLOWANCE	182
7.1	Aurizon Network's 2017 DAU proposal	182
7.2	Key issues identified during the QCA's investigation	182
7.3	Overview of the QCA's draft decision	183
7.4	Overview of Aurizon Network's approach	185
7.5	System-wide and regional costs	192
7.6	Corporate overheads	214
7.7	Risk and insurance allowances	232
7.8	Electricity transmission and connection costs	243
7.9	Electric traction energy costs	247
7.10	Cost escalation	249
7.11	QCA assessment of total operating expenditure	252
8	MAINTENANCE COST ALLOWANCE	255
8.1	Aurizon Network's 2017 DAU proposal	255
8.2	Key issues identified during the QCA's investigation	255
8.3	QCA draft decision	256
8.4	Overview of maintenance cost approach	259
8.5	Aurizon Network's forecasting of direct costs	263
8.6	Alternative estimate—bottom-up, cost build-up approach (GHD)	271
8.7	Alternative estimate—FY2017 base year approach	280
8.8	Indirect costs and related matters	291
8.9	Maintenance cost index	294
9	SCHEDULE F - REFERENCE TARIFFS AND TAKE-OR-PAY	303
9.1	Aurizon Network's 2017 DAU proposal	303
9.2	Determination of reference tariffs	303
9.3	Processes for the review and variation of reference tariffs	305
9.4	Take-or-pay arrangements	310
9.5	Form of regulation and pricing of overhead power	316
9.6	System forecasts	317

10	PART B: DRAFT ACCESS UNDERTAKING PROVISIONS - OVERVIEW	319
11	PREAMBLE AND INTENT & SCOPE	321
11.1	Aurizon Network's 2017 DAU proposal (Part 1)	321
11.2	Aurizon Network's 2017 DAU proposal (Part 2)	321
11.3	Term of the undertaking and adjustment charges	322
11.4	Objective of the undertaking and behavioural obligations	324
11.5	Scope of the undertaking	325
11.6	Ultimate holding company support deed	326
11.7	Sale and supply of electricity	327
12	RING-FENCING	329
12.1	Aurizon Network's 2017 DAU proposal	329
12.2	General provisions and Aurizon Network's functional responsibilities—Sections A and B	329
12.3	Management of Aurizon Network—Section C	330
12.4	Confidential information—Section D	330
12.5	Complaint handling—Section E	331
12.6	Responsibility for rail infrastructure—Section F	331
13	NEGOTIATION FRAMEWORK	334
13.1	Process and requirements for applying for access	335
13.2	Variations to access applications	338
13.3	Applications for access rights that require expansions	339
13.4	Negotiation process	340
14	ACCESS AGREEMENTS	344
14.1	Aurizon Network's 2017 DAU proposal	344
14.2	Development and execution of an Access Agreement and/or Train Operations Deed	345
14.3	Terms of the Standard Agreements	347
15	PRICING PRINCIPLES	358
15.1	Aurizon Network's 2017 DAU proposal	358
15.2	General pricing principles	359
15.3	Expansion pricing framework	360
15.4	Maintenance of the regulatory asset base	363
15.5	Approval of capital expenditure by the QCA	367
15.6	Acceptance of capital expenditure by interested participants	369
15.7	Access conditions	371
16	AVAILABLE CAPACITY ALLOCATION & MANAGEMENT	376
16.1	Aurizon Network's 2017 DAU proposal	376
16.2	Allocating available capacity	376
16.3	Term for renewing access applications	377
16.4	Capacity resumption	378
16.5	Relinquishment processes	379
16.6	Transfers of access rights	381
16.7	Short-term capacity transfers	383

17	CAPACITY AND SUPPLY CHAIN MANAGEMENT	386
17.1	Aurizon Network's 2017 DAU proposal	386
17.2	Coal supply chain coordination	387
17.3	Capacity assessment	391
17.4	Annual capacity assessments	393
17.5	Capacity deficits	396
17.6	Expert review of capacity assessments	399
17.7	Confidentiality	402
17.8	System operating parameters amendment processes	403
17.9	Network Development Plan	404
17.10	Network Management Principles	405
18	NETWORK DEVELOPMENT & EXPANSIONS	409
18.1	Aurizon Network's 2017 DAU Proposal	409
18.2	Investing in network expansions	410
18.3	Capacity shortfall rectification obligation	414
18.4	Development and review of the SUFA	421
18.5	Study funding agreement	424
19	CONNECTING PRIVATE INFRASTRUCTURE	427
19.1	Aurizon Network's 2017 DAU proposal	427
19.2	Assessment and development of proposed connecting infrastructure	428
19.3	Review and development of a revised SRCA	431
19.4	Standard rail connection agreement	432
19.5	Coal loss mitigation principles	434
20	REPORTING, COMPLIANCE AND AUDITS	436
20.1	Aurizon Network's 2017 DAU proposal	436
20.2	QCA analysis and draft decision	440
21	DISPUTE RESOLUTION AND DECISION MAKING	443
21.1	Aurizon Network's 2017 DAU proposal	443
21.2	Scope of the dispute resolution mechanism	444
21.3	QCA's powers in undertaking a determination	450
21.4	Provision of information and joinder	454
21.5	Determinations by experts and procedure	456
	APPENDIX A : LIST OF SUBMISSIONS	461
	APPENDIX B : REFERENCE TARIFFS AND ALLOWABLE REVENUES	463
	Blackwater System	463
	Goonyella System	464
	Moura System	465
	Newlands System	465
	Goonyella to Abbot Point System	466
	Colton	466

APPENDIX C : QCA PROPOSED MAXIMUM ALLOWABLE REVENUES	467
APPENDIX D : UT5 RAB ROLL-FORWARD	471
APPENDIX E : QCA APPROVED ASSET LIVES	474
APPENDIX F : QCA MRP ESTIMATION METHODOLOGIES AND COMMENTS	476
APPENDIX G : PROPOSED AMENDMENTS TO SCHEDULE F	494
APPENDIX H : PROPOSED AMENDMENTS TO PART 2	496
APPENDIX I : PROPOSED AMENDMENTS TO PART 5	497
APPENDIX J : PROPOSED AMENDMENTS TO PART 7	499
APPENDIX K : PROPOSED AMENDMENTS TO PART 7A	500
APPENDIX L : PROPOSED AMENDMENTS TO PART 8	516
APPENDIX M : PROPOSED AMENDMENTS TO PART 9	526
APPENDIX N : PROPOSED AMENDMENTS TO PART 11	533
APPENDIX O : REFERENCES	550

DRAFT DECISION

On 11 May 2016, the QCA issued an initial undertaking notice requiring Aurizon Network to submit a replacement draft access undertaking for the period commencing 1 July 2017, for what will become the UT5 period. On 30 November 2016, Aurizon Network submitted its proposed replacement draft access undertaking (the 2017 DAU) to the QCA for assessment.

The QCA's draft decision is to refuse to approve Aurizon Network's 2017 DAU, for the reasons detailed in this document. The QCA has indicated how the 2017 DAU should be amended in order for it to be approved.

Draft Decision

The draft decision proposes to refuse to approve Aurizon Network's 2017 DAU.

The draft decision sets out the QCA's preliminary assessment of Aurizon Network's 2017 DAU against the statutory criteria and the reasons why we do not consider it is appropriate to approve the 2017 DAU. The QCA has also set out those amendments considered necessary in order for the QCA to approve a replacement access undertaking for Aurizon Network's declared service.

The QCA has assessed the appropriateness of all aspects of Aurizon Network's 2017 DAU in accordance with our statutory requirements. The QCA has assessed the 2017 DAU in a manner that considers the appropriateness of Aurizon Network's 2017 DAU proposal overall, and its individual aspects, having regard to s. 138(2) of the QCA Act. The QCA has considered all submissions received.

The draft decision is intended to provide stakeholders with an insight into the QCA's preliminary views and encourage further contributions by way of submissions. The QCA's assessment may change when it makes its final decision, which will be informed by submissions made in response to this draft decision.

Consultation on the Draft Decision

The QCA invites submissions on this draft decision by 12 March 2018. All submissions made by this time will be taken into account, but stakeholders are encouraged to provide focused, detailed responses to the QCA's preliminary reasoning and proposed amendments to Aurizon Network's 2017 DAU as identified in this draft decision. Where possible, information and evidence should be provided in support of arguments advanced in submissions.

All stakeholders are encouraged to provide information and submissions by the relevant due date to promote the timely consideration and assessment of Aurizon Network's 2017 DAU.

Next steps

In releasing a draft decision at this time, the QCA is well aware of the importance of a timely and seamless transition from Aurizon Network's 2016 Access Undertaking (2016 Undertaking) to a replacement access undertaking, for what will become the UT5 undertaking.

If, following consideration of all matters, the QCA's decision is to not approve Aurizon Network's 2017 DAU, the QCA proposes to immediately issue a secondary undertaking notice requiring Aurizon Network to submit an amended draft access undertaking within 60 days. Following public consultation in relation to Aurizon Network's response, the QCA will either approve that amended draft access undertaking, or reject it.

If it is not appropriate to approve, the QCA intends to prepare its own draft access undertaking for the declared service. In relation to that process, the QCA will provide advice, including timelines for submissions for the completion of that process and approval of a draft access undertaking. It will be important for stakeholders to adhere to those timelines to enable the process to be completed in a timely manner.

INTRODUCTION

Declaration for third party access

Aurizon Network is the access provider of a declared service for the purposes of Queensland's third party access regime established under Part 5 of the *Queensland Competition Authority Act 1997* (QCA Act).

The relevant service is 'the use of a coal system for providing transportation by rail' (as defined under s. 250 of the QCA Act) and is referred to in this decision as the 'declared service'. The relevant infrastructure to which the declared service relates is collectively referred to in this decision as the 'central Queensland coal network' (CQCN).

Because of this declaration, Aurizon Network (as the access provider for the declared service) and access seekers are subject to various rights and obligations under the QCA Act, including an obligation to negotiate access to the service in good faith (s. 100).

The regime also provides for the development of an access undertaking, which is defined under the QCA Act as 'a written undertaking that sets out details of the terms on which an owner or operator of the service undertakes to provide access to the service whether or not it sets out other information about the provision of access to the service.'

These terms and conditions must necessarily deal with price and non-price matters. An undertaking approved by the QCA is intended to establish binding provisions to guide negotiation. It has the legal effect of constraining the QCA from making a determination in relation to an access dispute which is inconsistent with the approved undertaking (s. 119) and providing the owner with safe harbour from provisions of the QCA Act which prohibit preventing or hindering access (ss. 104 and 125).

Structure of draft decision

This document provides the QCA's preliminary assessment and reasons for the QCA's draft decision to not approve Aurizon Network's 2017 DAU, and is structured as follows.

Part A: Risk, revenues and reference tariffs – provides an overview of the QCA's investigation into Aurizon Network's proposed allowable revenues and reference tariffs for coal-carrying train services. Chapters 2 to 9 focus on the key inputs used to develop reference tariffs and allowable revenues, including:

- Aurizon Network's overall exposure to risk and the mechanisms within the regulatory framework to compensate, allocate and mitigate for risk (Chapter 2)
- Aurizon Network's regulatory asset base (RAB), including opening asset value, forecast capital expenditure and the treatment of depreciation (Chapter 3)
- Inflation forecasting and the method for RAB indexation (Chapter 4)
- Rate of return, including a detailed response to Aurizon Network's proposed WACC (Chapter 5)
- Volume forecasts, which are taken into account in deriving reference tariffs (Chapter 6)
- Operating cost allowance and the QCA's assessment (Chapter 7)
- Maintenance cost allowance and the QCA's assessment (Chapter 8)
- Determination of reference tariffs and take-or-pay arrangements (Chapter 9).

Part B: DAU provisions—provides an overview of Aurizon Network's 2017 DAU. Chapters 11 to 21 respond to Aurizon Network's 2017 DAU proposals including:

- The Preamble (Part 1) and Intent and Scope (Part 2)—setting the high-level context and objectives of the undertaking (Chapter 11)
- Ringfencing (Part 3)—Aurizon Network’s obligations in managing confidential information (Chapter 12)
- Negotiation framework (Part 4)—the process and information required in the negotiation of access rights with access seekers (Chapter 13)
- Access Agreements (Part 5)—the provisions for development of standard access agreements (Chapter 14)
- Pricing principles (Part 6)—the pricing principles Aurizon Network proposes to apply when developing access charges and reference tariffs (Chapter 15)
- Available capacity and management (Part 7)—the procedures for allocating and managing capacity available on the network (Chapter 16)
- Capacity and supply chain management (Part 7A)—arrangements for dealing with the higher level framework for supply chain coordination and capacity assessments (Chapter 17)
- Network development and expansions (Part 8)—the framework for development and funding of new rail infrastructure (Chapter 18)
- Connecting private infrastructure (Part 9)—the process for the connection of private infrastructure to the CQCN (Chapter 19)
- Reporting, compliance and audits (Part 10)—the proposed framework for information reporting and demonstrating compliance with the undertaking (Chapter 20)
- Dispute resolution and decision making (Part 11)—establishes a dispute resolution mechanism (Chapter 21).

THE QCA'S APPROACH TO THIS INVESTIGATION

The QCA's task is to make a decision on Aurizon Network's 2017 DAU based on the evidence and information available, having regard to the statutory assessment criteria.

The QCA's approach in carrying out its task under the QCA Act is to consider all submissions made and the merits of the arguments put by stakeholders.

The success of this approach depends in large part on stakeholders adopting reasonable and balanced positions. This involves stakeholders presenting proposals with adequate support and making evidence based claims that are verifiable.

The QCA has promoted collaboration between stakeholders during this process. The QCA appreciates the efforts made by stakeholders to collaborate, discuss and, where possible, reach a consensus on certain issues. Stakeholders are encouraged to continue this approach when responding to this draft decision.

Consideration of consensus positions between Aurizon Network and stakeholders

Overall, in many cases the QCA considers that the consensus drafting that was submitted as part of the collaborative process is appropriate to approve for the purposes of s. 138(2) of the QCA Act. While the QCA has identified instances where further amendments are required, by and large, these maintain the policy objectives of the collaborative process.

The QCA's role in deciding whether to approve a draft access undertaking is different from our role in arbitrating disputes. The negotiate–arbitrate principle underpins the approach for how parties may obtain access to the service. The process of reviewing and approving a draft access undertaking is not, however, the same as a negotiate–arbitrate process.

Our role under the QCA Act is to decide whether a draft access undertaking is appropriate to approve and, if not, what changes we consider appropriate to be made. As such, the QCA would not be performing its statutory role if it accepted a draft access undertaking merely because it had been agreed with some or all existing stakeholders—nor could the QCA focus its assessment of a draft access undertaking on only those parts that are in dispute between Aurizon Network and stakeholders.

Nonetheless, provisions presented by stakeholders on a consensus basis are relevant in our assessment of Aurizon Network's 2017 DAU. The significance of this factor will depend (amongst other things) on the stakeholders involved in developing consensus positions, the level of support expressed by stakeholders, and the matter involved. Consequently, the greater, more widespread and extensive the support from stakeholders, the more weight the QCA gives to consensus positions in its investigation. However, the QCA must also consider the effect of a draft access undertaking on all stakeholders, including future access seekers, who will not necessarily be represented by the stakeholders that have developed consensus positions. Accordingly, while the existence of stakeholder-consensus positions is persuasive, it is not decisive.

Aurizon Network's 2016 Undertaking

The QCA notes that Aurizon Network's 2017 DAU has been developed from, and shares similar drafting to, Aurizon Network's 2016 Undertaking, which was voluntarily submitted by Aurizon Network, and approved in October 2016. However, despite such similarities, we have considered Aurizon Network's 2017 DAU afresh in accordance with the requirements of the QCA Act.

Assessment of Aurizon Network's 2017 DAU

The QCA has considered Aurizon Network's 2017 DAU in accordance with the statutory assessment criteria in s. 138(2) and other applicable requirements of the QCA Act. In some cases, the assessment of whether it is appropriate to approve Aurizon Network's 2017 DAU having regard to the factors listed in s. 138(2) gives rise to competing considerations. In such cases, the QCA has weighed up the competing considerations as appropriate. The relative weight is addressed in the relevant chapters of this draft decision.

The QCA has also given consideration to submissions received from stakeholders, when assessing Aurizon Network's 2017 DAU.

Relevantly, in assessing Aurizon Network's 2017 DAU, the QCA has considered Aurizon Network's 2017 DAU afresh and has had regard to the s. 138(2) factors in every aspect of this draft decision. In considering each aspect of Aurizon Network's 2017 DAU, the QCA's draft decision has sought an appropriate balance between competing interests and provided reasons for the draft decision with reference to the issues that are relevant to each of the s. 138(2) factors.

Outline of assessment criteria

In accordance with s. 134 of the QCA Act, the QCA must consider Aurizon Network's 2017 DAU and either approve, or refuse to approve, it. In doing so, the QCA must publish Aurizon Network's 2017 DAU and consider comments on it.

If the QCA refuses to approve Aurizon Network's 2017 DAU, it must provide a written notice stating the reasons for the refusal and the way in which the QCA considers it is appropriate to amend Aurizon Network's 2017 DAU. This will occur when the QCA releases its forthcoming final decision on Aurizon Network's 2017 DAU, after consideration of submissions in response to this draft decision, noting that this draft decision reflects the QCA's preliminary views on Aurizon Network's 2017 DAU.

The factors affecting the QCA's consideration and approval of a draft access undertaking are set out in the QCA Act.

The QCA Act

The QCA Act provides that the QCA may approve a draft access undertaking only if it considers it appropriate to do so having regard to the matters mentioned in s. 138(2). Section 138(2) of the QCA Act states that the QCA may approve a draft access undertaking only if it considers it appropriate having regard to each of the following:

- (a) the object of Part 5 of the QCA Act, which is:
 - to promote the economically efficient operation of, use of and investment in, significant infrastructure by which services are provided, with the effect of promoting effective competition in upstream and downstream markets (s. 69E).
- (b) the legitimate business interests of the owner or operator of the service;
- (c) if the owner and operator of the service are different entities – the legitimate business interests of the operator of the service are protected;
- (d) the public interest, including the public interest in having competition in markets (whether or not in Australia);
- (e) the interests of persons who may seek access to the service, including whether adequate provision has been made for compensation if the rights of users of the service are adversely affected;
- (f) the effect of excluding existing assets for pricing purposes;

- (g) the pricing principles in s. 168A of the QCA Act, which in relation to the price of access to a service are that the price should:
- (i) generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service and include a return on investment commensurate with the regulatory and commercial risks involved; and
 - (ii) allow for multi-part pricing and price discrimination where it aids efficiency; and
 - (iii) not allow a related access provider to set terms and conditions that discriminate in favour of the downstream operations of the access provider or a related body corporate of the access provider, except to the extent the cost of providing access to other operators is higher; and
 - (iv) provide incentives to reduce costs or otherwise improve productivity;
- (h) any other issues the QCA considers relevant.

Section 138(3) of the QCA Act provides, among other things, that the QCA may approve the draft access undertaking only if it is satisfied the proposed undertaking:

- (a) is consistent with any access code for the service; and
- (b) is not inconsistent with a ruling relating to the service that is in effect under division 7A of Part 5 of the QCA Act.

There are no applicable access codes or rulings in effect under division 7A.

Outline of the QCA's assessment process

On 11 May 2016, the QCA issued an initial undertaking notice to Aurizon Network under s. 133 of the QCA Act, requiring Aurizon Network to submit a draft access undertaking to the QCA for the period commencing 1 July 2017, by 9 September 2016.

The QCA considered that initiating the process established by s. 133 of the QCA Act was the best way of achieving a timely replacement access undertaking for UT5 regulatory period.

The date for lodgement of the draft access undertaking was subsequently extended following a request from Aurizon Network. Aurizon Network submitted the 2017 DAU to the QCA on 30 November 2016 in accordance with the extended initial undertaking notice. The QCA subsequently published Aurizon Network's 2017 DAU for stakeholder comment and received initial submissions from the following parties:

- Aurizon Operations
- QCoal Group
- Pacific National and Dalrymple Bay Coal Chain Coordinator
- Anglo American
- Pacific National
- Queensland Resources Council (QRC)
- Fitzroy Australia Resources
- Rio Tinto Coal Australia
- BMA

Following the publishing of the above submissions on the QCA website, the QCA invited further collaborative submissions. Subsequently, collaborative submissions were received from Aurizon Network, Aurizon Operations, QRC and Pacific National.

Provision of late information by Aurizon Network

The following material was provided after the QCA's stated deadline for submissions had passed (late information) by Aurizon Network.

- 'Recent evidence on the market risk premium', Frontier Economics (submitted 10 May 2017)
- 'Estimating gamma within the regulatory context', Frontier Economics (submitted 22 September 2017)
- 'Best estimate of inflation for regulatory purposes', CEG (submitted 22 September 2017)
- 'Appropriateness of the external credit ratings', Ernst & Young (submitted 22 September 2017)
- 'Risk comparison between Aurizon Network and energy and water networks', Synergies (submitted 22 September 2017)
- 'The term of the risk-free rate', Frontier Economics (submitted 29 September 2017)
- 'An updated estimate of the market risk premium', Frontier Economics (submitted 29 September 2017)
- 'Required Returns for infrastructure assets – market based evidence', Deloitte (submitted 29 September 2017).

The QCA has published the late information submitted by Aurizon Network on the QCA's website, as well as associated correspondence.

Stakeholders are encouraged to respond to the above late information, as well as the QCA's preliminary views, as part of responding to this draft decision. The QCA notes that this is the first time that stakeholders will have had the opportunity to comment on this material.

Submissions invited on areas of particular interest to the QCA

While the QCA is seeking submissions on all aspects of this draft decision and Aurizon Network's 2017 DAU, a number of matters would benefit from stakeholder views and are identified throughout the draft decision. These include, but are not limited to, the following examples.

- Application of revenue deferrals and WIRP pricing—the QCA proposes to accept Aurizon Network's proposals with regard to revenue deferrals for WIRP Moura and NAPE. Cessation of previous deferrals (WIRP Blackwater) and Caledon entering administration will result in additional revenues being recovered from remaining WIRP users (Chapters 1 and 3). The QCA is seeking views from affected WIRP users and Aurizon Network, including consideration of alternative allocations, as between the WIRP users.
- Forecast capital expenditure—the QCA is minded to switch from an *ex post* annual assessment process to an incentive-based *ex ante* process for renewals capital expenditure. This would commence from the next regulatory review (Chapter 3).
- Treatment of inflation in the pricing and indexation of the RAB—the QCA proposes to use forecast inflation to index the RAB rather than use actual inflation on an *ex post* basis (Chapter 4).
- Rate of return—the QCA's WACC of 5.41%¹ compared with Aurizon Network's proposed 6.78% (Post-tax nominal). The draft decision presents the findings of the QCA's investigation into various WACC parameters, including assessing certain MRP estimates on a 4-year risk-free rate rather than a 10-year

¹ Annexure 1 (UT5 allowable revenue inputs—Excel Format) is part of this draft decision and provides the specific calculations used in the financial modelling to determine reference tariffs and allowable revenues. As such, figures in this draft decision have been rounded solely for presentational purposes.

rate basis. Stakeholders may also wish to comment in response to Aurizon Network's WACC material that was submitted after the stated deadline for submissions, as this is the first opportunity to do so (Chapter 5).

- Volume forecasts—there is a material difference between Aurizon Network's and the QCA's forecasts. While the QCA has taken into account improved market conditions, interested parties may seek to provide additional information in relation to these matters (Chapter 6).
- Operating cost allowance—allocation of shared IT costs, and non-coal allocations for operating costs (see Chapter 7).
- Maintenance cost allowance—The QCA proposes to use financial year 2016–17 (FY2017) as the base year for most cost items and has also proposed an incentive-based 2 per cent per annum efficiency target from FY2019 to FY2021 inclusive (Chapter 8).
- Incentivising Aurizon Network—to make operational improvements to avoid unnecessary investments (Chapter 17).
- Network development and expansions—The QCA proposes Aurizon Network be held accountable for capacity shortfalls that have arisen as a result of an Aurizon Network default or negligent act (Chapter 18).
- Network development and expansions—The QCA is seeking stakeholder views as to whether the expansion framework proposed in the 2017 DAU adequately accounts for the value placed by access seekers on non-price terms and conditions (Chapter 18).
- Network development and expansions—The QCA proposes a clear process for the development of SUFA, including a means by which the QCA ensures that the process is ultimately implemented (Chapter 18).

These views will assist the QCA in making its forthcoming final decision on Aurizon Network's 2017 DAU, including where additional information or justification may be necessary.

Opportunities for efficiency sharing to promote productivity and innovation

In addition to the abovementioned matters, the QCA is interested in stakeholder views on the opportunities for efficiency sharing within the regulatory framework.

Aurizon has embarked on a broad program of organisational change, which has delivered significant savings to the Aurizon Group. The QCA is encouraged by the results of these transformation initiatives, and Aurizon Network's outperformance of approved allowances, particularly operating costs, during the 2016 Undertaking period. This program of transformation is ongoing, and is expected to deliver further cost savings to the business.

Under the current form of regulation, Aurizon Network retains the full benefit of outperforming its regulatory approved expenditure allowances. This presents Aurizon Network with strong incentives to reduce costs, but also incentives to overstate regulatory forecasts (in particular, where base year costs are used in forecasting). Efficiency benefit sharing arrangements are one regulatory mechanism designed to present more balanced and continuous incentives, by sharing some portion of efficiency gains with customers. Such arrangements are well established in electricity network and water regulatory frameworks, and have also been applied to rail network regulation, including in the United Kingdom.²

² Office of Rail and Road 2016: 45.

The QCA considers there may be opportunities to develop incentives that encourage Aurizon Network and its customers to work together to realise efficiencies and cost savings, while preserving the service level standards expected when obtaining access to the declared service.

While not a feature of Aurizon Network's 2017 DAU proposal, we encourage Aurizon Network to consider—in collaboration with customers—ways in which efficiencies might be fairly shared, while presenting Aurizon Network with effective and balanced incentives.

The QCA would welcome proposals for the sharing of efficiency gains.

EXECUTIVE SUMMARY

The QCA's draft decision proposes to refuse to approve Aurizon Network's 2017 DAU.

Part A - Risk, revenues and reference tariffs

Aurizon Network's 2017 DAU proposed allowable revenues for coal-carrying train services are based on the building block components outlined in the table below. Aurizon Network proposed total allowable revenue over the UT5 regulatory period of \$4,892 million. The QCA estimates a total allowable revenue of \$3,893 million over the UT5 period. The reduction in the total allowable revenue over the UT5 undertaking period of \$999 million, is outlined in this draft decision.

The QCA's assessment of allowable revenues is set out in the table below.

Table 1 Aurizon Network's 2017 DAU allowable revenue (\$'million, nominal)

<i>Building block</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total (QCA)</i>	<i>Total (AN proposed)</i>
Return on capital	325	324	321	318	1,289	1,592
Depreciation (less inflation)	217	217	229	236	899	1,141
Maintenance expenditure	202	203	207	205	817	921
Operating expenditure	179	184	188	192	743	855
Tax	30	34	37	39	141	328
Sub-total	954	961	983	991	3,888	4,838
2016 Undertaking capital carryover account	1	1	1	1	5	54
Total UT5 undertaking period ³	955	962	984	992	3,893	4,892

The key elements of the building blocks model used for deriving the QCA's approved allowable revenues and reference tariffs are discussed briefly below.

The regulatory asset base and depreciation (Chapter 3)

Aurizon Network proposed an opening RAB of \$5,952 million. We have adjusted Aurizon Network's opening RAB to reflect updated capital expenditure and indexation since the 2017 DAU was submitted, resulting in an opening RAB of \$5,900 million. The QCA also proposes adjustments to the 2016 Undertaking capital carryover amount.

Aurizon Network proposed that revenue deferrals be discontinued in WIRP Blackwater, but suggested deferrals remain in place for WIRP Moura and NAPE. The QCA is minded to accept this proposal but seeks further stakeholder comment on how costs should be allocated amongst affected WIRP users.

The capital indicator for forecast capital expenditure, which is subject to annual *ex post* approval by the QCA, is proposed to be approved for the UT5 undertaking period. However, to provide greater certainty and an incentive framework for Aurizon Network, the QCA suggests an *ex ante* assessment process for renewals capital expenditure be developed for future regulatory periods. Views on this proposal are sought from interested parties.

³ Excludes revenue-cap adjustments and cost pass-through applications.

Forecast inflation and RAB indexation (Chapter 4)

To forecast inflation, Aurizon Network proposed an indexed bond approach based on the difference between inflation indexed bonds and nominal bonds. This gave a forecast inflation rate of 1.22 per cent. The QCA considers that the approach of using RBA forecasts where available and the mid-point of the RBA target band in later years provides for the best unbiased forecast. This method resulted in an inflation forecast of an average 2.37 per cent for the regulatory period.

The QCA proposes to approve Aurizon Network's proposal that the same forecast rate of inflation be used to index the RAB forward as used to deduct inflationary gain from the nominal revenues, but seeks further stakeholder comment on this proposal.

Rate of return (Chapter 5)

Aurizon Network proposed a nominal post-tax WACC of 6.78 per cent in its 2017 DAU. The QCA proposes a WACC of 5.41 per cent nominal post-tax.⁴ The key parameters underlying this decision are:

- Risk-free rate—Based on Aurizon Network's proposed averaging period (June 2017), we have estimated a risk-free rate of 1.9 per cent.
- Market risk premium—Aurizon Network proposed a MRP of 7 per cent (increased to 7.5 per cent in its late submission). The QCA accepts the 2017 DAU proposal of 7 per cent, but notes that the QCA's estimation method varies from that used by Aurizon Network. In a departure from previous practice, the QCA considered MRP estimates on a 4-year risk-free rate rather than a 10-year rate.
- Equity beta—Aurizon Network proposed an asset beta of 0.55 and an equity beta of 1.0 based on a North American pipelines sample. The QCA used advice from Incenta indicating that an asset beta of 0.42 and an equity beta of 0.73 is appropriate.
- Capital structure and credit rating—The QCA agreed with the capital structure proposed by Aurizon Network of 55% debt to 45% equity and a credit rating of BBB+.
- Debt risk premium—Aurizon Network's 2017 DAU proposed an indicative cost of debt of 4.86 per cent, using a debt risk premium of 2.47 per cent and additional costs equivalent to 0.26 per cent. Our analysis shows a cost of debt as at June 2017 of 4.13 per cent, based on a debt risk premium of 2 per cent, with additional costs of 0.23 per cent.
- Gamma—Aurizon Network proposed a gamma of 0.25. The QCA's investigation supports a gamma of 0.46.

Volumes (Chapter 6)

The QCA considers that Aurizon Network's volume forecasts were overly conservative in the current coal market environment. Aurizon Network forecast 225.7 mt for 2017-18 rising to 228.4 mt in 2020-21.

On the basis that a number of mines are likely to be coming back into production from care and maintenance, or are expanding operations, the QCA proposes higher volumes in the draft decision, ranging from 235.4 mt in 2017-18 to 264.3 mt in 2020-21.

Operating cost allowance (Chapter 7)

The QCA's draft decision proposes an efficient operating expenditure allowance of \$743 million, compared with the \$855 million proposed by Aurizon Network in its 2017 DAU.

⁴ Annexure 1 (UT5 allowable revenue inputs—Excel Format) is part of this draft decision and provides the specific calculations used in the financial modelling to determine reference tariffs and allowable revenues. As such, figures in this draft decision have been rounded solely for presentational purposes.

Our analysis adopted 2015–16 as the appropriate forecasting base year, rather than 2014–15. In addition, cost reductions arose due to changes in cost allocations, for example, decreasing the below-rail allocation of Network Finance costs from 100 per cent to 90 per cent, and increasing the allocation of costs to non-coal-carrying train services for 'Network Train Operations' from 2 per cent to 12 per cent. We also propose reducing overheads for corporate accommodation and shared IT services.

Aurizon Network's 2017 DAU also included proposed reference tariff components to recover the costs of providing electricity to electric traction customers. These costs have increased significantly since Aurizon Network submitted its 2017 DAU. We have accepted an updated electric energy cost projection from Aurizon Network, noting that its approach to purchasing electric energy has the endorsement of industry, and costs are subject to a symmetrical *ex-post* true-up under Aurizon Network's 2017 DAU.

Maintenance cost allowance (Chapter 8)

Stakeholders were particularly concerned about the lack of transparency around Aurizon Network's maintenance cost proposal. The QCA appointed GHD to review Aurizon Network's maintenance cost categories and sought further input from B&H Strategic Services. The QCA's assessment is to reduce the maintenance cost allowance from \$921 million to \$817 million, an 11 per cent reduction, for the UT5 period.

The QCA's advice is that efficiency gains of 3 per cent per year of total maintenance costs for each year of the UT5 period are achievable. However, the QCA proposes to incorporate only a 2 per cent reduction per year, starting from FY2019 to FY2021, this gives Aurizon Network an incentive to outperform and retain any benefits of this outperformance within the regulatory period.

The QCA proposes to accept Aurizon Network's maintenance cost index (MCI) but based on a different methodology.

Schedule F - Reference tariffs and take-or-pay (Chapter 9)

The QCA proposes amendments to Schedule F of Aurizon Network's 2017 DAU to clarify the annual QCA process for approving the EC component of reference tariffs and the calculation of allowable revenue to reflect differences between actual and forecast wage price inflation (WPI). Broadly, the QCA proposes to accept Aurizon Network's proposals for determining reference tariffs.

Overview

Taken together, the QCA's draft decision is that the QCA's proposed allowable revenues and reference tariffs are consistent with the legitimate business interests of Aurizon Network (s. 138(2)(b)) while also recognising the interests of access seekers and access holders (s.138(2)(e) and (h)). The regulated rate of return is appropriate in current market circumstances and should promote efficient investment in significant infrastructure (s. 138(2)(a)) and provide a return commensurate with the regulatory and commercial risks involved (s. 138(2)(g)).

Part B - Draft access undertaking provisions

Part 1: Preamble (Chapter 11) and Part 2: Intent and Scope (Chapter 11)

The QCA proposes amendments to Part 1 and Part 2 of Aurizon Network's 2017 DAU, including details as to the circumstances in which the UT5 undertaking was submitted and ultimately approved as well as clarifications of the definition of the 'Terminating Date' so that it is clear that the UT5 undertaking will continue to apply if the Minister makes a new declaration in relation to all or part of the relevant service, and updating the definition of the 'Adjustment Date' to 1 July 2017 and clarify the operation of the terminating date provisions.

Part 3: Ring-fencing (Chapter 12)

The QCA considers that it is appropriate to approve Part 3 ring-fencing arrangements and the Schedule D Ultimate Holding Company Support Deed of Aurizon Network's 2017 DAU.

Part 4: Negotiation Framework (Chapter 13)

The QCA considers that it is appropriate to approve Part 4 and associated Schedules, A, B, C, H and I of Aurizon Network's 2017 DAU. These provide a framework for the negotiation of access rights, which outlines key steps in the negotiation framework, including the access application, the indicative access proposal, dealing with multiple applications, and the negotiation process.

Part 5: Access Agreements (Chapter 14)

The QCA proposes amendments to incorporate consensus drafting agreed by Aurizon Network, the QRC and supported stakeholders that do not allow Aurizon Network the power to enforce certain relinquishments. The QCA also supports the consensus drafting amendments to the Standard Access Agreement in the 2017 DAU submitted by Aurizon Network. The QCA proposes amendments to Part 5 that are discussed in Chapter 21 relating to dispute matters. Apart from these matters, the QCA considers that it is appropriate to approve Part 5 and associated Schedules A, B, C, H, and I of Aurizon Network's 2017 DAU.

Part 6: Pricing principles (Chapter 15)

The QCA proposes amendments to Aurizon Network's 2017 DAU to incorporate consensus drafting developed as part of the collaborative submission process in respect of access conditions. A key amendment was to define access conditions in Part 12 to exclude minor amendments to the Standard Access Agreement. For example, minor variations to payment terms or amendments to insurance requirements.

Part 7: Available capacity allocation and management (Chapter 16)

The QCA proposes amendments to the 2017 DAU to incorporate consensus drafting developed as part of the collaborative submission process in respect of capacity relinquishment processes due to increased maximum payloads and transfers of access rights (including short-term transfers).

Part 7A: Capacity and supply chain management (Chapter 17)

The QCA proposes amendments to the 2017 DAU to incorporate consensus drafting developed as part of the collaborative submission process, including:

- Aurizon Network being required to participate in a supply chain group if it has the capacity to do so and if it considers the request is reasonable; and
- for a new category of capacity assessments to be undertaken annually for each coal system for information purposes, taking account of the operating mode of ports, planned maintenance of loading and unloading facilities and supply chain capability.

The QCA proposes amendments to the 2017 DAU to include transitional provisions in the event that the baseline capacity assessment is not completed under the 2016 Undertaking provisions, and for capacity deficits that access seekers are involved in decisions where relevant. Also, Aurizon Network must negotiate 'in good faith' with access holders and access seekers, and any disputes are to be resolved in accordance with Part 11.

The QCA also proposes amendments to the 2017 DAU for the annual capacity assessments to be subject to 'review' by an independent expert rather than an 'audit' as proposed by Aurizon Network. An audit process may not sufficiently provide certainty and credibility for access holders.

Part 8: Network development and Expansions (Chapter 18)

The QCA is minded to permit feasibility funders to adopt user funding for an expansion, even where Aurizon Network provides notice of its willingness to fund that expansion without access conditions.

The QCA's draft decision is to require that Aurizon Network be held accountable for capacity shortfalls that have arisen as a result of an Aurizon Network default or negligent act.

The QCA's draft decision is that Aurizon Network's 2017 DAU should include a clear process for the development of a SUFA, including a means by which the QCA ensures that the process is ultimately implemented.

Part 9: Connecting Private Infrastructure (Chapter 19)

The QCA proposes amendments to the 2017 DAU to incorporate consensus drafting agreed by Aurizon Network, the QRC and other stakeholders that require Aurizon Network to develop a new Standard Rail Connection Agreement.

The QCA proposes amendments to Aurizon Network's 2017 DAU to clarify that any proposed variation to these agreements that cannot be agreed is resolved by the parties entering into the Standard Connection Agreement or the Revised Standard Connection Agreement (as the case may be).

The QCA considers that it is appropriate to approve Schedule J of Aurizon Network's 2017 DAU containing the coal loss mitigation provisions (CLMPs).

Part 10: Reporting, compliance and audits (Chapter 20)

The QCA considers that it is appropriate to approve Part 10 reporting, compliance and audit arrangements of Aurizon Network's 2017 DAU.

Part 11: Dispute Resolution and Decision Making (Chapter 21)

The QCA proposes amendments to Aurizon Network's 2017 DAU to, amongst other things, allow parties to commence disputes in relation Aurizon Network's obligations under the undertaking, to filter out disputes that are vexatious or an abuse of process and require disputes arising in relation to particular matters which are expressly referred to in Part 11, to be resolved in accordance with Part 11.

The QCA's also proposes that before a determination by the QCA can commence, the parties must agree, in a legally binding way, to be bound by the outcome of the dispute, including agreeing to pay any costs ordered by the QCA.

1 PART A: RISK, REVENUES AND REFERENCE TARIFFS - OVERVIEW

Overview (Part A)

The 2017 DAU includes provisions relating to allowable revenues and reference tariffs to be recovered from coal-carrying train services.⁵ The QCA has considered all elements of Aurizon Network's proposed allowable revenues and reference tariffs in making this draft decision, and this chapter should be read in conjunction with related aspects of this draft decision.

1.1 Aurizon Network's 2017 DAU proposal

Aurizon Network's 2017 DAU proposed allowable revenues, and therefore reference tariffs, for coal-carrying train services are based on the building block components outlined in Table 2, and shown on an individual system basis in Table 3.⁶ This includes electric and non-electric allowable revenues.

Table 2 Aurizon Network's 2017 DAU proposed allowable revenue (\$'million, nominal)

<i>Building block</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Return on capital	409	402	395	386	1,592
Depreciation (less inflation)	284	281	289	287	1,141
Maintenance expenditure	221	225	235	240	921
Operating expenditure	206	211	217	221	855
Tax	78	81	85	85	328
Sub-total	1,198	1,201	1,220	1,219	4,838
2016 Undertaking capital carryover account ⁷	13	13	14	14	54
Total UT5 undertaking period ⁸	1,211	1,214	1,233	1,233	4,892

Table 3 Aurizon Network's 2017 DAU allowable revenue - by system (\$'million, nominal)

<i>System</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Blackwater System	544	540	539	542	2,165
GAPE System	157	157	153	152	619
Goonyella System	430	434	454	449	1,766
Moura System	46	47	48	49	191
Newlands System	34	37	38	41	150
Total UT5 undertaking period ⁹	1,211	1,214	1,233	1,233	4,892

⁵ The QCA's draft decision on other aspects of Aurizon Network's 2017 DAU are considered within Part B, 2017 DAU provisions.

⁶ Aurizon Network, sub. 1: 104-105.

⁷ This includes adjustments which relate to revenue differences derived from approved capital expenditure against the capital indicator included in the 2016 Undertaking.

⁸ Excludes revenue-cap adjustments and cost pass-through applications.

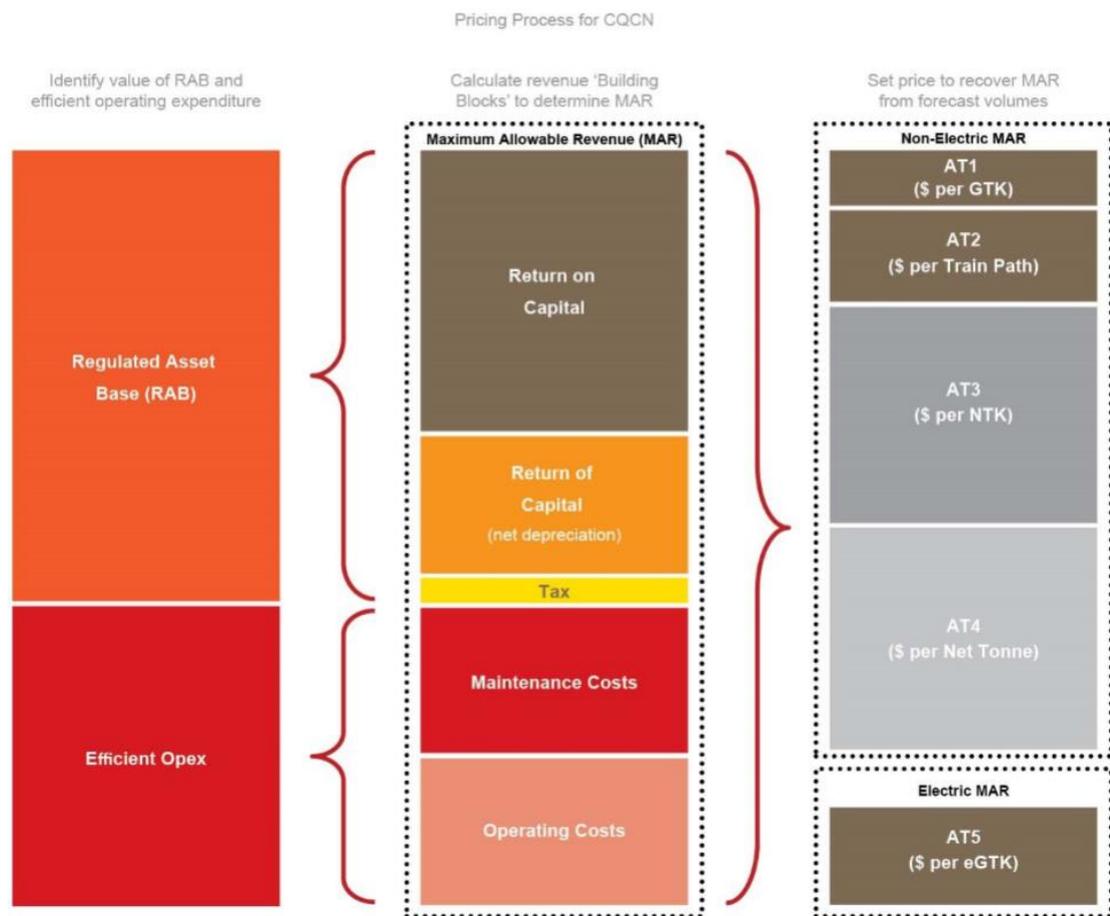
Notes: Numbers in the above tables may not sum due to rounding.

Aurizon Network submitted that the primary drivers of its 2017 DAU allowable revenues, compared to its 2016 Undertaking, related to:¹⁰

- A reduced total return on capital, with a lower WACC of 6.78 per cent offsetting the effects of an increased regulatory asset base due to the inclusion of expansion capital expenditure projects.
- An increase in depreciation, less indexation, arising from inclusion of expansion capital expenditure projects and a forecast rate of inflation of 1.22 per cent.
- Increased maintenance costs due to additional infrastructure to be maintained and investment in new, more efficient mechanised maintenance plant.
- A reduction in real terms in operating costs.
- An increase in tax (adjusted for imputation credits) due to a proposed gamma of 0.25.

Aurizon Network's 2017 DAU proposed allowable revenues and reference tariffs are based on a 'building block' approach, as shown in Figure 1.

Figure 1 Aurizon Network's building block and pricing approach



Source: Aurizon Network, sub. 1: 103.

⁹ Includes 2016 Undertaking capital carryover account adjustments and excludes revenue-cap adjustments and cost pass-through applications.

¹⁰ Aurizon Network, sub. 1: 104, 109-110.

QCA assessment approach

The QCA has assessed the various elements underpinning Aurizon Network's proposed building block components and related pricing process (Figure 1).

The QCA's draft decision on Aurizon Network's 2017 DAU proposed allowable revenues and reference tariffs has been informed by Aurizon Network's 2017 DAU proposal and supporting documentation; and assessment by independent consultants engaged by the QCA including Incenta Economic Consulting (Incenta), Capital Financial Consultants Ltd (Dr Martin Lally), Resource Management International (RMI), GHD, B&H Strategic Services and AECOM.

1.2 QCA analysis and draft decision

Summary of draft decision 1.1

- **The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to apply allowable revenues and reference tariffs as outlined in Appendix B of this draft decision.**
- **The proposed reduction in the total maximum allowable revenue over the UT5 undertaking period is \$999 million, for the reasons outlined in this draft decision.**

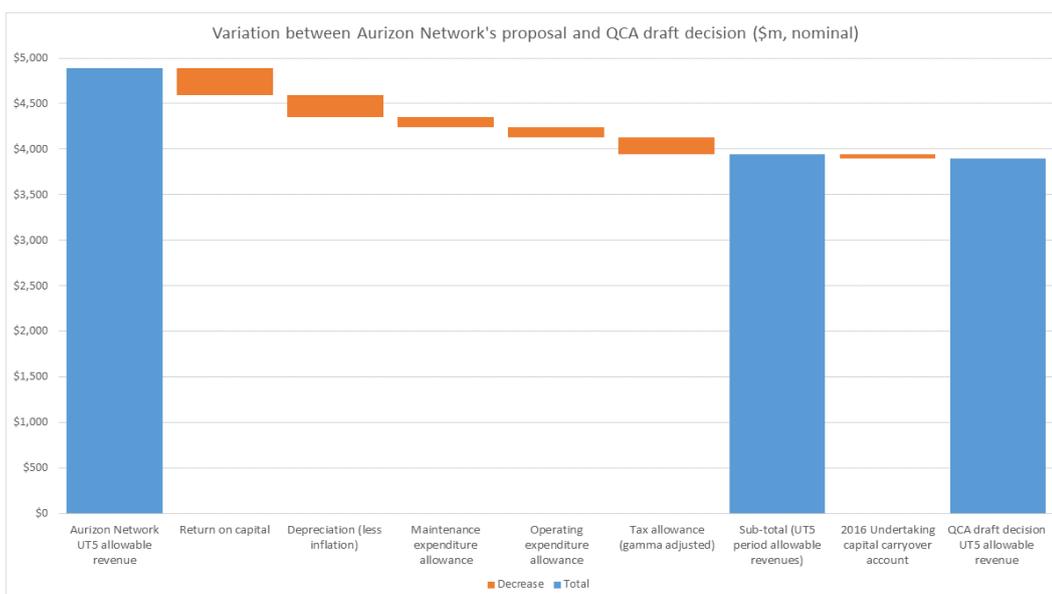
The QCA's draft decision is to refuse to approve the allowable revenue and reference tariffs as provided in Aurizon Network's 2017 DAU.

Based on the QCA's analysis as set out in the following chapters, the 2017 DAU should be amended to provide for a maximum allowable revenue of \$3.89 billion for the UT5 regulatory period.

The QCA's proposed total allowable revenue is around 20 per cent lower than the \$4.89 billion¹¹ proposed by Aurizon Network.

Key drivers for the QCA's draft decision compared to Aurizon Network's proposal

The QCA's investigation in Aurizon Network's 2017 DAU has resulted in the following proposed amendments that underpin the allowable revenue and reference tariffs.



¹¹ This relates to Aurizon Network's maximum allowable revenue estimate.

The key drivers of the difference between the QCA's draft decision and Aurizon Network's 2017 DAU proposal include:

- The QCA's draft decision proposing a WACC of 5.41 per cent, a reduction of over 20 per cent from that Aurizon Network's proposed 6.78 per cent (Chapter 5).
- The QCA's draft decision proposing a forecast inflation rate of 2.37 percent for the purposes of indexation of the regulatory asset base, and the corresponding inflationary gain deduction from the allowable revenue (Chapter 4).
- The QCA's draft decision proposing a reduction in Aurizon Network's proposed UT5 operating cost allowance of \$112 million and an increase in electric traction energy costs of \$71 million (Chapter 7).
- The QCA's draft decision proposing a reduction of Aurizon Network's proposed UT5 maintenance cost allowance by \$104 million (Chapter 8).
- The QCA's draft decision proposing annual forecast volumes of 236.1 million tonnes in 2017-18 increasing to 264 million tonnes in 2020-21, compared to Aurizon Network's proposed 225.7 million tonnes in 2017-18 rising to 228.4 million tonnes in 2020-21¹² (Chapter 6).

As noted in the analysis following, these differences take account of the object of Part 5 of the QCA Act (s 138(2)(a)) and the public interest (s 138(2)(d)); and balance the legitimate business interests of Aurizon Network (s. 138(2)(b)) with the interests of access seekers and access holders (ss. 138(2)(e) and (h)).

The QCA's draft decision considers in detail these matters, and this section should be read in conjunction with the entire draft decision document.

Summary of QCA proposed maximum allowable revenue

The QCA's proposed maximum allowable revenue is shown at Table 4

Table 4 QCA proposed allowable revenue (\$'million, nominal)

<i>Building block</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Return on capital	325	324	321	318	1,289
Depreciation (less inflation)	217	217	229	236	899
Maintenance expenditure	202	203	207	205	817
Operating expenditure	179	184	188	192	743
Tax	30	34	37	39	141
Sub-total	954	961	983	991	3,888
2016 Undertaking capital carryover account ¹³	1	1	1	1	5
Total UT5 undertaking period ¹⁴	955	962	984	992	3,893

¹² Aurizon Network's modelling included slightly different volume forecasts.

¹³ This includes adjustments which relate to revenue differences derived from approved capital expenditure against the capital indicator included in the 2016 Undertaking.

¹⁴ Excludes revenue-cap adjustments and cost pass-through applications.

Table 5 Aurizon Network's 2017 DAU allowable revenue - by system (\$'million, nominal)

<i>System</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Blackwater System	420	417	420	428	1,686
GAPE System	122	124	125	128	499
Goonyella System	345	349	363	357	1,414
Moura System	40	42	44	45	172
Newlands System	27	30	31	33	122
Total UT5 undertaking period ¹⁵	955	962	984	992	3,893

Notes: Numbers in the above tables may not sum due to rounding.

The QCA's proposed, for electric and non-electric maximum allowable revenues are shown Table 6 and Table 7 below.¹⁶

Table 6 QCA proposed maximum allowable revenue - non-electric (\$'000, nominal)

<i>Building block</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Return on capital (WACC)	286,159	285,111	283,323	280,889	1,135,482
Return of capital (depreciation)	319,736	318,521	327,630	331,884	1,297,771
Less Inflationary gain	(125,252)	(124,793)	(124,010)	(122,945)	(496,999)
Maintenance expenditure allowance	191,293	192,752	197,028	195,328	776,402
Operating expenditure allowance	106,380	109,329	112,926	116,623	445,258
Working capital	2,335	2,343	2,391	2,405	9,474
Tax allowance (gamma adjusted)	28,341	31,524	34,859	36,543	131,267
Total (unsmoothed) MAR	808,993	814,787	834,146	840,727	3,298,654
2016 Undertaking capital carryover account	(1,785)	(1,828)	(1,871)	(1,915)	(7,399)
Total (Adjusted) MAR	807,208	812,960	832,276	838,812	3,291,255

Table 7 QCA proposed maximum allowable revenue - electric assets (\$'000, nominal)

<i>Building block</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Return on capital (WACC)	36,542	35,876	35,159	34,348	141,924
Return of capital (depreciation)	38,458	39,093	40,540	42,021	160,112
Less Inflationary gain	(15,994)	(15,703)	(15,389)	(15,034)	(62,120)
Maintenance expenditure allowance	10,321	10,253	10,188	10,124	40,885
Operating expenditure allowance	72,902	74,281	75,296	75,307	297,786

¹⁵ Includes 2016 Undertaking capital carryover account adjustments and excludes revenue-cap adjustments and cost pass-through applications.

¹⁶ The 2016 Undertaking capital expenditure carryover account adjustment revenues are smoothed with a 2.37 per cent escalation factor (that is, using the forecast CPI, consistent with Aurizon Network's proposal) and applied over the UT5 undertaking period.

<i>Building block</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Working capital	427	431	437	440	1,736
Tax allowance (gamma adjusted)	1,877	2,126	2,452	2,832	9,287
Total (unsmoothed) MAR	145,189	147,003	149,319	150,673	589,610
2016 Undertaking capital carryover account	2,950	3,020	3,092	3,165	12,227
Total (Adjusted) MAR	148,139	150,023	152,411	153,838	601,837

A system by system breakdown is provided at Appendix C.

1.3 Modelling approach

Aurizon Network's 2017 DAU proposal

Aurizon Network's allowable revenues and reference tariffs are based on financial models that use the following assumptions:

- Start of year commissioning date applied for capital expenditure, for the purposes of calculation of depreciation
- Mid-year revenue timing
- Inclusion of a working capital allowance of around \$13 million.¹⁷

QCA analysis and draft decision

Summary of draft decision 1.2

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU modelling assumptions relating to commissioning dates, revenue timing and working capital allowance.**
- **The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking to determine reference tariffs and allowable revenues for the 2017 DAU period is to apply the working capital amounts shown in Table 6 and Table 7.**

The QCA's draft decision is to approve Aurizon Network's proposed modelling assumptions, on the basis that these parameters are consistent with regulatory practice. Stakeholders did not raise any concerns in submissions in relation to these matters.

The QCA accepts that working capital is required to conduct a business characterised by significant cash flow timing differences, and that Aurizon Network should be allowed to earn a return on this capital in a manner similar to investments in network assets. The QCA notes that the working capital allowance modelling assumption is consistent with approach used in Aurizon Network's 2016 Undertaking and no specific comments were received from stakeholders regarding the working capital allowance modelling assumption. The QCA estimated a total working capital allowance of \$11.2 million.

¹⁷ Aurizon Network, sub. 1: 6, 104, 112.

1.4 Approach to regulatory tax expenses and tax depreciation

Aurizon Network's 2017 DAU proposal

Aurizon Network's allowable revenues and reference tariffs are based on a tax allowance determined as the estimated cost of corporate income tax payable less the value of imputation credits. Tax payable is the annual revenue less annual tax expense, where tax expenses include:

- allowances for operating and maintenance costs;¹⁸
- interest tax expense, calculated using the benchmark gearing ratio and cost of debt;¹⁹ and
- tax depreciation relating to the regulatory asset base.

QCA analysis and draft decision

Summary of draft decision 1.3

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU approach to estimating tax expense and tax depreciation relating to the regulatory asset base.**
- **However, the QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to revise its proposed allowable revenues and reference tariffs based on tax expenses for the QCA's proposed allowances for operating and maintenance costs and interest tax expense, calculated using the approved benchmark gearing ratio and cost of debt.**

Stakeholders did not raise any concerns in submissions in relation to these matters.

The QCA has estimated forecast revenue and tax expenses for each year of the UT5 undertaking period as what the benchmark efficient entity would earn and spend for providing the below rail services. This should include the QCA's proposed allowances for operating and maintenance costs and interest tax expense, calculated using the approved benchmark gearing ratio and cost of debt. In line with the reduction in approved allowable revenues, the total tax amount is lower than proposed by Aurizon Network in the 2017 DAU.

The QCA accepts Aurizon Network's proposed tax depreciation as calculated using its tax asset base, standard tax asset lives and remaining tax asset lives for taxation purposes.

1.5 Reference tariff proposal

Aurizon Network's 2017 DAU proposal

Aurizon Network said its approach to reference tariffs, including tariff structure and calculation methodology, remains unchanged from the method used in its 2016 Undertaking, which was approved by the QCA. No smoothing factor has been applied to tariffs.

¹⁸ See Chapter 7, and 8 respectively.

¹⁹ See Chapter 5.

QCA analysis and draft decision

Summary of draft decision 1.4

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU tariff structure and calculation methodology to determine the reference tariff components.**
- **However, the QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to revise the reference tariffs, by system, based on the proposed allowable revenues and reference tariffs outlined in this draft decision.**

Aurizon Network did not propose changing the reference tariff structure in Schedule F of the 2017 DAU and stakeholders did not raise any concerns in submissions with Aurizon Network's approach. However, stakeholders raised concerns with Aurizon Network's proposed overall building block cost components that underpin its proposed allowable revenues and reference tariffs.

However, the QCA notes that the allocation of WIRP costs between WIRP users is different from that used in the 2016 Undertaking.

1.5.1 Aurizon Network's WIRP reference tariff proposal

Aurizon Network's approach to developing reference tariffs that relate to WIRP infrastructure investments is based on allocating related revenues to identified WIRP users based on WIRP pricing groups (see below table).²⁰ Aurizon Network's proposed pricing allocation methodology is a key driver of the price impact on these users.

Table 8 Aurizon Network's proposed WIRP pricing groups

<i>WIRP Pricing groups</i>	<i>Description</i>
WIRP Blackwater	Customers who have contracted Train Services under WIRP arrangements and are geographically located in the Blackwater System (excluding WIRP Rolleston)
WIRP Rolleston	New contracted Rolleston Train Services under WIRP arrangements
Existing Rolleston	Existing Rolleston Train Services (Gladstone Power Station), who have contracted Train Services under WIRP arrangements
WIRP Moura	Customers who have contracted Train Services under WIRP arrangements and are geographically located in the Moura System
WIRP NCL	A customer who has contracted Train Services under WIRP arrangements, originating from the Colton mine to WICET
Existing Blackwater	Customers geographically located in the Blackwater System, who have not contracted Train Services under WIRP arrangements
Existing Moura	Customers geographically located in the Moura System, who have not contracted Train Services under WIRP arrangements

Aurizon Network's WIRP pricing approach is based on the following steps.

- Aurizon Network allocating WIRP capital expenditure amongst the different WIRP pricing groups.

²⁰ Aurizon Network, sub. 1: 307-311.

- As Aurizon Network is not proposing to continue deferring the recovery of certain WIRP Blackwater revenues, this revenue is proposed to be recovered from different WIRP pricing groups based on WIRP contract positions of WIRP users that are forecast to rail during the UT5 period.
- The deferral relating to WIRP Blackwater is allocated among WIRP Blackwater, WIRP Rolleston and Existing Rolleston subgroups. No allocations have been made to Existing Blackwater users as this subgroup has no WIRP contractual obligations.
- Allocations of the WIRP balloon loop (including previous deferrals relating to WIRP Moura) are made to WIRP Blackwater, WIRP Rolleston and Existing Rolleston subgroups, as they are forecast to rail during the UT5 period.
- The socialisation tests have been applied for WIRP using Aurizon Network's forecast UT5 volumes together with the inclusion of the revenue deferrals to the relevant WIRP pricing groups. This determines whether the system reference tariff applies, or a system premium is applicable.

In principle, Aurizon Network's allocation approach is based on WIRP contract positions to the extent that WIRP users are forecast to rail during the UT5 period.

However, in March 2017, there was uncertainty as to whether Cook Colliery would continue to operate to WICET during the UT5 period as the mine owner Caledon entered into voluntary administration.²¹ Following the announcement by Caledon, Aurizon Network proposed no changes or amendments to its pricing proposal in subsequent correspondence with the QCA. Aurizon Network stated that any volume adjustment should be addressed through the QCA's review of volumes.²²

As outlined in Chapter 6, based on the information available at the time of this draft decision, the QCA considers it reasonable to not include Cook Colliery in volume forecasts for the UT5 regulatory period.²³

The impact of Aurizon Network's WIRP pricing proposal is that WIRP capital/revenues will be allocated to the remaining WIRP customer groups that are forecast to rail during the UT5 period.

The impact of Aurizon Network's allocations are shown in Table 9 below.

Table 9 Aurizon Network's proposed WIRP pricing approach, allocations (%)

<i>Non-electric</i>	<i>WIRP pricing groups</i>		
Capital expenditure to be allocated ¹	WIRP Blackwater	WIRP Rolleston	Existing Rolleston
WIRP balloon loop	15.8	64.5	19.7
Blackwater duplications	15.8	64.5	19.7
Bauhinia North		100	
North Coast Line	15.8	64.5	19.7

1. Note: Capex amounts allocated relate only to UT5 non-railers, that is UT4 deferrals and Caledon.

²¹ PPB Advisory, 2017.

²² Aurizon Network 2017, response to QCA request for information, 31 May 2017.

²³ The CQCN volume forecasts outlined in Table 44 do not include any railings from Cook Colliery.

The QCA notes that stakeholders may not have been aware of this issue and comments are sought from stakeholders on this particular aspect of the QCA's draft decision. In the absence of stakeholder comments on this issue, the QCA is minded to accept Aurizon Network's proposal of allocating costs as between WIRP users.

However, the QCA notes that an alternative approach could be identified to produce a more equitable outcome. In this regard, the QCA considers that affected WIRP users and Aurizon Network are best placed to consider alternative allocations, as between the WIRP users.

The QCA's draft decision is that Aurizon Network amend its 2017 DAU to revise the reference tariff rates, by system, based on the proposed allowable revenues outlined in this draft decision.

The QCA's proposed amendments to the reference tariff rates recognise Aurizon Network's legitimate business interests because they do not adversely affect Aurizon Network's ability to earn revenue that reflects its efficient costs and an appropriate rate of return (s. 138(2)(b) and (g)). Therefore, our proposed amendments to Aurizon Network's 2017 DAU appropriately balance the interests of Aurizon Network and access seekers and access holders under s. 138(2) of the QCA Act.

2 RISK AND THE REGULATORY FRAMEWORK

2.1 Aurizon Network's 2017 DAU proposal

Aurizon Network submitted that the inherent risks associated with managing Aurizon Network assets are higher than what the QCA has considered previously.²⁴ In particular, Aurizon Network considered that it did not have the same risk profile as a regulated utility and the QCA should take into account, amongst other things, its:

- (a) volatile operating environment, including increased counterparty risk and long-term structural issues for thermal coal
- (b) relatively small customer base, with all customers being exposed to a single asset class (coal), and network characteristics that result in an increased risk of asset stranding
- (c) exposure to revenue/capital deferrals where volume ramp-up is not aligned with customer expectations.²⁵

Aurizon Network considered that if it is provided with a lower regulated return than proposed in its 2017 DAU submission, its regulatory arrangements must be adjusted such that the commercial and regulatory risks flowing from these arrangements are reduced accordingly.²⁶

QCA analysis and draft decision

Summary of draft decision 2.1

- **The QCA has given consideration to Aurizon Network's exposure to risk, including how risk is addressed within the regulatory framework and its 2017 DAU. This includes an assessment of the various risk mitigation, allocation and compensation arrangements proposed within Aurizon Network's 2017 DAU.**
- **The QCA's draft decision provides Aurizon Network with a return on investment commensurate with the regulatory and commercial risks related to the provision of access to the declared service.**

Aurizon Network's exposure to risk is an important consideration in determining an appropriate access undertaking for the declared service. Aurizon Network will inevitably be exposed to risk in its role of providing access to the declared service.

In considering all aspects of Aurizon Network's 2017 DAU afresh, the QCA's draft decision has given consideration to Aurizon Network's exposure to risk, including the appropriate mitigation, allocation and compensation for risk within the regulatory framework—as proposed by Aurizon Network in its 2017 DAU. In this way, the QCA's draft decision provides Aurizon Network with a return on investment commensurate with the regulatory and commercial risks associated with providing access to the declared service.

The identification of a risk *per se* is not sufficient grounds to receive compensation. An access provider should not be compensated to the extent risk is mitigated or allocated to another party. Moreover, an access provider should not be compensated for its own inefficiency or negligence.

²⁴ Aurizon Network, sub. 1: 2.

²⁵ See Chapter 3 for the QCA's draft decision on WIRP deferral matters.

²⁶ Aurizon Network, sub. 1: 2.

In examining Aurizon Network's risks associated with the provision of the declared service, the QCA considers:

- (a) Aurizon Network's exposure to volatile market conditions and short-term counterparty risk is addressed by the regulatory arrangements. The regulatory framework and characteristic of the CQCN coal haulage market allocates short-term demand risk to other parties in the industry.
- (b) Based on the evidence provided, there is no apparent structural decline in demand for coal from central Queensland. The measures proposed by Aurizon Network in the 2017 DAU, combined with the medium- to long-term market outlook for coal, and the highly competitive position of Queensland coal producers, means that Aurizon Network's asset stranding risk is minimal.
- (c) This draft decision does not provide investors with uncertainty as to when deferred capital will be recovered. The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposal to not defer WIRP capital relating to the Blackwater System. The QCA's draft decision on deferrals is outlined in Chapter 3.

Throughout this draft decision, the QCA has examined all elements of Aurizon Network's 2017 DAU proposal in considering the regulatory and commercial risks faced by Aurizon Network. In particular, the QCA's consideration of the appropriate regulatory rate of return for the UT5 regulatory period is outlined in Chapter 5.

In considering Aurizon Network's exposure to risk, amongst other things, the QCA has examined:

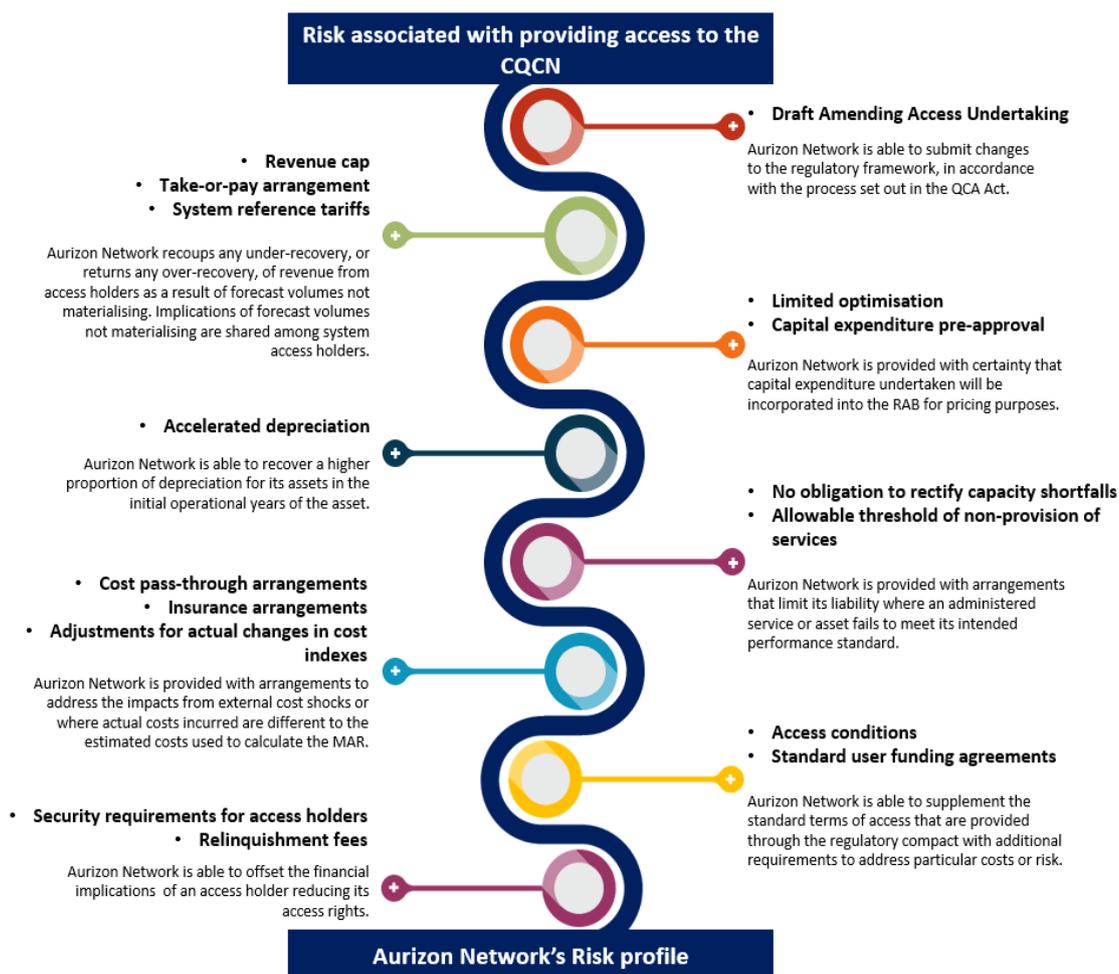
- factors affecting Aurizon Networks exposure to risk—including the way in which risk is addressed within Aurizon Network's 2017 DAU and the characteristics of the CQCN coal haulage market (see section 2.2)
- stakeholder submissions relating to Aurizon Network's exposure to risk (see section 2.3).

Obviously, the QCA is open to considering proposals from Aurizon Network that would increase its exposure to risk that would justify an increase to the appropriate regulatory rate of return.

2.2 Overview of factors affecting Aurizon Network's exposure to risk

Aurizon Network operates within a stable and well-established regulatory framework. Risk is accounted for within QCA decisions through the consideration of Aurizon Network's reference tariffs and allowable revenues; contractual terms specified in standard agreements; provisions within Aurizon Network's access undertaking; and other mechanisms within the QCA Act.

The regulatory framework contains various risk allocation, mitigation and compensation mechanisms (Figure 2).

Figure 2 Risk and the regulatory framework—Aurizon Network

Note: This summary is not intended to be an exhaustive list of how risk is addressed in the regulatory framework.

Additionally, Aurizon Network's exposure to risk will be affected by the characteristics of the market in which Aurizon Network operates.

The QCA's draft decision on the regulatory rate of return is commensurate with Aurizon Network's exposure to its commercial and regulatory risks, particularly given the way in which risk is addressed in the regulatory framework. As such, the QCA does not consider adjustments to Aurizon Network's regulatory framework are required to reduce Aurizon Network's exposure to commercial and regulatory risks.

In light of the above, the following sections outline the extent to which Aurizon Network's regulatory framework, as well as the characteristics of the market in which it operates, affect Aurizon Network's exposure to:

- volatile market conditions and counterparty risk (see section 2.2.1)
- a long-term structural decline in demand for coal from the CQCN (see section 2.2.2)
- revenue/capital deferrals (see section 2.2.3).

2.2.1 Aurizon Network's exposure to volatile market conditions and counterparty risk

Stable and predictable returns

The regulatory regime provides Aurizon Network with stable regulatory returns during the regulatory period. As recognised by Aurizon Network:

Aurizon Network's regulated revenue is protected through a combination of contractual and regulatory mechanisms that are included in the Access Undertaking and access agreements.²⁷

This is largely due to the way in which the regulatory framework mitigates and allocates risk. For instance, where an allowable revenue shortfall occurs, Aurizon Network has:

- take-or-pay mechanisms—enabling Aurizon Network to recover a revenue shortfall directly from an access holder
- revenue cap mechanism—if the take or pay mechanisms do not recover a revenue shortfall, the revenue cap mechanism allows the revenue shortfall to be recovered two years later through reference tariffs
- system reference tariffs—if an access holder counterparty fails, system reference tariffs recover the system allowable revenue from the remaining users within that system, thereby socialising counterparty risk among the users in that system.

In combination, these features enable Aurizon Network to earn its allowable revenues from access holders, irrespective of the cyclical price/market conditions that affect the seaborne coal market.

Diversified and resilient customer base

Aurizon Network's regulatory framework, combined with its market position as the sole below-rail service provider, means that it is not exposed to risk in the same manner as other industry participants. The risks facing individual customers of Aurizon Network are not indicative of the extent to which Aurizon Network is exposed to the cyclical nature of the industry, whether through volume risk or counterparty risk.

Mines in the CQCN are operated by a diversified group of coal producers. Resource Management International (RMI)²⁸ reported that while some mines were placed into care and maintenance, the net impact of this loss of production was more than offset by productivity improvements at other operating mines.²⁹

RMI stated that the CQCN has shown resilience in the face of difficult and volatile seaborne coal prices over the last five years, continuing to demonstrate consistent annual growth in coal exports and railings.³⁰

The Queensland coal industry has performed very well in terms of annual coal exports over the last 5 years despite severe volatility in both coking and thermal coal prices. (Resource Management International 2017: 10)

The QCA notes that despite lower coal prices in recent years, the CQCN has continued to demonstrate consistent annual growth in coal exports, except for the recent flood events in FY2017 (see Figure 3).

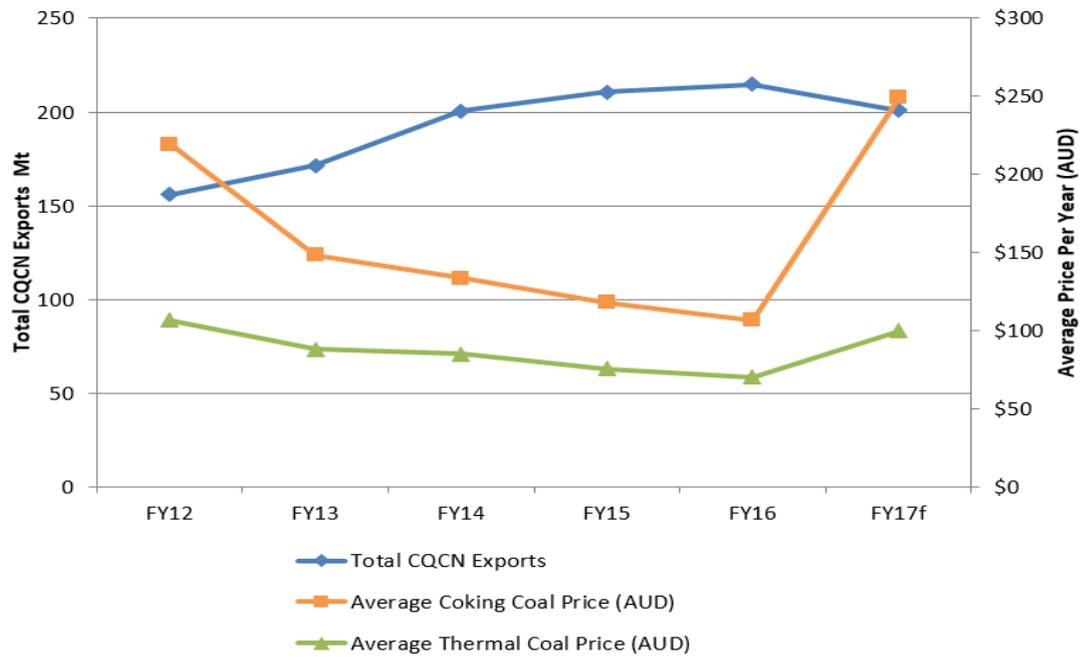
²⁷ Aurizon Network 2017h: 16.

²⁸ The QCA engaged Resource Management International (RMI) to advise the QCA on the reasonableness of Aurizon Network's coal volume forecasts for the UT5 regulatory period. This report is available on the QCA website (see Resource Management International 2017).

²⁹ Resource Management International 2017: 11.

³⁰ Resource Management International 2017: 4.

Figure 3 CQCN coal exports vs coal prices



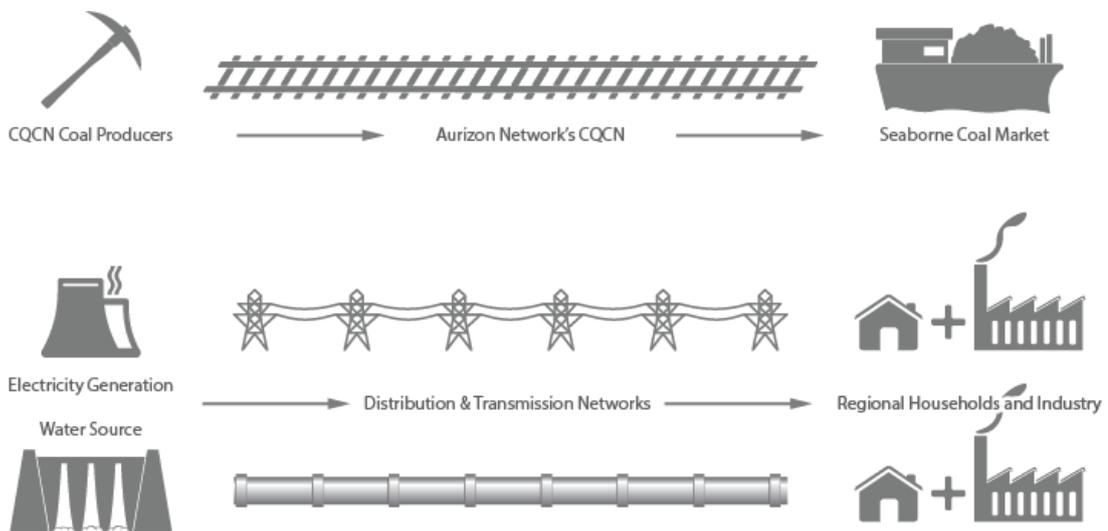
Source: Resource Management International 2017, QCA analysis.

Counterparty risk mitigated by product demand

As for network providers in other industries, counterparty risk for Aurizon Network must be considered in relation to the underlying drivers for demand in the relevant market—in this instance, the seaborne coal market (Figure 4).

Fundamentally, the competitiveness of coal producers in the CQCN to supply the seaborne coal market with the product that is demanded by end customers will determine Aurizon Network’s exposure to risk in the longer term. While the ownership structure of coal producers may change as a result of firm-specific factors, coal haulage services will be sustained as long as the demand for the output of the mines remains.

Figure 4 Underlying drivers for demand for Aurizon Network and other network industries



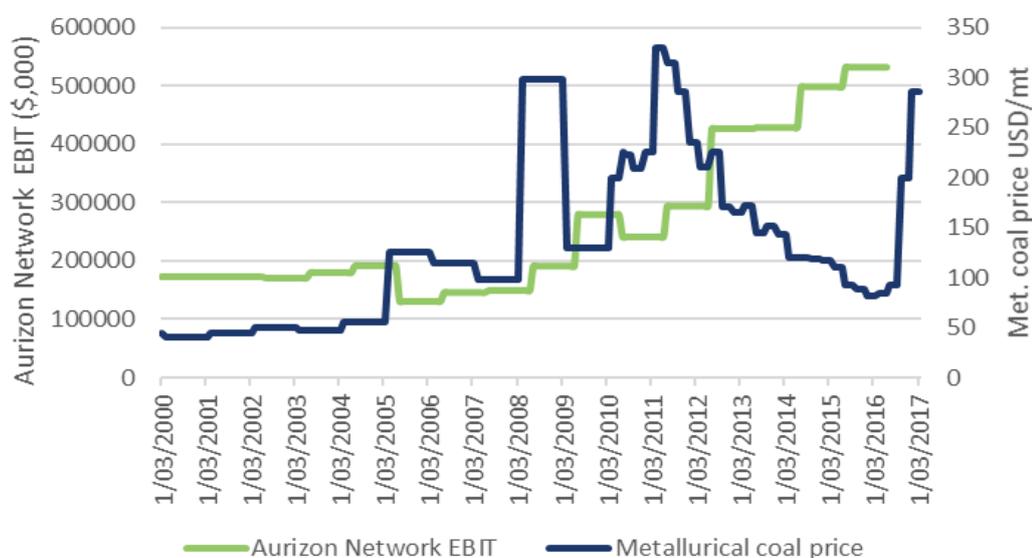
As discussed below, the attributes of the CQCN, along with the long-term outlook for seaborne coal markets, support the ongoing long-term demand for CQCN coal exports.

Relevantly, RMI forecasts that seaborne coal demand is likely to grow steadily for the UT5 regulatory period, with a number of mines on care and maintenance to reopen and recommence production (see Chapter 6).

Limited exposure to coal price/market cycles and cost pass-through events

Aurizon Network's EBIT has not been adversely affected by export coal price fluctuations. Figure 5 shows how Aurizon Network's earnings have been insulated from significant fluctuations in metallurgical coal prices.

Figure 5 Aurizon Network EBIT versus the metallurgical coal price, 2000-17



Source: Incenta Economics Report 2017.

Aurizon Network's regulatory framework mitigates Aurizon Network's exposure to coal price volatility.

Furthermore, cost pass-through arrangements within the proposed regulatory framework allocate the risk of cost variations to access holders. Aurizon Network may submit a variation to a reference tariff to recover those costs that are beyond Aurizon Network's control and are associated with an endorsed variation event (e.g. costs associated with a change in law or relevant taxes, the pricing of electricity and the QCA levy) and a review event (costs associated with force majeure events). Indeed, Aurizon Network has submitted adjustments to the reference tariffs to recover the incremental costs associated with previous flood recovery efforts (Table 10).

Table 10 Aurizon Network expenditure claims resulting from tropical cyclones (\$ million)

Cyclone event	Year	Opex claim	Capex claim	Status of claim
Oswald	2013	16.1	2.1	Expenditure approved 2014.
Marcia	2015	4.0	4.4	Opex approved 2016; capital expenditure under review.
Debbie	2017	16.9	TBA	Opex submitted to QCA for approval.

Source: Aurizon Network 2017g: 36.

2.2.2 Aurizon Network's exposure to a long-term structural decline in demand for coal from the CQCN

System reference tariffs provide for efficient investment

Aurizon Network argued that the system-based regulated asset base (RAB) results in an increased risk of asset stranding.

System reference tariffs and allowable revenues, as proposed by Aurizon Network's 2017 DAU, are determined based on individual coal systems, where such systems are readily apparent due to the mostly separable nature of the assets, operating mode and costs as well as the origin–destination combinations of traffic.

The various systems themselves reflect historical investment decisions and price/service quality trade-offs. For example, each system has different below-rail transit times that highlights the service quality trade-offs. Overall, the supply chains are not homogenous.

A system reference tariff approach provides appropriate pricing signals to guide decision-making on the use of existing resources as well as investment in new capacity or operational improvements. This should minimise the risk of inefficient investments and operational practices, as they need to be cost-reflective and responsive to the needs of the operators/users in that system.

Long-term demand for the output of the CQCN

The continued competitiveness of producers to supply the market will be a key determinant of sustained demand for coal haulage services in the CQCN. In this respect, the QCA notes that the long-term outlook for seaborne coal markets supports the ongoing long-term demand for CQCN coal exports. RMI considers that long-term seaborne demand for coal in the ASEAN region including India, South East Asia and the Middle East will be strong and positive for coal producers in Australia. This long-term market outlook was outlined by Aurizon Network in its 2017 DAU:

Aurizon Network expects there will be an on-going long term demand for the output of the Central Queensland coal market due to the quality of coal reserves, cost competitiveness, proximity to end markets and access to reliable world class infrastructure.³¹

The characteristics of the CQCN coal market also support this positive market outlook. Queensland-based exporters are generally at the low-cost to mid-cost end of the seaborne coal export cost curve (Figure 6). As noted by Aurizon Network, Queensland's metallurgical coal production remains highly competitive, positioned amongst producers with the highest cash margins.³²

In addition to coal producers' competitiveness on a cost basis, the CQCN produces some of the highest quality metallurgical and thermal coal, which is highly sought after in the seaborne coal markets.

As outlined by RMI, Australian coking coals have premium coking strength properties compared to most high ash Chinese and Indian coking coals and the Australian thermal coals are

³¹ Aurizon Network, sub. 1: 20.

³² Aurizon Network 2017h: 28.

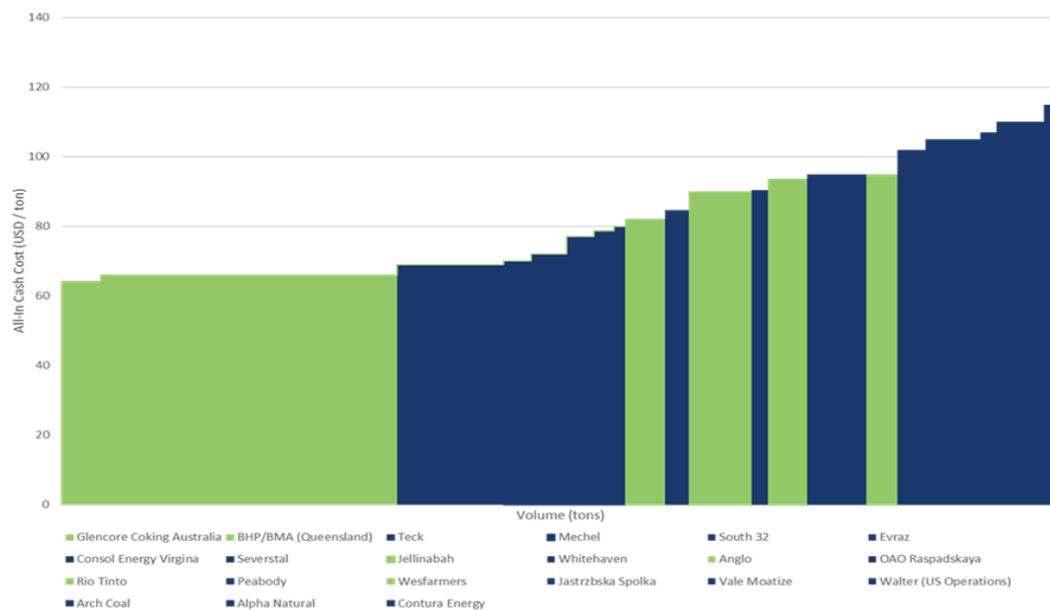
increasingly sought after by companies constructing HELE power stations in India, Vietnam, Thailand, Malaysia, Egypt and Pakistan.³³

This was also acknowledged by Aurizon Network:

Premium products and achieved cost reductions place Queensland mines in the top two quartiles of the global seaborne metallurgical coal margin curve.³⁴

Where coal-fired generation continues to expand, it is important that the highest quality coal is used to reduce emissions. The coal Aurizon hauls has higher energy and lower ash content than most other sources of seaborne thermal coal.³⁵

Figure 6 Seaborne metallurgical coal exports all-in cost curve



Source: *Incenta Economics report 2017*.

Furthermore, the large reserves in the CQCN support a long-term production life for coal producers to supply the seaborne coal markets in the foreseeable future. RMI reported that all Central Queensland mines have more than adequate JORC defined reserves and resources to support the forecast demand to well beyond FY21. The long-term production life in the CQCN was also recognised by Aurizon Network:

Large reserves support production life in excess of 15 years on average for existing operations, with resources supporting an additional ~30 years of production.³⁶

Mitigating Aurizon Network’s exposure to demand deterioration

In addition to the market outlook and characteristics that support the competitiveness of coal producers in the CQCN, the regulatory framework provides Aurizon Network with mechanisms that mitigate its exposure to the risk of demand deterioration. These include:

³³ Resource Management International 2017: 12.

³⁴ Aurizon Network 2017h: 15.

³⁵ Aurizon Holdings 2017e.

³⁶ Aurizon Network 2017h: 13.

- accelerated depreciation—Aurizon Network is able to recover a greater proportion of the depreciation of its assets during the initial years of the asset life for investments made after 2009, as well as truncated asset lives implemented in the 2006 Undertaking
- access conditions—Aurizon Network has the ability to seek access conditions for expansion projects
- limited optimisation—mitigates the risk that capital expenditure previously undertaken by Aurizon Network is not included in the RAB used for pricing purposes
- security requirements for access holders and relinquishment fees—offsets the financial impact of an access holder reducing its access rights.

The QCA considers that because of the measures proposed by Aurizon Network in the 2017 DAU, combined with the medium- to long-term market outlook for coal, and the highly competitive position of Queensland coal producers, Aurizon Network’s asset stranding risk is minimal.

2.2.3 Aurizon Network’s exposure to revenue/capital deferrals

The QCA’s draft decision is that Aurizon Network is entitled to recover its WIRP investment, as this is commensurate with the regulatory and commercial risks that Aurizon Network has assumed, including the additional risks accepted as part of the access conditions for its WIRP investment. In forming this view, the QCA considers that Aurizon Network has been compensated, in terms of the WIRP fee arrangements, for assuming the asset stranding risks associated with its WIRP investment, as proposed in the access conditions report for the WIRP investment.³⁷ This matter is discussed further in Chapter 3.

2.3 Stakeholder submissions

Specific stakeholder submissions relating to Aurizon Network’s exposure to risk are outlined and considered in Table 11.

Table 11 Stakeholder submissions relating to Aurizon Network’s exposure to risk

<i>Submission</i>	<i>QCA response</i>
<i>Exposure to volatility in coal markets and short-term counterparty risk</i>	
Aurizon Network submitted that the global coal market has been subject to cyclical market conditions characterised by a sustained decline and significant volatility in coal prices since 2009. Aurizon Network outlined key drivers for volatility in the metallurgical and thermal coal markets that are further discussed in Chapter 6. Aurizon Network considered that this volatility in coal prices highlights the uncertain and inherently volatile nature of the coal market. ³⁸	The QCA acknowledges that the seaborne coal market has experienced price volatility in recent times. However, the key consideration is the extent to which Aurizon Network is exposed to such volatility. The regulatory framework and characteristic of the CQCN coal haulage market allocates short-term demand risk to other parties in the industry. Additionally, the competitiveness of coal producers in the CQCN to supply the seaborne coal market limits Aurizon Network’s exposure to demand and counterparty risk to market volatility.
The QRC submitted that Aurizon Network faces little if any risk after taking into account the various risk mitigation measures and the low risk profile inherent in its commercial position as a	Aurizon Network will inevitably be exposed to risk in its role of providing access to the declared service. However, the QCA notes that the regulatory framework and characteristic of the CQCN coal haulage market limits Aurizon Network’s

³⁷ QR 2011. For instance, other risks assumed by Aurizon Network include site remediation costs. These additional risks are outlined in the relevant Access Conditions Report.

³⁸ Aurizon Network, sub. 1: 16, 245; sub. 21: 248.

Submission	QCA response
<p>monopoly infrastructure provider to customers who have made significant sunk investments. The QRC considered the regulatory environment has made Aurizon Network immune to any perceived risks relating to the coal market.³⁹</p> <p>The QRC submitted that while there have been some evident fluctuations in the price of coal, the utilisation of CQCN has not been adversely impacted. The QRC presented figures, which were included in Aurizon Holdings' investor presentation, showing that metallurgical and thermal coal exports have not varied significantly despite recent fluctuations in coal prices.⁴⁰ Furthermore, the QRC considered that a comparison of Aurizon's share performance to that of miners and coal producers supports the notion that Aurizon Network is insulated from fluctuations in coal market conditions.⁴¹</p>	<p>exposure to short-term demand risk.</p> <p>The QCA also notes that despite the falling coal prices there has been no corresponding reduction in overall coal exports.</p> <p>The QCA considers that there are limitations in using Aurizon's share price to consider the extent to which Aurizon Network is exposed to fluctuations in coal market conditions. Aurizon's share price is subject to many factors.</p>
<p>Synergies considered that while prices for both metallurgical and thermal coal rebounded sharply in the second half of 2016, prices have since been moderating, and market forecasters do not expect the price gains to be maintained long term.⁴²</p>	<p>This view is consistent with RMI's forecast (outlined in Chapter 6) that coal prices have fallen back from their high point in January 2017 and are now stabilising.</p> <p>RMI considered that market factors will effectively provide a floor for the seaborne market and should reduce price and demand volatility in the seaborne coal market.</p> <p>However, RMI considered that the price floor will be very attractive to Queensland exporters who have lower costs of production and higher quality coals.</p>
<p>Aurizon Network outlined how market conditions have had implications for its customer base, noting that:</p> <ul style="list-style-type: none"> (a) some producers have been selling down their coal operations or scaling back production (b) some producers have entered voluntary administration (c) some mines have been put into care and maintenance or have experienced change in ownership (d) Australian metallurgical coal production was understood to have operated at a negative cash margin (e) the credit rating profiles of its customers have materially deteriorated. <p>In order to remain cost competitive, producers sought to respond to price pressures by driving greater productivity and operating at volumes driven by unit cost reduction.</p> <p>Aurizon Network noted that the industry structure has changed following the downturn in</p>	<p>Market conditions have had implications for coal producers and the structure of this market.</p> <p>However, the risks facing individual customers of Aurizon Network is not indicative of the extent to which Aurizon Network is exposed to the cyclical nature of the industry, whether through volume risk or counterparty risk. In this regard, risk must be considered in relation to the underlying drivers for demand and supply in the relevant market—in this instance, the coal haulage market and the demand for seaborne coal.</p> <p>As outlined above, the competitiveness of coal producers in the CQCN to supply the seaborne coal market limits Aurizon Network's exposure to demand and counterparty risk to market volatility.</p> <p>The CQCN has continued to demonstrate consistent annual growth in coal exports and railings, subject to the impacts of exceptional weather events, reducing volatility of exports to the seaborne coal market and demand for coal haulage services. The continued competitiveness of producers to supply the market will be a key determinant of sustained demand for coal haulage services in the CQCN.</p>

³⁹ QRC, sub. 21: 20–21, 23.

⁴⁰ QRC, sub. 21: 23, 25.

⁴¹ QRC, sub. 21: 28.

⁴² Aurizon Network, sub. 35: 12.

Submission	QCA response
coal price—the recent trend has been the divestment of mining projects by some of the larger companies to smaller entities, some with no previous mining experience. Aurizon Network considered that this increases its credit exposure. ⁴³	
Aurizon Network submitted that, being subject to revenue cap regulation, the risk that it faces is not symmetric. Aurizon Network considered that regulation limits the upside risk while leaving Aurizon Network exposed to downside risk. ⁴⁴	<p>The QCA notes that the revenue cap framework, in combination with other mechanisms in Aurizon Network’s regulatory framework (e.g. take-or-pay contracts), truncates both upside and downside risks, providing Aurizon Network with stable regulatory returns.</p> <p>Given the medium- to long-term outlook for demand from the CQCN, the downside risk is minimal.</p>
Synergies submitted that while the application of economic regulation does modify the way in which market risks impact on Aurizon Network in the short-term, including through the revenue cap mechanism, regulation cannot change the nature of the underlying market risks that Aurizon Network faces. ⁴⁵	<p>The QCA agrees that Aurizon Network’s actual exposure to risk is directly influenced by both:</p> <ul style="list-style-type: none"> (a) the way in which risk is addressed in the regulatory framework (b) the characteristics of the market in which it operates. <p>As outlined throughout this draft decision, the QCA has considered the underlying market risks that Aurizon Network faces.</p>
Synergies considered that the exclusion of AT ₁ from the revenue cap mechanism means Aurizon Network retains some exposure to volumes. ⁴⁶	<p>The AT₁ component of Aurizon Network’s reference tariffs recovers the incremental maintenance costs associated with providing access to the CQCN. These incremental costs should not be incurred by Aurizon Network if railings do not materialise.</p> <p>Aurizon Network has not identified the variable costs that should be excluded from the revenue-cap arrangements. Rather, Aurizon Network has proposed AT₁ rates to reflect changes in incremental costs.</p> <p>As such, the QCA disagrees that this application of the revenue cap exposes Aurizon Network to short-term volume risk.</p>
Aurizon Network proposed to retain a revenue cap for the 2017 DAU. Anglo American submitted that the form of regulation and its components should be the subject of a complete review well in advance and in anticipation of UT6. ⁴⁷ Aurizon Network considered that this is outside the scope of an undertaking review. ⁴⁸	<p>The QCA considers that the revenue-cap arrangements proposed by Aurizon Network are appropriate to approve.</p> <p>The QCA notes that these matters are within the scope of its investigation. The QCA must consider Aurizon Network’s 2017 DAU afresh, having regard to the statutory assessment criteria.</p> <p>Relevantly, the QCA’s assessment of Aurizon Network’s 2017 DAU is that the allocation, mitigation and compensation provided to Aurizon Network for its exposure to risk is appropriate, given the way in which risk is addressed in the regulatory framework.</p>
The QRC submitted that volumes remain high due to take-or-pay contractual structures that	The QCA notes that CQCN coal producers may have an

⁴³ Aurizon Network, sub. 1: 17–18, 254–255.

⁴⁴ Aurizon Network, sub. 1: 253.

⁴⁵ Aurizon Network, sub. 35: 23.

⁴⁶ Aurizon Network, sub. 35: 22.

⁴⁷ Anglo American, sub. 18: 25.

⁴⁸ Aurizon Network, sub. 26: 8.

Submission	QCA response
<p>result in marginal producers continuing production, as they are economically better off railing. Further, the long-term nature of contracts and mine capital investment decisions means that the decision as to whether to continue to produce is not made on the basis of spot or short-term prices.⁴⁹</p> <p>Synergies stated that in times of capacity scarcity mining companies have a strong incentive to enter into such long-term capacity contracts, to provide certainty that they can transport their product to market. The existence of take or pay contracts for rail and port services will have contributed to the miners' decision to continue production in the short term, notwithstanding the low coal price.⁵⁰</p>	<p>incentive to maximise production even at low prices.</p> <p>The strong position that CQCN coal producers occupy in the seaborne market combined with take-or-pay contractual arrangements minimise volume risk for coal haulage services.</p>
<p>Synergies reported that Aurizon Network's contracted volumes will substantially reduce in the coming years and there are currently no contracted volumes from FY2029 onwards. Synergies considered that it is likely Aurizon Network's contract coverage will reduce in the coming years, noting that Aurizon Network is reporting that its customers are seeking new access contracts for shorter terms.</p> <p>Synergies considered that in an environment where demand has moderated, and capacity is no longer scarce, there will not be the same imperative for coal producers to enter into long term commitments.</p> <p>Reducing their commitment to long-term take or pay contracts will be consistent with miners' desire to adopt operating and contracting arrangements that allow greater flexibility to adjust production to reflect changes in international market conditions. Synergies considered that this represents a shift of risk to Aurizon Network with increasing volume uncertainty.⁵¹</p>	<p>Long-term contracts are a feature of Aurizon Network's regulatory framework. Aurizon Network has not provided evidence that contracts will not be renewed/recontracted, nor provided measures to address this issue.</p> <p>The QCA considers that Aurizon Network's railing volumes are likely to increase due to the competitive position that Aurizon Network's captive users occupy in the global seaborne coal cost curve, as well as the way in which Aurizon Network's regulatory framework allocates volume risk. As such, the QCA does not consider that Aurizon Network is vulnerable to cyclical market conditions.</p> <p>Furthermore, the competitiveness of CQCN producers and long-term market outlook for CQCN coal does not suggest a structural change in the coal export market will materially affect the risk of long-term demand deterioration in the foreseeable future, based on the evidence provided.</p>
<p>Aurizon Network considered that it is necessary to continue to review its commercial and regulatory risks as its operating and market environment continues to evolve and change into the future.⁵²</p>	<p>The regulatory framework provides a number of mechanisms to permit Aurizon Network to address risk.</p> <p>The QCA assesses Aurizon Network's exposure to risk as part of its investigation into a draft access undertaking. Additionally, Aurizon Network is also able to submit changes to the regulatory arrangements as part of a DAAU application.</p> <p>The QCA expects Aurizon Network to review its commercial and regulatory risks in the context of its operating and market environment.</p>
<p><i>Exposure to a long-term structural decline in demand for coal from the CQCN</i></p>	

⁴⁹ QRC, sub. 21: 26.

⁵⁰ Aurizon Network, sub. 35: 18.

⁵¹ Aurizon Network, sub. 35: 18–20.

⁵² Aurizon Network, sub. 1: 258.

Submission	QCA response
<p>Aurizon Network considered that it is exposed to the long-term risk associated with the Queensland coal industry. Aurizon Network submitted that in the short term these risks may not translate directly into a variation in Aurizon Network's cash flows, but in the long term it certainly will. Aurizon Network said that a reduction in demand risks tipping access pricing into uneconomical and unsustainable levels under revenue cap regulation. As a result, Aurizon Network considered that it is not immune from the long-term risk associated with Queensland export coal market.⁵³</p> <p>Synergies also considered that over the medium to long term, the revenue cap cannot fully protect Aurizon Network against the risk of falling demand.⁵⁴</p>	<p>The QCA acknowledges that a structural change in the coal export market could materially affect the risk of long-term demand deterioration. However, the QCA notes that Aurizon Network has not provided any evidence that demand deterioration is likely.</p> <p>The QCA does not consider that inherent risks associated with Aurizon Network's declared service reflect a long-term structural decline in demand for coal from central Queensland. The competitiveness of CQCN producers and long-term market outlook for CQCN coal suggest that producers will remain competitive with other coal export markets in the foreseeable future based on the evidence provided.</p>
<p>Aurizon Network considered that, at least in the medium to long term, its risk profile is closely linked to the risk profile of the global seaborne coal industry it services.⁵⁵</p> <p>Synergies noted that CQCN coal producers are largely price takers—their ability to effectively compete depends on global demand for coal together with where these producers are positioned on the world cost curve.</p> <p>Synergies considered there has been a major change in the structural cost competitiveness of Australian coal mines in recent years—more than half of Australian metallurgical and thermal coal mines had costs above global averages by 2011. They also reported that rapidly rising capital costs were meaning that Australia's new mining projects were also less competitive.</p> <p>Synergies reported that this structural change in cost competitiveness means that Queensland mines are significantly more vulnerable to changing conditions in the seaborne coal markets than was historically the case. Reduced international coal prices will leave Queensland producers significantly exposed to cash losses on their coal production.⁵⁶</p>	<p>The QCA agrees that the competitiveness of coal producers in the CQCN to supply the seaborne coal market will affect their vulnerability to market conditions.</p> <p>However, the QCA considers that the competitiveness of CQCN coal producers in the seaborne coal market remains strong. Aurizon Network has not provided evidence to suggest that the underlying risk of long-term demand deterioration for coal from central Queensland is likely. The competitiveness of CQCN producers and long-term market outlook for CQCN coal does not suggest that a structural change in the coal export market could materially affect the risk of long-term demand deterioration in the foreseeable future.</p> <p>As shown in Figure 6, Queensland-based exporters are generally at the low-cost to mid-cost end of the seaborne coal export cost curve.</p>
<p>Aurizon Network submitted that although the volatility of the market has some cyclical characteristics, there is no consistent and predictable pattern in the coal market.⁵⁷ Instead, Aurizon Network considered that there have been some major structural shifts in the industry in recent years and that the cyclical</p>	<p>In terms of export price volatility, a key consideration in this respect is the continued competitiveness of producers to supply the market. The QCA notes that long-term outlook for seaborne coal markets supports the ongoing long-term demand for CQCN coal exports. Importantly:</p> <p>(a) CQCN producers are generally at the low- to mid-cost end of the seaborne coal market cost curve</p>

⁵³ Aurizon Network, sub. 26: 24–26.

⁵⁴ Aurizon Network, sub. 35: 21–22.

⁵⁵ Aurizon Network, sub. 1: 271.

⁵⁶ Aurizon Network, sub. 35: 14–16.

⁵⁷ Aurizon Network, sub. 1: 250.

Submission	QCA response
<p>market conditions are characterised by a sustained decline in coal price.⁵⁸</p> <p>Synergies stated that coal producers have demonstrated their willingness to quickly and decisively alter their production to changes in market conditions. Recent price increases have led to reopening of some of these mines, however the longevity of this production is uncertain. As coal producers increasingly structure their operational and contracting practices in order to provide themselves with greater production flexibility, it is highly likely that Queensland coal volumes will become increasingly volatile.⁵⁹</p>	<p>(b) CQCN produces some of the highest quality metallurgical and thermal coal, which is highly sought after in the seaborne coal markets</p> <p>(c) RMI forecasts that volatility in prices will stabilise and move to a more sustainable long-term pricing regime over the next 12 months.</p> <p>This market outlook suggests that coal producers in the CQCN will be competitive in seaborne coal markets in the foreseeable future.</p>
<p>The QRC supported the positive outlook for coal markets and coal production from Queensland. The QRC also submitted a curve showing metallurgical coal industry cash margins.</p> <p>In relation to changes in mine ownership, the QRC considered that the real relevance is the economics of a mine's operation, not the corporate ownership of a mine. The QRC submitted that, if anything, a change in corporate ownership may assist in keeping a mine operating—such as where the existing owner is burdened by debt relating to the original mine development costs. The QRC noted examples of where changes of ownership are assisting to increase production volumes from the CQCN.⁶⁰</p>	<p>The QRC's observations are largely consistent with RMI's analysis of Aurizon Network's volume forecast for UT5 (see Chapter 6), which forecasts that a number of mines on care and maintenance will reopen and recommence production. Additionally, mechanisms in the regulatory framework, including system reference tariffs, largely allocates the volume risk associated with individual producers from Aurizon Network to access holders within each coal system.</p>

⁵⁸ Aurizon Network, sub. 26: 16.

⁵⁹ Aurizon Network, sub. 35: 16.

⁶⁰ QRC, sub. 21: 26–28.

Submission	QCA response
<p>Aurizon Network said that cost curves do not offer a balanced representation of difficult trading conditions experienced by Australian coal producers in recent times. Aurizon Network noted that there have been periods where up to a quarter of Australian metallurgical coal export volume was understood to have operated at a negative cash margin, with some mines becoming insolvent during the UT4 regulatory period.⁶¹</p> <p>Aurizon Network considered that the speed with which the market has turned and actions taken by producers highlights the inherent risk to which Aurizon Network and its infrastructure is exposed. These are risks that other regulated entities do not face, due to the size and nature of their customer base.⁶²</p> <p>Synergies said that the structure of the Queensland coal sector has changed markedly in recent years since the downturn in international coal prices. While the industry had previously been experiencing consolidation, the more recent trend has been the divestment of mining projects by some of the larger companies to smaller entities, some of whom have little or no previous mining experience.</p> <p>Synergies also considered that the combination of small customer numbers, high average RAB value and high average revenue per customer means that credit quality of those customers is a material issue for Aurizon Network's risk levels.⁶³</p>	<p>The risks facing individual customers of Aurizon Network are not indicative of the extent to which Aurizon Network is exposed to such the cyclical nature of the industry, whether through volume risk or counterparty risk.</p> <p>Fundamentally, the competitiveness of coal producers in the CQCN to supply the seaborne coal market with the product that is demanded by end customers will determine Aurizon Network's exposure to counterparty risk in the longer-term. While the ownership structure of coal producers may change as a result of firm-specific factors, coal haulage services will be sustained as long as the demand for the output of the mines remains.</p> <p>The CQCN has continued to demonstrate consistent annual growth in coal exports and railings.</p> <p>The attributes of the CQCN, along with the long-term outlook for seaborne coal markets, supports the ongoing long-term demand for CQCN coal exports.</p>
<p>Aurizon Network's revenue is almost entirely derived from the provision of below-rail services to the export coal industry, including both metallurgical and thermal coal. Noting that thermal coal is typically drawn from the extremities of the Bowen Basin, Synergies considered that Aurizon Network has a higher revenue dependence on thermal coal than would be inferred purely from tonnage volumes. Synergies said that the demand outlook for thermal coal is far more precarious, given that thermal coal is competing with a range of other fuel sources for electricity production, with the Office of the Chief Economist anticipating that world thermal coal trade will decrease in coming years.⁶⁴</p>	<p>Based on the evidence provided, the QCA considers that the long-term market outlook does not reflect a long-term structural decline in demand for CQCN thermal coal in the foreseeable future. In particular, RMI reported that thermal coal demand will be driven by construction of High Efficiency Low Emissions (HELE) thermal coal power stations. Furthermore, there is also expected to be seaborne supply required to replace falling exports from Indonesia as their domestic generation demand grows and the diminishing oversupply from China.</p> <p>RMI considered that CQCN producers will be in a strong position in the seaborne market due to their lower costs and, importantly, higher quality coals.</p>
<p>Aurizon Network outlined a number of factors, when combined with market volatility and uncertainty, which it considered exacerbate the</p>	<p>While outlining a number of factors that may exacerbate a risk of long-term demand deterioration, Aurizon Network has not provided evidence to suggest that the underlying risk of long-term demand deterioration for coal from central</p>

⁶¹ Aurizon Network, sub. 26: 4–5, 25.

⁶² Aurizon Network, sub. 1: 18.

⁶³ Aurizon Network, sub. 35: 13.

⁶⁴ Aurizon Network, sub. 35: 11–12.

Submission	QCA response
<p>risk of certain assets being stranded:</p> <p>(a) The regulatory asset base is fragmented by system.</p> <p>(b) The operating life span of assets owned and managed by Aurizon Network is much longer than the regulatory period and coal price cycles.</p> <p>(c) Customers are concentrated (a relatively small number of customers that are all exposed to a single asset class), have continued to report major asset impairments, and have received credit downgrades from ratings agencies.</p> <p>(d) The industry structure is changing, with larger companies divesting mining projects to smaller entities with less prior mining experience.</p> <p>(e) Customers are increasingly requesting shorter-term access agreements and/or more flexible contracts, rather than renewing for the typical 10-year period.</p> <p>(f) Other parts of the CQCN supply chain are experiencing shorter contract profiles with a significant reduction forecast.⁶⁵</p>	<p>Queensland is likely.</p> <p>The competitiveness of CQCN producers and long-term market outlook for CQCN coal does not suggest that a structural change in the coal export market could materially affect the risk of long-term demand deterioration in the foreseeable future, based on the evidence provided.</p> <p>In any case, the extent to which these individual factors may affect the risk of asset stranding is uncertain. The regulatory arrangements have not specified the precise method to address a structural deterioration in demand. If a structural deterioration in demand were to become evident, the QCA considers this would represent an industry-wide issue, requiring an industry-wide solution to address. Aurizon Network has not detailed in its 2017 DAU how such risk would be apportioned between industry participants in the unlikely event that it occurs.</p>
<p>Synergies notes that, for the purposes of pricing access to its network, the CQCN is substantially fragmented. Synergies considered that to the extent that Aurizon Network suffers revenue shortfalls or stranding events in a RAB component, there is no mechanism in the regulatory framework that allows such shortfalls to be recovered from another component. Strictly compartmentalising the customer base from which Aurizon Network can source its revenue actually heightens the market risk that is borne by Aurizon Network.</p> <p>Synergies considered that the stranding risk mitigation measures in Aurizon Network's regulatory framework are unlikely to be effective in protecting Aurizon Network against significant falls in volumes, particularly in those systems with a small number of users.⁶⁶</p>	<p>As noted above, Aurizon Network has not provided evidence to suggest that long-term demand deterioration is likely.</p> <p>The QCA considers that the extent to which RAB fragmentation may affect the risk of asset stranding is uncertain. The regulatory arrangements have not specified the precise method to address a structural deterioration in demand in a specific RAB component. If such a structural deterioration in demand were to become evident, the QCA considers this would represent an industry-wide issue, requiring an industry-wide solution to address. Aurizon Network has not detailed in its 2017 DAU how such risk would be apportioned between industry participants in the unlikely event that it occurs.</p>
<p>Alternative services are available that may allow users to bypass components of Aurizon Network's rail network, including⁶⁷:</p> <p>(a) Aurizon Network's electric distribution system for the Blackwater and Goonyella Systems—there is an increased risk that rail operators or end customers may bypass the electric network and operate diesel train services. This creates a</p>	<p>Mechanisms in Aurizon Network's regulatory framework, such as socialised reference tariffs and the revenue cap, mean that Aurizon Network is only exposed to by-pass to the extent that it materialises into an asset stranding risk for that asset.</p> <p>Aurizon Network has not submitted any evidence to suggest that the bypass risk for these assets is material for the UT5 regulatory period. Furthermore, Aurizon Network's 2017 DAU does not specify the way in which the risk of by-pass is</p>

⁶⁵ Aurizon Network, sub. 1: 254–256.

⁶⁶ Aurizon Network, sub. 35: 20–23.

⁶⁷ Aurizon Network, sub. 35: 16–18.

Submission	QCA response
<p>significant asset stranding risk for Aurizon Network, even if total demand for coal transport remains strong.</p> <p>(b) Goonyella to Abbot Point link—Adani has committed to the development of its Carmichael mine in the northern Galilee, and the existing Goonyella trunk line to DBCT/Hay Point provides an alternative route for users of the GAPE System to export their coal, allowing a bypass of the GAPE and Newlands Systems.</p>	<p>to be addressed.</p> <p>If such a risk does materialise throughout the regulatory period, the Aurizon Network has the ability to manage this risk within the regulatory framework. In particular, Aurizon Network is able to submit changes to the regulatory arrangements as part of a DAAU submission or as part of the regulatory reset every four years.</p> <p>On 1 December 2017, Aurizon Network submitted its proposed 2017 Electric Traction DAAU that proposed pricing reform for the electric traction component of reference tariffs (AT₅). This matter is now before the QCA.</p>
<p>In relation to its regulatory framework, Aurizon Network noted:</p> <p>(a) Take-or-pay is only relevant for the term of the contract and only while the contract remains on foot.</p> <p>(b) The revenue cap is comparatively short in the context of the economic life of the asset base and only provides protection for the relevant period.</p> <p>(c) The revenue cap assumes that the MAR that is set for that period based on forecast volumes will actually allow it to earn a full return on and of capital on its RAB for that period.⁶⁸</p> <p>Synergies stated that any unrecovered payments, including take-or-pay, due to credit default is not mitigated by the revenue cap mechanism.⁶⁹</p>	<p>These mechanisms do not necessarily address Aurizon Network's exposure to the risk of long-term demand deterioration.</p> <p>The QCA notes that there are other mechanisms in the regulatory framework that mitigate such risk exposures, including:</p> <p>(a) accelerated depreciation</p> <p>(b) limited optimisation</p> <p>(c) security requirements for access holders and relinquishment fees.</p> <p>While individually the mechanisms will influence Aurizon Network's ability to manage various risks, collectively the regulatory framework establishes the extent of Aurizon Network's exposure to risk.</p>
<p>Synergies considered that the revenue cap arrangement will constrain the ability of the remaining mines in the system to accommodate the resulting revenue cap-related price increases in the event that market circumstances caused a significant loss in coal volumes in a system.⁷⁰</p>	<p>The QCA is open to Aurizon Network proposing an alternative regulatory arrangement to the revenue cap framework proposed as part of its 2017 DAU. The QCA considers that these are matters to be considered afresh as part of future investigations.</p>
<p>Synergies stated that the changing coal price aligned with the demands of Aurizon Network customers has historically resulted in capital intensive capacity expansions being requested directly from customers at times of high coal prices. Although requested in periods of higher coal prices, these capacity investment decisions are for assets with an operational life of up to 50 years. Synergies considered that this asset life will at times produce tension between the recovery of the cost of the asset and the prevailing market conditions.⁷¹</p>	<p>The QCA considers that mechanisms provided in the regulatory framework are sufficient for Aurizon Network to manage risk specific to a particular investment. In particular, Aurizon Network has the ability to negotiate access conditions with access seekers. Access conditions can vary, but may involve:</p> <p>(a) an uplift of the regulated WACC for a specific investment to reflect any additional risks encountered</p> <p>(b) an up-front payment (or similar financial instrument) equal to the value of the asset</p> <p>(c) special access conditions such as changing the depreciation period or profile, the take-or-pay arrangements or the term of the contracts.</p>

⁶⁸ Aurizon Network, sub. 1: 271–272.

⁶⁹ Aurizon Network, sub. 35: 14.

⁷⁰ Aurizon Network, sub. 35: 21–22.

⁷¹ Aurizon Network, sub. 35: 19.

Submission	QCA response
<p>Reflecting its narrow market exposure, which is limited to the seaborne metallurgical and thermal coal markets, Aurizon Network provides below-rail services for a confined group of coal producers. As a result, Aurizon Network has a high average exposure to each of its customers.⁷²</p>	<p>In considering Aurizon Network’s exposure to servicing a relatively small number of customers—the risk associated with servicing coal producers in the CQCN depends on the competitive position of those customers in the global supply of seaborne coal exports.</p> <p>Thus, Aurizon Network’s market exposure is limited due to its market power, captured and resilient customer base, long-term contracting and regulatory framework.</p>
Exposure to revenue/capital deferrals	
<p>Aurizon Network considered the deferral of a portion of the WIRP capital costs (return on capital and depreciated capital costs) in UT4 has resulted in it holding long-term coal demand risk, which is magnified when one reviews the changing customer profile within the CQCN. Aurizon Network considered that this illustrates how it bears material risk on investments made on behalf of the customers that have approved those investments. Aurizon Network considered that investors are left with the uncertainty about if, and when, the deferred capital will be recovered.⁷³</p>	<p>The QCA’s draft decision is to approve Aurizon Network’s 2017 DAU proposal relating to WIRP deferrals (see Chapter 3). As such, this draft decision provides investors with certainty as to when the deferred capital will be recovered.</p> <p>Aurizon Network has proposed to continue to defer WIRP capital relating to Moura System due to the lack of certainty on the exact commencement date of railings and the absence of a relevant customer to recover these costs from on that system. As such, any uncertainty as to when the deferred capital will be recovered is due to the uncertainty on the commencement of railings.</p>
<p>Aurizon Network considered that the deferral of a portion of the WIRP capital costs results in RAB fragmentation and it being exposed to demand risk for no additional compensation. Aurizon Network also considered that the WIRP revenue deferral effectively means it bears the risk of non-railing volume, which is contrary to its legitimate business interests given that the risks are entirely outside of their control.⁷⁴</p> <p>Synergies also noted that the deferral on the inclusion of capital expenditure in the RAB has the effect of delaying Aurizon Network’s ability to recover revenue related to this expenditure. Recovery of this deferred revenue is dependent on the commencement of the increased volumes upon which the expansion was predicated.⁷⁵</p>	<p>The QCA considers that any RAB fragmentation or demand risk resulting from the WIRP expansion originates from Aurizon Network’s initial decision to invest.</p> <p>As outlined above, the QCA considers that mechanisms provided in the regulatory framework are sufficient for Aurizon Network to manage risk specific to a particular investment.</p>
<p>The QRC submitted that the WIRP revenue deferral is not a regulatory or commercial risk that should be remunerated through the WACC (and MAR). The QRC noted that Aurizon Network has effectively kept net present value neutral due to the roll-forward to the capital on which a return is being deferred. The QRC considered that the purpose of deferral is therefore to ensure that existing WIRP users do not pay for the volume risk created by future</p>	<p>As outlined above, the QCA’s draft decision is to approve Aurizon Network’s 2017 DAU proposal to not defer WIRP capital relating to the Blackwater System—providing investors with certainty as to when the deferred capital will be recovered.</p> <p>While Aurizon Network has proposed to continue to defer WIRP capital relating to Moura System, this is due to the lack of certainty on the commencement of railings and the absence of a relevant customer to recover these costs from on that system. The QCA does not consider that this</p>

⁷² Aurizon Network, sub. 35: 12.

⁷³ Aurizon Network, sub. 26: 25; Aurizon Network, sub. 1: 250, 272.

⁷⁴ Aurizon Network, sub. 26: 26; Aurizon Network, sub. 1: 24.

⁷⁵ Aurizon Network, sub. 35: 22.

Submission	QCA response
<p>expected WIRP users that are not currently raiiling.⁷⁶</p> <p>In response, Aurizon Network did not agree with the QRC that WIRP deferral reduces Aurizon Network's risk. Aurizon Network considered that the revenue deferral will only be net present value neutral if there is no uncertainty around the recovery of deferred revenue.⁷⁷</p>	<p>mechanism necessarily increases Aurizon Network's risk.</p>

⁷⁶ QRC, sub. 21: 32.

⁷⁷ Aurizon Network, sub. 26: 26-27.

3 THE REGULATORY ASSET BASE AND DEPRECIATION

3.1 Aurizon Network's 2017 DAU proposal

The reference tariffs and allowable revenues proposed in Aurizon Network's 2017 DAU are based on:

- an opening asset value of \$5,952 million, applying the roll-forward methodology consistent with its 2016 Undertaking and then applying revenue/capital deferrals for WIRP Moura and NAPE
- the RAB being rolled forward during the UT5 period for forecast indexation, depreciation, and a proposed capital indicator of \$778.3 million
- depreciation rates based on previous QCA decisions.⁷⁸

Key issues identified during the QCA's investigation

The QCA has considered all elements of the Aurizon Network's 2017 DAU in assessing the value of the regulatory asset base (RAB) relating to reference tariffs and allowable revenues for the central Queensland coal network (CQCN) in making this draft decision. The following issues attracted comment from stakeholders or have been identified for further consideration:

- opening asset value of the RAB (see section 3.1), and in particular:
 - excluding investment associated with WIRP Moura and NAPE (see section 3.1.2)
 - rolling forward the RAB consistent with the roll-forward principles in Aurizon Network's 2016 Undertaking (see section 3.1.3)
 - including an estimated \$12.1 million for equity raising costs for approved capital expenditure (see section 3.1.4)
- forecast RAB values during the UT5 period to develop reference tariffs and allowable revenues, including:
 - a capital indicator of forecast capital expenditure to be included during the UT5 period (see section 3.2)
 - forecast indexation (see Chapter 4)
 - depreciation arrangements (see section 3.3).

⁷⁸ Aurizon Network, sub. 1: 131, 139.

QCA analysis and draft decision

Summary of draft decision 3.1

- **The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking to determine reference tariffs and allowable revenues for the 2017 DAU period is to apply:**
 - (a) for the reference tariff calculation, an opening asset value of \$5,900 million, based on:**
 - (i) accepting Aurizon Network's proposed capital/revenue deferrals**
 - (ii) QCA-approved capital expenditure and Aurizon Network's revised forecast capital expenditure for 2016–17**
 - (iii) rolling forward the RAB consistent with the 2016 Undertaking.**
 - (b) RAB values over the UT5 period based on:**
 - (i) a capital indicator of \$778.3 million (in mid-year values) over the UT5 period**
 - (ii) forecast average inflation of 2.37 per cent**
 - (iii) depreciation charges based on the methodology used in previous QCA decisions.**

The QCA requires Aurizon Network's 2017 DAU be amended so it reflects the RAB values over the UT5 period and depreciation charges outlined in Table 12 and Appendix D.

The QCA considers it is appropriate to approve an opening asset value of \$5,900 million, excluding deferral of capital associated with WIRP Moura and NAPE as proposed by Aurizon Network, for determining reference tariffs and system allowable revenues in its 2017 DAU.

After considering each of the statutory assessment criteria in s. 138(2) of the QCA Act, the QCA's draft decision is that the Aurizon Network 2017 DAU should be amended to reflect the RAB values for the UT5 period as summarised in Table 12 (and by system in Appendix D).

Table 12 QCA draft decision on the RAB, 2017–18 to 2020–21 (\$ million, nominal)

	2017–18	2018–19	2019–20	2020–21
1. Non-electric assets				
Opening asset value	5,213.7	5,222.7	5,203.7	5,159.7
<i>Plus capital indicator</i>	208.6	179.8	165.0	162.9
<i>Plus indexation</i>	128.5	128.0	127.2	126.1
<i>Less depreciation</i>	328.1	326.8	336.2	340.5
Closing asset value	5,222.7	5,203.7	5,159.7	5,108.3
2. Electric assets				
Opening asset value	686.3	673.6	659.9	644.3
<i>Plus capital indicator</i>	10.4	10.4	10.4	10.4
<i>Plus indexation</i>	16.5	16.2	15.9	15.5
<i>Less depreciation</i>	39.7	40.3	41.8	43.4

	2017–18	2018–19	2019–20	2020–21
Closing asset value	673.6	659.9	644.3	626.9
Total opening asset values	5,899.9	5,896.2	5,863.5	5,804.1

3.1 Opening asset value (as at 1 July 2017)

Aurizon Network's 2017 DAU proposal

Aurizon Network submitted an opening asset value for RAB of \$5,952 million (excluding equity raising costs of \$12 million) to be used for determining reference tariffs and allowable revenues for the UT5 period. With the inclusion of deferred capital from WIRP Moura and NAPE, Aurizon Network said, the opening value of the RAB would be \$6,255 million (excluding equity raising costs).⁷⁹

Aurizon Network's opening asset value was based on:

- excluding investments associated with WIRP Moura and NAPE (capital/revenue deferrals)
- rolling forward the RAB from the previous regulatory period, incorporating:
 - approved capital expenditure claims up to 2014–15 and forecasts for 2015–16 and 2016–17⁸⁰
 - depreciation charges, including accelerated depreciation, based on QCA-endorsed rates
 - actual inflation for 2013–14, 2014–15 and 2015–16, and a forecast of 2.5 per cent for 2016–17⁸¹
- including equity raising costs for actual capital expenditure incurred during the previous regulatory period.⁸²

Table 13 Aurizon Network's proposed CQC opening RAB (\$ million, nominal)⁸³

<i>Traction</i>	2013–14	2014–15	2015–16	2016–17	2017–18
1. Non-electric assets					
Opening asset value	4,123.0	4,307.7	4,593.1 ^b	5,000.1 ^c	5,264.1 ^d
<i>Plus capitalised equity raising costs</i>					12.2
<i>Plus capital indicator</i>	282.5	146.8	491.5	241.2	
<i>Plus indexation</i>	141.8	67.4	75.7	131.0	
<i>Less depreciation</i>	(239.6)	(250.8)	(294.7)	(322.9)	
Closing asset value	4,307.7	4,271.2	4,865.5	5,049.5	

⁷⁹ Aurizon Network, sub. 1: 131. Since submitting its 2017 DAU, Aurizon Network updated the opening asset value to take account of actual outcomes for approved capital expenditure and indexation.

⁸⁰ Noting that the 2015–16 and 2016–17 claims remained subject to QCA approval at the time Aurizon Network submitted its 2017 DAU in November 2016.

⁸¹ Since Aurizon Network's submission, the actual inflation rate for 2016–17 has been 1.9 per cent.

⁸² Aurizon Network, sub. 1: 126–127, 132, 135.

⁸³ Aurizon Network, sub. 1: 132.

<i>Traction</i>	2013–14	2014–15	2015–16	2016–17	2017–18
2. Electric assets					
Opening asset value	523.4	510.1 ^a	495.6 ^b	687.4	687.7 ^d
<i>Plus capital indicator</i>	20.4	4.5	244.3	13.0	
<i>Plus indexation</i>	17.5	7.8	11.0	17.5	
<i>Less depreciation</i>	(50.5)	(51.2)	(63.6)	(51.2)	
Closing asset value	510.8	471.2	687.4	666.8	
Total opening asset values	4,646.4	4,817.9	5,088.7	5,687.5	5,964.0

Notes: Capital expenditure has been converted to 'start of year' values. Variance between opening and closing RAB is due to: (a) electric assets disposals (b) inclusion of WIRP capital expenditure except for deferrals (c) inclusion of Byerwen GAPE (d) inclusion of WIRP in the Blackwater System that was deferred in UT4.

Aurizon Network subsequently advised its opening asset value taking into account updated information for 2016–17. The QCA's draft decision takes account of this new information.

QCA analysis and draft decision

Summary of draft decision 3.2

- The QCA's draft decision is to approve Aurizon Network's approach of determining the opening asset value of the RAB to determine reference tariffs and allowable revenues for the 2017 DAU.
- The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to apply an opening asset value of \$5,900 million, to determine reference tariffs and allowable revenues for the 2017 DAU period, based on:
 - (a) accepting Aurizon Network's capital/revenue deferrals to exclude investment associated with WIRP Moura and NAPE
 - (b) using QCA approved capital expenditure claims for 2013–14, 2014–15 and 2015–16 and Aurizon Network's revised claim for 2016–17
 - (c) rolling forward the RAB, adjusting for actual depreciation and inflation, where available
 - (d) including revised equity raising costs in the RAB for approved capital expenditure for 2013–14, 2014–15 and 2015–16, and Aurizon Network's revised claim for 2016–17.

The QCA's draft decision is to approve Aurizon Network's approach of determining the opening asset value of the RAB, although the QCA proposes that Aurizon Network amend its 2017 DAU to include updates for actual data and more recent forecasts.

The QCA's draft decision is that Aurizon Network's opening asset value for the RAB should be amended to \$5,900 million, based on:

- approving Aurizon Network's proposed capital deferrals that exclude revenue being recovered from investments associated with WIRP Moura and NAPE (section 3.1.2)
- rolling forward the RAB to derive an opening asset value for the UT5 period (section 3.1.3)
- incorporating equity raising costs into the RAB (section 3.1.4).

The QCA's revised opening asset value derivation is summarised in the table below. A breakdown of these values by system is provided at Appendix D.

Table 14 QCA draft decision on Aurizon Network's opening RAB (\$ million, nominal)

<i>Traction</i>	<i>2013–14</i>	<i>2014–15</i>	<i>2015–16</i>	<i>2016–17</i>	<i>2017–18</i>
1. Non-electric assets					
Opening asset value	4,123.0	4,307.7	4,593.1 ^b	4,989.5 ^c	5,202.4 ^d
<i>Plus capitalised equity raising costs</i>					11.3
<i>Plus capital indicator</i>	282.5	146.8	480.4	221.2	
<i>Plus indexation</i>	141.8	67.4	75.6	95.6	
<i>Less depreciation</i>	239.6	250.8	294.2	319.2	
<i>Closing asset value</i>	4,307.7	4,271.2	4,854.9	4,987.1	
2. Electric assets					
Opening asset value	523.4	510.1 ^a	495.6 ^b	694.4	686.3 ^d
<i>Plus capital indicator</i>	20.4	4.5	251.6	10.4	
<i>Plus indexation</i>	17.5	7.8	11.1	12.9	
<i>Less depreciation</i>	(50.5)	(51.2)	(64.0)	(51.1)	
<i>Closing asset value</i>	510.8	471.2	694.4	666.6	
Total opening asset values	4,646.4	4,817.9	5,088.7	5,683.9	5,899.9

Notes: Variance between opening and closing RAB is due to: (a) electric assets disposals (b) inclusion of WIRP capital expenditure except for deferrals (c) inclusion of Byerwen GAPE (d) inclusion of WIRP in the Blackwater System that was deferred in UT4.

3.1.2 Aurizon Network's proposed capital/revenue deferrals

The QCA accepts Aurizon Network's 2017 DAU proposals with regard to capital/revenue deferrals for WIRP Moura and NAPE.

After considering these matters afresh, the QCA considers that capital/revenue deferrals are a prudent mechanism to address:

- short-term issues such as initial uncertainty with forecast volumes due to ramp-up issues
- circumstances where Aurizon Network is unable to recover costs from relevant customer(s).

As foreshadowed in the QCA's consideration of the 2016 Undertaking 'the continued applicability of pricing mechanisms such as the revenue deferral mechanism—will be considered as part of future approval processes.⁸⁴

The QCA draft decision is to accept Aurizon Network's capital/revenue deferral arrangements as outlined below.

⁸⁴ QCA, 2016c, Vol III — Pricing and tariffs: 247.

- Blackwater System—Aurizon Network did not propose any capital/revenue deferral. Rather, Aurizon Network has sought to include \$235 million in the opening asset value of the RAB, which Aurizon Network proposes to recover from WIRP Blackwater users. This includes capitalisation of foregone returns to compensate Aurizon Network for the deferral in the previous regulatory period.
- Moura System—Aurizon Network proposes to continue the WIRP capital/revenue deferrals for the Moura System. Aurizon Network will monitor the situation and will re-engage when a viable recovery option is identified. Given there is no WIRP Moura user to allocate these costs to, the QCA accepts Aurizon Network's proposal.
- WIRP balloon loop costs—Aurizon Network did not propose any capital/revenue deferral; rather, these costs will be recovered from WIRP Blackwater users—noting that there are no WIRP Moura users forecast to rail in UT5.
- NAPE—Aurizon Network proposes to continue deferrals relating to NAPE in UT5. Although, Aurizon Network foreshadowed that it would submit a DAAU once the situation regarding commencement of NAPE railings was clear.⁸⁵

In support of its proposals, Aurizon Network submitted a detailed history of the recent GAPE and WIRP expansions. Aurizon Network noted that customers signed up to these expansions when coal prices were high, but when coal prices fell, many miners made commercial decisions to delay ramp-up or to place mines under care and maintenance. Aurizon Network said that such decisions were outside of its control.⁸⁶

WIRP deferrals

In relation to WIRP, Aurizon Network advised that of the eight customers that signed up for the 27 Mtpa capacity, four are not riling. Aurizon Network indicated that in UT4 approximately \$260 million of WIRP capital expenditure was deferred.⁸⁷

The QCA notes that Aurizon Network voluntarily submitted the 2016 Undertaking on the basis of accepting WIRP deferrals. Although, Aurizon Network indicated that it consistently disagreed with the decision to defer revenue and was particularly concerned that no sunset date was specified for the deferral.⁸⁸

Aurizon Network submitted that the imposition of revenue deferrals by the QCA in UT5 would result in Aurizon Network being made responsible for risks that are outside of its control.

The QCA position over UT4 was to address this matter through the application of deferrals. However, all this does is place both RAB fragmentation and the demand risk onto Aurizon Network for no additional compensation.

As such, both the policy outcomes and revenue positions within the Access Undertaking must address these risks.

The UT4 Final Decision to defer a significant portion of the capital costs of the WIRP has magnified Aurizon Network's coal risk exposure. The decision to not allow full socialisation of capital costs was ostensibly because of a change in coal market conditions that meant some mines chose to delay the commencement of their operations or prolong the ramp-up after Aurizon Network had constructed the infrastructure. However, deferring the collection of Aurizon Network's return on capital and depreciated capital costs until a future period (for

⁸⁵ Aurizon Network, sub. 1: 130–31.

⁸⁶ Aurizon Network, sub. 1: 127–29.

⁸⁷ Aurizon Network, sub. 1: 129.

⁸⁸ Aurizon Network, sub. 1: 130.

which there is greater market uncertainty for coal, including the number and profitability of customers) means Aurizon Network holds long term coal demand risk.⁸⁹

In contrast, the QRC submitted that revenue deferrals are NPV-neutral for Aurizon Network, and are therefore not a risk to Aurizon Network. The QRC also said that the WIRP infrastructure was developed based on access conditions that included an additional WIRP fee for risks borne above those compensated for through the regulatory WACC.⁹⁰

In respect of Aurizon Network's proposals, the QRC supported the continued deferral of WIRP Moura related revenue/capital, given the uncertainty of the timing of future production. However, the QRC opposed cessation of the WIRP Blackwater deferrals as proposed by Aurizon Network. The QRC also opposed the reallocation of WIRP Moura balloon loop costs to other WIRP customers, as this represents unwarranted cross-subsidisation.

The QRC also suggested that consideration be given to a staged introduction of WIRP capital into the RAB.⁹¹ While the QCA is open to further collaboration between stakeholders on QRC's proposal, Aurizon Network would need to take the lead on this suggestion—as it did with its 2016 Undertaking proposal.

Anglo American submitted that there is no clearly established basis for deferred revenue tonnes coming on-line to support Aurizon Network's proposal to recover \$234 million of deferred WIRP revenue. Anglo American said that Aurizon Network was effectively making users who are not in default bear the cross-default risks for non-railing users indefinitely.⁹² The QCA notes that cross-default risks of the nature suggested by Anglo American were not contemplated in the access conditions report and were therefore not listed among the risks assumed by Aurizon Network. Blackwater and Moura WIRP users agreed to the WIRP expansion and the package of access conditions with Aurizon Network. In this regard, the risk is appropriately allocated to WIRP users, given that as a group they, and not Aurizon Network, triggered the investment and ultimately determine the volumes railed to WICET.

The QCA considers that it is appropriate for Aurizon Network to cease accumulating capital/revenue deferrals for WIRP Blackwater. While the volume ramp-up remains lower than initial expectations due to market conditions, the QCA considers it is not appropriate to continue to defer revenues as this compounds Aurizon Network's asset stranding risks beyond those envisaged in the WIRP access conditions. Aurizon Network has proposed that these costs should be recovered from WIRP Blackwater users.⁹³

Relevantly, Aurizon Network said ongoing revenue deferrals would effectively prevent Aurizon Network from recovering revenue/capital on projects that were approved by users, which would increase its exposure to asset stranding risk and impact on Aurizon Network's future incentives to invest.⁹⁴

Aurizon Network is entitled to recover its WIRP investment, as this is commensurate with the regulatory and commercial risks that Aurizon Network has assumed—including the additional risks accepted as part of the access conditions for its WIRP investment.⁹⁵ In forming this view,

⁸⁹ Aurizon Network, sub. 1: 24–25.

⁹⁰ QRC, sub. 21: 51.

⁹¹ QRC, sub. 21: 51–52.

⁹² Anglo American, sub. 18: 7.

⁹³ Aurizon Network, sub. 1: 130.

⁹⁴ Aurizon Network, sub. 1: 129.

⁹⁵ QR 2011. For instance, other risks assumed by Aurizon Network include site remediation costs. These additional risks are outlined in the relevant access conditions report.

the QCA considers that Aurizon Network has been compensated, in terms of the WIRP fee arrangements, for assuming the asset stranding risks associated with its WIRP investment, as proposed in the access conditions report for the WIRP investment.

Optimisation risk: asset stranding

QRNN is not compensated for this risk under the regulated WACC. The beta underpinning that WACC has been referenced to the risk profile of electricity network businesses. In QRNN’s view, apart from the concentrated nature of the investment it is undertaking, no valid comparison can be made between the stranding risk its investors are exposed to on WIRP and the risk of asset stranding for electricity network infrastructure. QRNN maintains that some compensation is reasonable and is considered particularly important in this context given the nature and size of the investments it is being asked to commit to in an uncertain environment.

QRNN could further mitigate this risk by requiring the customer to enter into an access agreement which aligns with the assumed economic life on the basis of strong take or pay obligations. However, this is considered undesirable as the life of the assets in the Regulatory Asset Base may exceed the expected mine life. However, these arrangements only transfer the risks between parties and do not reduce the value of those risks as the longer term demand and policy risks are largely outside of the control of the user and QRNN. As discussed in the previous section QRNN is not seeking to transfer those risks to users (page 17)

<i>Additional Risk</i>	<i>Description of Risk</i>	<i>Nature of the Risk</i>	<i>Proposed Risk Mitigation</i>
<i>Asset Stranding Risk</i>	<i>The risk that projected revenues are not fully recovered by the end of the economic life of the assets.</i>	<i>Risk that during the term of the agreements or at the expiry of the agreements a material proportion of the economic value of the value of the project is unrecovered and market demand does not sustain pricing triggering an optimisation event</i>	<i>QRNN is not seeking to mitigate this risk through alignment of contract term to economic life with 100% take or-pay. Risks are transferred from users to QRNN. According compensation for bearing these risks are included in the quantum of the WIRP Fee.</i>

(page 19)

However, if the QCA imposed capital/revenue deferrals that are not subsequently recovered, it could effectively create an asset stranding risk that Aurizon Network has not been compensated for—in terms of either the QCA’s proposed UT5 WACC or the commercially negotiated WIRP fee arrangements.

As such, it would not be prudent for the QCA to continue revenue/capital deferrals, as this could prejudice the risks assumed by Aurizon Network. The revenue/capital deferral was to address the delayed ramp-up and the associated short-term uncertainties during the latter part of the UT4 period. It is not reasonable to continue the deferral indefinitely as this would increase Aurizon Network’s risks beyond that contemplated in the access conditions report.

On this basis, the QCA considers that Aurizon Network’s proposal to recover its investment from WIRP Blackwater (and WIRP Rolleston) system users is appropriate.

The QCA considers that it is also appropriate to approve Aurizon Network’s proposal to continue the Moura WIRP and NAPE deferrals, given the circumstances identified by Aurizon Network. In particular, uncertainties about relevant customers’ railings need to be resolved in order for Aurizon Network to appropriately recover these costs.

Moreover, Aurizon Network has proposed the allocation of WIRP balloon loop costs to other WIRP customers, as these customers benefit from the use of this infrastructure. The QCA

considers that any alternative approach of socialisation of these costs to non-WIRP users would result in unwarranted cross-subsidisation. Moreover, the QCA considers that imposing deferrals associated with the WIRP balloon loop costs could prejudice the risks assumed by Aurizon Network. The QCA considers it appropriate to share this cost amongst WIRP users that use this segment.

The draft decision to approve Aurizon Network's proposals in regard to deferrals is considered appropriate in respect of s. 138(2)(a) - the object to promote the economically efficient investment in significant infrastructure. It is also in the legitimate business interests of Aurizon Network that revenue deferrals are minimised (s. 138(2)(b)).

3.1.3 RAB roll-forward to determine the opening asset value

The QCA's draft decision is to approve the methodology proposed by Aurizon Network to roll forward the RAB, as it reflects the approved procedure outlined in its 2016 Undertaking and conforms with general regulatory approaches to deriving an opening asset value. However, the QCA considers that the opening asset value should take into account actual inflation and revised capital expenditures.

The QCA's draft decision is that the opening asset value of the RAB be derived by:

- incorporating approved capital expenditure claims up to 2015–16 and revised forecasts for 2016–17⁹⁶
- rolling forward Aurizon Network's RAB adjusting for depreciation and inflation.

Aurizon Network submitted that the RAB would be adjusted for actual observed inflation for 2013–14, 2014–15 and 2015–16, and 2.5 per cent for 2016–17.⁹⁷ Depreciation charges used in the roll-forward were based on asset lives (set out in Appendix E).

Anglo American expressed concern about the lack of information on the RAB build-up. It said that a detailed bottom-up build-up of the RAB value should be made available so that users can see the detailed assets and other granular aspects including asset write-offs.⁹⁸

In response, Aurizon Network noted that its proposed RAB is only a forecast RAB. Aurizon Network added that users have visibility on capital included in the RAB through consultation on the capital expenditure approval process. The QCA's independent consultant reviews the capital expenditure on an *ex post* basis and findings are published for consultation.⁹⁹

In regard to Anglo American's comments, and Aurizon Network's response, the QCA agrees that there is some granularity afforded through the capital expenditure approval process. However, a bottom-up build of the RAB at every undertaking period would be a costly and exhaustive exercise that is unwarranted, in the QCA's view. The QCA considers that further detail is required where assets are removed from the RAB, subject to the materiality of the amounts, and that this process may be undertaken as part of the annual RAB roll-forward process contained in Aurizon Network's 2017 DAU.¹⁰⁰

⁹⁶ Noting that the 2016–17 claims remained subject to QCA approval at the time Aurizon Network submitted its 2017 DAU in November 2016.

⁹⁷ Since Aurizon Network's submission, the actual inflation rate for 2016–17 has been 1.83 per cent.

⁹⁸ Anglo American, sub. 18: 8.

⁹⁹ Aurizon Network, sub. 26: 11–12.

¹⁰⁰ Refer to cl. 1.1(c) of Schedule E.

3.1.4 Equity raising cost allowance

Aurizon Network's 2017 DAU proposes that equity raising costs of \$12.1 million be included in the opening asset value of the RAB. This is allocated between the systems as follows: Blackwater, \$5.79 million; Goonyella, \$5.67 million; Moura, \$0.38 million; Newlands, \$0.36 million.¹⁰¹

Aurizon Network should recover prudent and efficient equity raising costs, although the QCA notes that this should be based on QCA-approved capital expenditure.

Under cl. 1.4 of Schedule E of the 2016 Undertaking, equity raising costs are to be estimated using the benchmark capital structure of 55 per cent debt to 45 per cent equity, and are to be allocated between the coal systems according to share of capital expenditure.

Aurizon Network did not allocate equity raising costs to GAPE and WIRP, as it considered these costs were not incremental in nature.¹⁰²

Since submitting the 2017 DAU, Aurizon Network provided information of its proposed equity raising costs, after taking into account recent QCA decisions to approve capital expenditure for 2015–16. Aurizon Network proposed equity raising costs of \$11.254 million (as at 30 June 2017).

The QCA's draft decision is to approve equity raising costs as outlined in Table 15.

Table 15 QCA draft decision on equity raising costs (\$ million, nominal)

<i>System</i>	<i>Aurizon Network, November 2016</i>	<i>Aurizon Network, October 2017</i>	<i>QCA draft decision</i>
Blackwater	5.8	5.3	7.7
Goonyella	5.7	5.2	2.9
Moura	0.4	0.4	0.4
Newlands	0.4	0.3	0.2
Total	12.2	11.3	11.3

The QCA notes that although the total equity raising costs set out in the draft decision are similar to Aurizon Network's revised cost, the costs allocated to Blackwater and Goonyella are significantly different. This difference is due to the inclusion of WIRP capital expenditure in the Blackwater System that was deferred in UT4. The QCA considers this appropriate, given Aurizon Network's proposal to cease deferral of WIRP capital expenditure recovery in this undertaking period.

Further, since equity raising costs are assumed to be incurred to finance capital expenditure (and not just on the portion that is recovered in the corresponding undertaking period), the QCA considers it appropriate to also include the portion of the capital expenditure for which recovery is deferred when allocating the total equity raising costs. This explains the difference between the QCA and Aurizon Network's equity raising cost for Moura and Newlands.

¹⁰¹ Aurizon Network, sub. 1: 135–136.

¹⁰² Aurizon Network, sub. 1: 135.

3.1.5 Reconciliation of the 2016 Undertaking capital indicator account

Aurizon Network submitted its capital expenditure carryover account to reflect the NPV of the difference between revenues Aurizon Network was entitled to earn from the capital indicator, against its revenue entitlements for actual capital expenditure incurred, during the UT4 period.

Clause 5 of Schedule E (2016 Undertaking) requires Aurizon Network to maintain and record a capital expenditure carryover account.

In its proposal, Aurizon Network said it has taken account of the approved capital indicator inclusive of additional amounts proposed for WIRP, including final capital expenditure amounts to be claimed for the UT4 period, and that the UT5 revenues are adjusted to reflect the forecast balance of the capital expenditure carryover account.

Aurizon Network's submission proposed a total carryover balance at 1 July 2017 of \$47.7 million under-recovery.¹⁰³ This has since been revised to \$44.6 million to take account of the QCA-approved 2015–16 claim and the provisional capital expenditure claim, which has been submitted but is yet to be approved by the QCA for 2016–17.¹⁰⁴

Aurizon Network's 2017 DAU and its updated information indicated that Aurizon Network has overspent against the capital indicator during the 2016 Undertaking period. This was due in part to inclusion of revised capital expenditure on the Network Asset Management System (NAMS) project and inclusion of the remote control signalling system in the GAPE project. There were also timing differences in the WIRP capital expenditure.¹⁰⁵

The QCA's draft decision is that Aurizon Network's capital expenditure carryover balance is updated to include the 2015–16 capital expenditure amounts approved by the QCA. The carryover amount based on the QCA's updated analysis is \$4.4 million (1 July 2017 value).

The QCA notes that the approved carryover balance is significantly different from Aurizon Network's updated information and is due to the treatment of revenue entitlements for actual capital expenditure for Blackwater, Rolleston, and related WIRP capital expenditure 2014–15. Since the capital carryover mechanism is intended to provide for the difference in revenue due to the difference between the capital indicator and actual capital expenditure in the RAB roll-forward, the relevant figures for these customer groups correspond to capital expenditure used in calculating the UT4 revenue allowance. In UT4, for 2014–15, the recovery of a portion of capital expenditure for these groups were deferred to 2015–16. The QCA considers it appropriate that in calculating the amount of the capital carryover balance:

- for 2014–15, a consistent methodology is used to calculate the revenue entitlements from the capital indicator and actual capital expenditure. That is, a portion of the actual capital expenditure for 2014–15 is deferred (capitalised at WACC) to 2015–16, the year they entered the RAB for the purpose of calculating UT4 revenue allowances. This approach is consistent with Aurizon Network's approach for calculating the capital carryover balance of GAPE, which excludes Rail Control Systems (RCS) capital expenditure from GAPE in 2013–14 as the recovery of this expenditure was deferred. It is also consistent with AN's proposed (and approved) 2014–15 RAB roll-forward, which deferred some 2014–15 approved capital expenditure to 2015–16 for pricing purposes. The result is that actual capital expenditure for

¹⁰³ Aurizon Network, sub. 1: 135.

¹⁰⁴ Aurizon Network, sub. 1: 133.

¹⁰⁵ Aurizon Network, sub. 1: 132–33.

2014–15 for this group is significantly lower than that used by Aurizon Network to calculate the capital carryover balance for this group.

- for 2015–16, the same methodology is used. That is, a portion of the actual capital expenditure for 2014–15 (capitalised to 2015–16) be added to the 2015–16 capital expenditure, as this was when the 2014–15 capital expenditure for this group first entered the RAB for the purpose of calculating revenue allowance. The result is that actual capital expenditure for 2015–16 for this group is significantly higher than that used by Aurizon Network to calculate capital carryover this group, to reflect the recovery of deferred 2014–15 capital expenditure in 2015–16 consistent with UT4 treatment.
- for both 2014–15 and 2015–16, the portion of capital expenditure that were allocated to WIRP customers who did not rail in UT4, for which that capital expenditure had been capitalised for the whole duration of UT4, are not included in calculating the capital carryover. This is consistent with allowable revenue in UT4 that excluded the capital charges corresponding to this portion.

For the purpose of calculating capital carryover, the QCA's treatment of both forecast and actual capital expenditure for Byerwen GAPE is also consistent with the decision in UT4 to defer cost recovery to 2016–17. That is, forecast capital expenditure includes the sum of capitalised capital expenditure to 2016–17 that was used to calculate the allowable revenue for 2016–17. Actual capital expenditure includes the sum of capitalised capital expenditure to 2016–17 and Aurizon Network's revised forecast capital expenditure for 2016–17.

Further, in calculating the difference in the allowable revenue due to the difference between forecast and actual capital expenditure in the RAB roll-forward, the QCA has:

- refined the calculation of the capital carryover amounts, so that they are consistent with the approach of bringing the free cash flow¹⁰⁶ to mid-year values in the allowable revenue. The QCA notes that the free cash flow component of allowable revenue in UT4 was in mid-year values
- refined the calculation of capitalised capital carryover amounts, to be consistent with their being in mid-year values.

Table 16 Capital expenditure carryover account for the 2017 DAU (\$'000, 1 July 17)

<i>System</i>	<i>Non-electric</i>	<i>Electric</i>	<i>Total</i>
1. 2017 DAU			
Blackwater (incl Rolleston & Minerva)	34,313.5	1,805.3	36,118.8
Goonyella (incl Hail Creek & Vermont)	4,006.9	11,579.9	15,586.8
Moura	3,362.6		3,362.6
Newlands	1,419.8		1,419.8
GAPE (incl GSE)	(8,809.9)		(8,809.9)
Total	34,292.99	13,385.2	47,678.1
2. Aurizon Network revised			
Blackwater (incl Rolleston & Minerva)	30,055.4	3,611.8	33,667.2

¹⁰⁶ Free cash flow includes return on assets and depreciation net of inflationary gain.

<i>System</i>	<i>Non-electric</i>	<i>Electric</i>	<i>Total</i>
Goonyella (incl Hail Creek & Vermont)	2,861.4	11,004.1	13,865.5
Moura	3,022.4		3,022.4
Newlands	1,553.2		1,553.2
GAPE (incl GSE)	(7,555.3)		(7,555.3)
Total	29,937.2	14,615.9	44,553.1
3. QCA draft decision			
Blackwater (incl Rolleston & Minerva)	(5,953.6)	800.2	(5,153.4)
Goonyella (incl Hail Creek & Vermont)	2,764.5	10,205.1	12,969.6
Moura	2,782.9		2,782.9
Newlands	1,436.6		1,436.6
GAPE (incl GSE)	(7,690.2)		(7,690.2)
Total	(6,659.9)	11,005.3	4,345.4

We propose to accept Aurizon Network's approach of treating any over- or under-recovery of revenue associated with the capital expenditure carryover account through a smoothing process for allowable revenues and reference tariffs during the UT5 undertaking period.¹⁰⁷

3.2 UT5 capital indicator

Aurizon Network's 2017 DAU proposal

In its 2017 DAU, Aurizon Network submitted reference tariffs and revenues that included forecast capital expenditure of \$778 million (mid-year values) over the four years.¹⁰⁸

Table 17 Aurizon Network's capital indicator by system and traction type (\$'000)

	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total UT5</i>
Blackwater	86,452	73,563	67,129	69,497	296,641
Goonyella	102,220	88,232	80,699	75,121	346,272
Moura	9,293	7,845	7,114	7,137	31,390
Newlands	26,903	25,681	25,176	26,219	103,977
Total	224,868	195,320	180,118	177,974	778,281
Indicator by traction type					
Non-electric	214,157	184,609	169,407	167,263	735,436
Electric	10,771	10,771	10,771	10,771	42,844

*Note: Figures are nominal, reported as mid-year values and include interest during construction.*¹⁰⁹

Aurizon Network noted that the capital indicator comprises primarily renewal projects, accounting for 90 per cent of costs. The balance is for post-commissioning projects or other

¹⁰⁷ Aurizon Network, sub. 1: 135.

¹⁰⁸ Aurizon Network, sub. 1: 138.

¹⁰⁹ Aurizon Network, sub. 1: 138–39.

projects not classified as expansion or renewal. Aurizon Network's proposal excludes expansion projects.¹¹⁰

Table 18 Aurizon Network's capital indicator by major program

<i>Program</i>	<i>\$,000 total</i>	<i>Per cent</i>
Rail renewal	233,681	30
Civil track excluding rail	219,276	28
Civil structures (bridges, culverts and pipes)	95,428	12
Signalling and control systems	85,524	11
Strategy and other, including NAMS	66,384	9
Traction power	42,844	5
Telecommunications	35,145	5
Total	778,281	

Aurizon Network retained the requirement to annually report on the scope of renewals (and maintenance) activities prior to each financial year (cl. 10.3.1).

Interest during construction

Aurizon Network submitted that an allowance for interest during construction (IDC) compensates Aurizon Network for incurring upfront capital expenditure—Aurizon Network only recovers capital costs when the capital project has been commissioned and approved for inclusion in the RAB. Aurizon Network indicated that it has retained the methodology approved in the 2016 Undertaking approval process.

This methodology is the S-curve approach that uses forecast monthly cash flows and multiplies them by the relevant WACC. Irrespective of actual commissioning date, assets are assumed to be included in the RAB at the start of the year but are discounted to mid-year values on the assumption that revenues are received evenly throughout the year. The IDC is calculated at the mid-point of the year of commissioning.¹¹¹

QCA analysis and draft decision

Summary of draft decision 3.3

- **The QCA's draft decision is to approve the capital indicator and methodology for interest during construction.**
- **The QCA proposes that an incentive based *ex ante* approval process be considered for renewals capital expenditures for UT6.**

The QCA's draft decision is to approve the capital indicator and IDC approach proposed by Aurizon Network in its 2017 DAU.

Aurizon Network said that its approach for forecasting scope and cost of asset renewals involves a pro-active management of assets and a steady state average scope that is smoothed across

¹¹⁰ Aurizon Network, sub. 1: 138.

¹¹¹ Aurizon Network, sub. 1: 141.

disciplines to balance track possession requirements, resourcing limitations and funding constraints. This includes references to:

- the engineering /useful life of assets
- Aurizon Network's Civil Engineering Track Standards (CETS)
- Aurizon Network's asset maintenance and renewals policy which optimises the balance between maintenance and renewals
- historic and forecast gross tonne kilometres by system.¹¹²

Almost a third of the capital indicator relates to rail renewal. Aurizon Network advised that most of the rail laid during the 1980s and 1990s will need to be replaced between 2016 and 2040 based on Aurizon Network's CETS. Aurizon Network said that it has become evident that rail needs to be replaced at a higher rate than previously envisaged.¹¹³

The QCA considers a capital indicator that reflects a reasonable approach for including planned capital expenditure into reference tariffs and allowable revenues is in the interests of all parties. This promotes efficient investment in the network and minimises the impacts of timing differences for when the QCA approves capital expenditure into the RAB. Therefore, the QCA accepts the \$778 million capital indicator as outlined above for the UT5 period, having regard to the assessment criteria in s. 138(2) of the QCA Act.

Forecast renewals expenditures

Anglo American submitted that there is little detail around the proposed \$778 million to be claimed over the UT5 period. Anglo American's concerns were:

- There is no oversight from a concept or pre-feasibility stage of what non-expansion projects are actually required until after the fact.
- Aurizon Network defines the scope and activity of the projects, and is incentivised to undertake capital renewal projects to increase MAR and the value of the RAB.
- The capital program is material in value and requires appropriate scrutiny including how it is built into tariffs.¹¹⁴

The QRC agreed that the capital indicator should not include expansion projects. The QRC queried whether the proposed capital renewal projects are efficient, noting that there is insufficient information for it to assess the prudence and efficiency of the projects. The QRC said it relies on the QCA to review prudence and efficiency, including the inter-relationship between renewal costs and maintenance costs.¹¹⁵

Aurizon Network responded to the QRC's and Anglo American's comments about the lack of detailed information. Aurizon Network noted that the capital indicator was not detailed given it is only a forecast of capital spend, and that actual capital is only included in the RAB after an *ex post* assessment by the QCA. However, Aurizon Network did provide more information on how the scope for the capital indicator is derived—that is, a prioritised asset renewal listing takes

¹¹² Aurizon Network, sub. 1: 139–40.

¹¹³ Aurizon Network, sub. 1: 140.

¹¹⁴ Anglo American, sub. 18: 8–9.

¹¹⁵ QRC, sub. 21: 39.

account of asset condition, location criticality (tonnage over asset, impact of outages and impact on velocity).¹¹⁶

Aurizon Network also provided details of the capital renewal plan for 2017–18, showing for each coal system the kilometres of rail renewal, kilometres of track upgrades, number of turnout renewals, number of sleepers renewed, structures renewals and data communications upgrades.¹¹⁷

Since the 2006 Undertaking, an *ex post* approval process for capital expenditure has been undertaken by the QCA. The capital indicator is a forecast that is used in the build-up of allowable revenues and the calculation of reference tariffs for the regulatory period, with the annual *ex post* reviews actual capital expenditure being taken into account in adjusting the allowable revenue and reference tariffs of the next undertaking period.

In the UT4 investigation, the QCA noted that Aurizon Network's Asset Maintenance and Renewal Policy was used as the basis for estimating its future renewals program. With actual capital expenditures subject to *ex post* assessment of prudence and efficiency, the QCA did not consider that an *ex ante* evaluation of the capital indicator was warranted for the UT4 period.

The QCA notes that there has been an increasing trend in renewals expenditures over successive undertakings. The average proposed annual expenditure was \$17 million per year in UT3, \$128 million per year in UT4 and is \$195 million per year in UT5 (all nominal terms). This rising trend in forecast capital expenditure reflects to some extent a catch-up of the capital replenishment rate from 1 per cent per year from 2005–06 to 2011–12, to around 2.7 per cent of the opening RAB for the UT4 period.¹¹⁸ For the UT5 period, the annual proposed renewals capital expenditure is 3.1 per cent of Aurizon Network's proposed opening RAB.¹¹⁹

Some guidance is available from Aurizon Network's recent capital claims. For 2015-16, Aurizon Network submitted a total \$806.6 million in capital expenditure, of which \$194 million related to renewals. Of this, \$59 million or 30 per cent related to rail renewals and upgrades. For 2016–17, Aurizon Network submitted a total of \$240.8 million, of which \$175.7 million was for renewals, including \$59.7 million in rail renewals and upgrades. These amounts closely approximate the proposed amounts for UT5 (\$195 million per year in total renewals and \$58.4 million or 30 per cent in rail renewals and upgrades).

The QCA considers that on balance, the amounts proposed in the capital indicator for the UT5 period are reasonable for the purposes of determining allowable revenues and reference tariffs. The annual amounts represent a smoothed flow of renewal projects derived from enhanced planning processes and are in line with the amount approved for 2015–16. However, the QCA proposes to apply its forecast inflation rate for the purposes of determining nominal values.

This decision is considered to be consistent with s. 138(2)(a) given that the process of *ex post* assessments of actual expenditure are intended to promote economically efficient investment in infrastructure. By ensuring a reasonable renewal of infrastructure to maintain system reliability it also balances the interests of Aurizon Network (s. 138(2)(b)) with those of access seekers (s. 138(2)(e)) and access holders (s. 138(2)(h)).

¹¹⁶ Aurizon Network, sub. 26: 13.

¹¹⁷ Aurizon Network, sub. 26: 13.

¹¹⁸ QCA 2016c, Volume IV—Maximum Allowable Revenue: 160.

¹¹⁹ Aurizon Network proposed an opening RAB of \$6.225 billion and annual renewals averaged \$195 million per year.

QCA approval process

Anglo American proposed that the capital indicator to apply for each system should be presented to and endorsed by a 'rail capacity group' made up of users in each system before being provided to the QCA for approval.¹²⁰ In response to this proposal, Aurizon Network noted that there is a comprehensive *ex post* audit review conducted by the QCA and Aurizon Network takes on the risk that capital will be included in the RAB. At the end of the regulatory period, if there is a difference between the indicator and actual approved capital expenditure, the revenue will be trued up via the capital carryover mechanism. Aurizon Network also said that it has consulted with stakeholders, for example at the Annual Maintenance Symposium in March 2017, and that it will look to provide greater ongoing transparency to users.¹²¹

Under the current *ex post* assessment approach, Aurizon Network accepts some risk that expenditures that have been already incurred could be excluded by the QCA if not considered prudent and efficient. Regardless of the amounts set out in the capital indicator, Aurizon Network therefore has an incentive to ensure that its capital expenditures meet the required prudence of scope and efficiency of standard and cost.

In its UT4 decisions, the QCA concluded that an *ex ante* reporting of scope of renewals expenditures in addition to an *ex post* assessment would allow the QCA and Aurizon Network's customers to consider the proposed projects prior to expenditure occurring. This transparency was expected to lead to a reduction in renewals costs that could not be achieved with only an *ex post* review. The *ex ante* reporting arrangement is retained in the 2017 DAU and should also help alleviate some of Anglo American's concerns about the visibility of forthcoming capital expenditures.

However, the QCA considers that greater efficiencies should be possible if a full *ex ante* evaluation of renewals was implemented in place of the annual *ex post* assessment. Under this approach, the QCA would review and approve renewals expenditures for the full regulatory period. Stakeholders would have an opportunity to comment on the proposed renewals programme. The allowable revenues and reference tariffs should reflect the approved renewals programme and would not be reviewed again during the regulatory period. Aurizon Network would retain any within-period savings against the approved renewals schedule but would not be compensated for within-period expenditure above the approved amounts. A true-up against actual expenditure would be performed at the end of the regulatory period to establish a new opening value for the next regulatory period, but no capital carryover would apply for differences in renewals capital expenditure throughout the period.

This framework would provide an incentive framework to achieve efficient renewals expenditures over successive regulatory periods and provide greater within-period certainty to users, while reducing the level of regulatory oversight.

This approach would require that full details of the renewals program would be made available on a system basis at the start of a regulatory period to enable users to provide meaningful comment. Given that the information provided in Aurizon Network's 2017 DAU is not detailed and was prepared as an indicator only, and in the interests of regulatory certainty and predictability, it would not be appropriate to implement this approach without prior notification. The QCA is therefore minded that an *ex ante* approval process be developed in consultation with all parties for future regulatory periods. If agreed upon, Aurizon Network's

¹²⁰ Anglo American, sub. 18: 8.

¹²¹ Aurizon Network, sub. 26: 14.

DAU for the regulatory period commencing from July 2021 would provide for this new approach. The QCA notes changes are required to Aurizon Network's models to implement this approach.

The QCA considers that an incentive-based approach (for renewals capital expenditure only) should be considered by Aurizon Network and its customers.

This incentive-based approach is considered to be consistent with the s. 138(2)(a) object to promote efficient investment, given that Aurizon Network may retain outperformance for a period of time. Consistent with s. 138(2)(e) and (h), access seekers and access holders should benefit from more clarity about renewals programs before they occur and should benefit from more efficient investment over successive regulatory periods.

Interest during construction (IDC)

Since the methodology for estimating IDC is consistent with UT4, the QCA's draft decision is to accept Aurizon Network's 2017 DAU proposal. It is considered appropriate and meets the legitimate business interests of Aurizon Network (s. 138(2)(b)) while not imposing unreasonable costs on access seekers and access holders.

3.3 Depreciation charges

Aurizon Network's 2017 DAU proposal

Aurizon Network submitted that its methodology for calculating the return of capital (depreciation) is consistent with QCA past decisions.

The depreciation method depends on the year in which the assets were approved for inclusion into the RAB. For assets included:

- as at the approval of the 2006 Undertaking, straight-line depreciation is applied using asset lives, truncated to a maximum life of 50 years
- since the approval of the 2010 Undertaking, an accelerated depreciation profile is applied using a rolling 20-year life. This approach reflects straight line depreciation where the physical life of assets is capped at 20 years for depreciation purposes and reset at the commencement of each regulatory period.¹²²

Aurizon Network's proposed depreciation amounts are as shown in Table 19.

Table 19 Aurizon Network's 2017 DAU—depreciation by system (\$ million, nominal, end-of-year value)¹²³

<i>System</i>	<i>FY2018</i>	<i>FY2019</i>	<i>FY2020</i>	<i>FY2021</i>	<i>Total</i>
Blackwater	166.1	160.1	161.7	162.2	650.1
Goonyella	115.4	114.0	116.4	109.5	455.3
Moura	13.1	13.6	14.1	14.6	55.4
Newlands	11.8	13.2	14.6	16.0	55.7
GAPE	62.9	63.6	64.4	65.2	256.1
Totals	369.2	364.5	371.1	367.6	1,472.5

¹²² Aurizon Network, sub. 1: 303.

¹²³ Aurizon Network, sub. 1: 303.

Note: When determining the revenue requirement, these figures are brought to mid-year values to approximate the even receipt of revenue throughout the year.

QCA analysis and draft decision

Summary of draft decision 3.4

- **The QCA's draft decision is to approve Aurizon Network's proposed approach to depreciation charges, including the asset lives in Appendix E.**
- **The QCA's proposed draft decision depreciation amounts are calculated taking account of relevant input information (as presented in Table 20).**

Regulatory depreciation is a function of the cost to purchase and place the asset into service (as capitalised into the RAB, the depreciation and indexation methodology, and the life of assets.

In estimating the depreciation amounts for each system, the QCA considers that Aurizon Network has adopted a methodology that is appropriate to approve.

The QCA's draft decision for depreciation amounts is presented in Table 20, taking account of the QCA's draft decisions in respect of inflation and the RAB roll-forward.

Table 20 QCA draft decision—depreciation by system (\$ million, nominal, end-of-year value)¹

<i>System</i>	<i>FY2018</i>	<i>FY2019</i>	<i>FY2020</i>	<i>FY2021</i>	<i>Total</i>
Blackwater	165.0	160.8	164.1	171.5	661.4
Goonyella	114.5	114.3	118.0	112.7	459.5
Moura	13.0	13.7	14.4	15.1	56.2
Newlands	11.9	13.5	15.1	16.7	57.2
GAPE	63.3	64.9	66.4	68.0	262.5
Totals	367.8	367.2	378.0	383.9	1,496.8

Note: When determining the revenue requirement, these figures are brought to mid-year values to approximate the even receipt of revenue throughout the year.

Depreciation methodology

The QRC submitted that it was willing to support the continuation of the depreciation methodology approved by the QCA in UT4.¹²⁴

The QCA considers that the continuation of the depreciation methodology as applied in UT4 is appropriate in the interests of stability and predictability. The depreciation assumptions reflect the arrangements that existed at the time of the investments and this may have been relevant to Aurizon Network's decision-making. Further, the rolling 20-year depreciation method for new assets provides some acknowledgement of asset stranding risk as it has the effect of bringing forward the return of capital for long-life assets.

The QCA also observes that the QRC agrees with continuing the methodology and no other stakeholders commented.

The asset lives used in the 2017 DAU for depreciation purposes are the same as used in UT4 (Appendix E). The QCA considers that the asset lives used in Aurizon Network's modelling remain appropriate.

¹²⁴ QRC, sub. 21: 51.

We consider that the existing depreciation approach and the relevant asset lives remain consistent with the legitimate business interests of Aurizon Network (a factor to which we have had regard in accordance with s. 138(2)(b) of the QCA Act). The method also is consistent with encouraging economically efficient investment in significant infrastructure (s. 138(2)(a)) and allows Aurizon Network to price for access in a manner that is consistent with the requirements of s. 168(A)(a) of the QCA Act.

4 INFLATION FORECAST AND RAB INDEXATION

4.1 Forecasting inflation

4.1.1 Aurizon Network's 2017 DAU proposal

Aurizon Network's reference tariffs and maximum allowable revenues have been developed using an inflation forecast of 1.22 per cent, based on a break-even method.¹²⁵ This approach calculates the difference between inflation-indexed Commonwealth Government Securities (CGS) and nominal CGS. Aurizon Network submitted that the break-even method offers methodological advantages, as it is a probability weighted average of all possible outcomes.

On 13 February 2017, Aurizon Network proposed the averaging period to be the 20 business days immediately prior to 1 July 2017 to calculate forecast inflation.¹²⁶ In September 2017, Aurizon Network submitted a CEG report stating that the break-even inflation rate was 1.62 per cent for its proposed averaging period.¹²⁷

QCA analysis and draft decision

Summary of draft decision 4.1

- **The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to apply a forecast inflation rate of 2.37 per cent per annum for the 2017 DAU regulatory period.**
- **For the purposes of forecasting inflation embedded in reference tariffs and maximum allowable revenues (excluding maintenance and operating cost escalation), the QCA considers that the RBA forecast approach, using a geometric mean, provides the best unbiased estimate of inflation for the 2017 DAU regulatory period.**
- **The QCA proposes to use the midpoint of short-term RBA forecasts, where available, and the midpoint of the RBA target band for the years for which forecasts are not available.**

As a general principle, in the interests of stability and regulatory certainty, it is desirable that the chosen method of forecasting inflation minimises differences between forecast and actual over the regulatory period. That is, the key issue is whether the forecast inflation method provides the best unbiased estimate of the inflation rate over the regulatory period.

On the basis of available information and evidence, the QCA's draft decision is to use the RBA forecast method. Inflation for the regulatory period is forecast by taking the geometric average

¹²⁵ Aurizon Network, sub. 1: 118–19. At June 2016, Aurizon Network observed an annualised four-year indexed CGS yield of 0.4% and a four-year nominal CGS yield of 1.62%, implying a break-even inflation of 1.22%, using the Fisher equation. This is termed the break-even rate, as it is the rate at which investors would expect the same real rate of return from either asset. The break-even method is also referred to as the break-even inflation rate, an indexed bond approach, or bond market inflation rate.

¹²⁶ QCA 2017a.

¹²⁷ Aurizon Network, sub. 33: 2. At June 2017, according to CEG, the four-year indexed yield was 0.28% and the nominal yield 1.9%, giving a break-even inflation rate of 1.62%.

of the RBA short-term forecasts for FY2018 and FY2019¹²⁸, and the midpoint of the inflation target range (2.5 per cent) for FY2020 and FY2021.

The result is shown in the table below.

Table 21 QCA draft decision—inflation forecast

<i>Source</i>	<i>Forecast</i>
RBA forecast, June 2018 ^a	2.0%
RBA forecast, June 2019 ^a	2.5%
Midpoint of RBA target range, 2020	2.5%
Midpoint of RBA target range, 2021	2.5%
Geometric average for the 2017 DAU regulatory period	2.37%

Note: (a) The RBA publishes a forecast range for 2018 and 2019. The midpoint of this range is used for the purpose of the QCA's forecast in each year.

Source: Reserve Bank of Australia, Statement on Monetary Policy, May 2017: 55.

This decision is considered to be in the interests of Aurizon Network, access seekers and access holders (ss. 138(2)(b),(e) and (h)), as it provides for the most accurate inflation forecasts for determining reference tariffs and the maximum allowable revenues for the UT5 period.

The following approaches for forecasting inflation have been assessed by the QCA.¹²⁹

- The break-even method, as proposed by Aurizon Network—the inflation rate at which an investor would be indifferent between investing in nominal bonds and indexed bonds of the same maturity (see section 4.1.2).
- The RBA inflation target method—the midpoint (2.5 per cent) of the RBA's 2–3 per cent target band (see section 4.1.3).
- The RBA forecast method—the geometric mean of the RBA short-term forecasts for the first two years combined with the RBA midpoint for the third and fourth year (see section 4.1.4).

The QRC considers that the simple approach of using the RBA inflation target method should be used to maintain consistency with the previous regulatory approach and to avoid the biases inherent in Aurizon Network's proposed break-even method.¹³⁰

The QCA notes that since inflation targeting commenced in 1993, the geometric average inflation rate until September 2016 was 2.53 per cent.¹³¹ This is very close to the 2.5 per cent midpoint of the RBA inflation target band. Over the long term, inflation is likely to average within the 2–3 per cent target band, and overestimates and underestimates of inflation forecasts would generally be expected to offset each other.

While the QCA accepts the general tenor of the arguments presented by the QRC in favour of the RBA inflation target method and agrees that the break-even method is not appropriate for the empirical reasons outlined below, the QCA considers that using a geometric mean of the RBA's short-term forecasts, where they are available, is appropriate (rather than using the

¹²⁸ The RBA's forecasts are in some cases a range. For example, the forecast for June 2018 is 1.5%–2.5%. The QCA has adopted the midpoint of the range, which for the 2018 forecast is 2.0%.

¹²⁹ The QCA has considered these methods in some detail in its DBCTM 2015 DAU decision.

¹³⁰ QRC, sub. 21: 12–13.

¹³¹ Lally M 2017a. Over this period, the CPI grew from 60.8 to 109.4, see RBA website, Statistics, Table G1.

midpoint of the target band), to minimise short-term distortions where actual inflation falls outside the 2–3 per cent inflation target band.

4.1.2 Break-even method

Aurizon Network's break-even method is based on the rationale that the nominal rate of return comprises a real rate of return and an expected inflation rate.

The QCA notes that the break-even method assumes that nominal and indexed bonds are available with the same maturity dates, have the same liquidity, and investors are indifferent to inflation risk on nominal bonds.

The assumption that investors are indifferent between nominal and indexed bonds is intuitively a difficult concept—given that indexed bonds are risk-free while nominal bonds carry some risk because the real return depends on the actual inflation rate. It is therefore reasonable to assume that a positive (or at times negative) inflation risk premium is built into the nominal bond rate. In an inflationary environment (as distinct from deflationary) this would generally result in an overestimate of inflation. Conversely, where deflation is a prevailing concern, the break-even method may underestimate inflation. Arguably, this has recently been the case, with inflation falling to below the RBA's target 2–3 per cent band since December 2014.

This means that the inflation risk premium varies between positive and negative according to whether investors' expectations are inflationary or deflationary. Relatively volatile short-term expectations may influence the break-even bond estimates even though long-term inflation expectations are unchanged, an issue also noted by the AER.¹³² CEG also indicated that there is an unquantifiable inflation risk premium that varies according to bond investors' risk preferences.¹³³

There are other potential sources of bias in the break-even method for forecasting inflation. Indexed bonds are materially less liquid than nominal bonds on the basis that the volume of outstanding indexed bonds is lower, and the ratio of turnover to outstanding bonds is lower.¹³⁴ It is reasonable to presume that yields on indexed bonds would incorporate a premium for lower liquidity relative to nominal bonds. The indexed bond method may therefore underestimate forecast inflation.

While Aurizon Network indicated that the indexed bond market has become more liquid, the QCA observed that the liquidity of nominal bonds has also increased, and the volume of indexed bonds remains much smaller than the volume of nominal bonds. Based on available data for 2012–16, the average volume of nominal bonds on issue was about 12.5 times the volume of indexed bonds on issue.¹³⁵ Based on data for 2015–16, the liquidity ratio of nominal bonds was 18, compared to a liquidity ratio of 8.6 for indexed bonds.¹³⁶ From 2014–15 to 2015–16, the turnover in indexed bonds increased by 13 per cent, while the turnover in nominal bonds

¹³² AER 2017c: 29–30.

¹³³ Aurizon Network, sub. 33: 1–2, 7–8.

¹³⁴ Devlin & Patwardhan, 2012.

¹³⁵ AOFM 2017.

¹³⁶ AFMA 2016; AFMA 2015. The 2016 AFMR discontinued the survey-based methodology that it previously used and has implemented a 'top-down data collection process'. This has meant that turnover volumes for government bonds are significantly different compared to 2014–15, although aggregate volumes for all fixed income securities are broadly similar.

increased by 32 per cent.¹³⁷ The general evidence shows that the volume of indexed bonds is much lower and turnover is substantially less liquid.

Taken together, if the effects of inflation risk bias and illiquidity bias are counter to each other, the net effect is difficult to evaluate.¹³⁸ Using Australian data over 1992–2010, Finlay and Wende estimated the net effect of the two phenomena as varying from 2.5 per cent to –1.0 per cent over both 5-year and 10-year periods.¹³⁹ However, as noted by CEG, there are issues with the accuracy of such studies and their results should be interpreted cautiously.¹⁴⁰ In the absence of being able to quantify these effects, the break-even method is an unreliable estimator of forecast inflation. The AER noted that the modelling and estimation required to adjust break-even estimates for the potential biases and risk premia may be complex, contentious and difficult to scrutinise. Further, their time-varying nature makes it difficult to ascertain the magnitude of the biases and risk premia at any given bond rate.¹⁴¹

The QRC opposed using the break-even method proposed by Aurizon Network. It submitted that the change in inflation forecast methodology is principally sought because of the material increase it produces in the MAR.

The QRC said that Aurizon Network's views on inflation are an opportunistic attempt to increase pricing.¹⁴² BMA made the same observations, noting that Aurizon Network's shift from the accepted RBA estimate in favour of its own lower estimate relies less on recent assessments and decisions and more on improving cash flows when calculating annual revenues.¹⁴³

The QRC noted that the AER considered a similar indexed bond proposal to that of Aurizon Network in regard to AusNet Services distribution network. The QRC said that the rationale for the AER's decision to reject the break-even approach and retain the RBA forecast method included:

- The method was consistent with the regulatory arrangements that have applied since 2008 (regulatory certainty).
- The midpoint of the RBA's inflation targeting band would reflect longer-term inflation expectations.
- Evidence suggests that the RBA's control of official interest rates and commentary has an impact on outturn inflation and expectations.
- The method is simple, transparent and easily replicated.¹⁴⁴

In response to this, Aurizon Network noted that the QCA is not bound by the National Electricity Rules (NER) and stated that a rejection by the AER of the break-even forecast method due to the requirements of the NER has no implications for the QCA's determination of Aurizon Network's inflation forecast methodology.¹⁴⁵

¹³⁷ AFMA 2016.

¹³⁸ Alternatively, if the inflation risk premium is negative, then the net effect of these two phenomena is likely to bias downward the estimate of expected inflation from the break-even method.

¹³⁹ Finlay & Wende 2012.

¹⁴⁰ Aurizon Network, sub. 33: 23.

¹⁴¹ AER 2017c: 30–31.

¹⁴² QRC, sub. 21: 12.

¹⁴³ BMA, sub. 24: 2.

¹⁴⁴ QRC, sub. 21: 13.

¹⁴⁵ Aurizon Network, sub. 26: 10–11.

The QRC's consultant, Castalia, noted that Aurizon Network's break-even approach could potentially provide useful information that is likely to be part of the RBA's considerations in inflation forecasts.¹⁴⁶ That is, the relative performance of indexed and nominal bonds is an information input and is not the sole source of information in inflation forecasting.

In September 2017, Aurizon Network provided an updated report by CEG.¹⁴⁷ CEG proposed that the role of regulatory inflation should be to remove from the nominal cost of capital the compensation for inflation exposure that is already embedded in the nominal cost of capital. This delivers the real rate of return required by investors in an inflation-protected regulatory regime. CEG said that nominal bond investors have strong incentives to buy/sell at yields that provide accurate compensation for expected inflation.¹⁴⁸

CEG suggested that it is possible that bond market investors demand compensation for inflation that is higher/lower than the best forecast available to the regulator. The existence of a positive/negative inflation risk premium in the nominal bond yield could mean that, for example, investors require 1.5 per cent compensation for inflation even though actual inflation is more likely to be 2.5 per cent. CEG said that the 1.5 per cent forecast should be the amount removed to arrive at the real cost of capital.¹⁴⁹

CEG concluded that if nominal bonds have low real yields because investors like exposure to inflation risk, then any inflation risk premium must be taken into account and removed from Aurizon Network's cost of capital. CEG commented that because Aurizon investors do not bear inflation risk associated with a fixed nominal rate of return, it would be an error to compensate those investors as if they were exposed to positive or negative inflation risk. CEG said that the bond market inflation method automatically deals with the problems associated with inflation risk premia.¹⁵⁰

CEG noted that the bond market inflation rate is lower than the RBA mid-point of ranges approach previously used by the QCA, and that this could be due to either or a combination of the following:

- Investors expect inflation consistent with the RBA range but are happy to earn less than this in compensation for expected inflation because they value being exposed to inflation risk. That is, they are happy with a guaranteed nominal return rather than a real return.
- Investors do not expect inflation to be in the midpoint of the RBA forecast/target range.¹⁵¹

CEG concluded that given the large gap between bond market inflation estimates and the midpoint of RBA forecast/target ranges estimate, the latter is overestimating inflation expected by bond market investors. However, even if the RBA method is accurate, CEG said it should not be used as regulatory inflation, as inflation exposure for nominal assets is highly valued by investors, to a value of an estimated 76 basis points.¹⁵²

CEG also suggested that even if inflation expectations are in line with RBA forecasts/targets, and the break-even method gives a lower inflation forecast, then the latter is the rate that is

¹⁴⁶ QRC, sub. 20, Annexure 1: 8–9.

¹⁴⁷ Aurizon Network, sub. 33: 7.

¹⁴⁸ Aurizon Network, sub. 33: 9.

¹⁴⁹ Aurizon Network, sub. 33: 10.

¹⁵⁰ Aurizon Network, sub. 33: 4, 14.

¹⁵¹ Aurizon Network, sub. 33: 3.

¹⁵² Aurizon Network, sub. 33: 30.

embedded in the nominal risk-free rate and that should be used for the inflation gain deduction from revenues.¹⁵³

CEG's proposal was on the basis that the QCA continues to provide for inflation-protected returns and does not offer nominal returns.¹⁵⁴ As noted in section 4.2, the QCA has decided to approve Aurizon Network's proposal to use forecast inflation to both deduct the inflationary gain from allowable revenues and roll forward the RAB.

Notwithstanding this, the inherent and unquantifiable biases associated with the break-even method as noted above are not well enough understood to provide confidence that the break-even method is appropriate, irrespective of the extent of any inflation risk premium built into the nominal bond rate. Furthermore, as noted above, the inflation risk premium would be expected to be volatile in response to short-term variations in investors' risk appetites and would not truly reflect long-term inflation expectations; it is therefore not consistent with the requirement for an unbiased forecast of inflation over the four-year regulatory period.

The QCA therefore does not consider that it is appropriate to remove the inflation risk premium from the cost of capital, as this would result in a biased estimate.

Aurizon Network also suggested that, if the QCA considers there are biases in the nominal CGS yield, then that yield is a biased proxy for the risk-free rate in the QCA's WACC. For instance, the QCA previously indicated that a negative real risk-free rate (implied by the break-even approach) was due to a negative inflation risk premium on nominal bonds. However, Aurizon Network said that the QCA has ignored the related implication that the nominal bond yield would therefore be biased downward. Accordingly, the QCA should adjust the risk-free rate upward for this bias.¹⁵⁵

We do not accept Aurizon Network's arguments for an adjustment to the risk-free rate. If an access provider is risk-free in nominal terms, then the appropriate cost of capital is the nominal risk-free rate. Only this rate will satisfy the NPV=0 principle, and the factors that determine the risk-free rate are not relevant to this conclusion. For this reason, we do not accept there is a case to make an upward adjustment to the risk-free rate to reflect an inflation risk premium that is negative.

4.1.3 The RBA inflation target method

The QRC proposed that the midpoint of the inflation target band (the 2.5 per cent midpoint) be used to forecast inflation. In favour of this approach, the QRC noted:¹⁵⁶

- Since inflation targeting started in 1993, the annualised inflation rate has been marginally higher at 2.6 per cent than the midpoint of the RBA's inflation target range of 2.5 per cent.
- A long-term and stable approach to inflation (free of bias, uncertainty and potential for disputes) is more appropriate, given the commercial context of pricing for long-life infrastructure.
- A change in the methodology for forecasting inflation that is known to produce a low inflation result and materially increase charges to users is contrary to the objective of regulatory certainty.

¹⁵³ Aurizon Network, sub. 33: 30.

¹⁵⁴ Aurizon Network, sub. 33: 3.

¹⁵⁵ Aurizon Network, sub. 1: 119.

¹⁵⁶ QRC, sub. 21: 10–14.

The QRC noted that a choice exists between inflation forecasts based on a contemporaneous forecast revised for each regulatory period and a constant long-run measure of inflation across multiple regulatory periods. The QRC considered that a long-term inflation forecast is effectively a cash flow deferment factor—enabling stable and predictable cash flows.¹⁵⁷

However, Aurizon Network noted that the break-even method would provide more stable cash flows than the long-term forecast of 2.5 per cent. That is, when the risk-free rate is high, break-even inflation is likely to be high. The higher return on capital would be offset by the inflationary gain deduction, thereby smoothing reference tariffs over time.¹⁵⁸

4.1.4 The RBA forecast method

The QCA notes that RBA forecasts provide materially better forecasts of actual inflation, exhibiting a lower root mean square error (RMSE)¹⁵⁹, and that they remain simple, transparent and replicable. For example, Tulip and Wallace report that the RMSE of the RBA's forecasts are materially superior to the use of the inflation target (and statistically significant) for one year ahead (0.89 per cent versus 1.41 per cent), and marginally superior (but not statistically significant) for the second year ahead (1.27 per cent versus 1.36 per cent).¹⁶⁰ Tulip and Wallace also report that the RMSE of the RBA's forecasts are marginally superior to those provided by other private sector forecasters (but the differences are not statistically significant).

The empirical evidence suggests that the best forecast over the next four years would be the RBA's short-term forecast for the first year coupled with the inflation target for the remaining three years.¹⁶¹ We note Lally concluded that the RBA forecast approach used by the QCA for the DBCTM final decision (using RBA short-term forecasts for beyond the first year where available) is 'close to optimal'.¹⁶²

CEG considered that there is no reason to believe that the probability weighted average of all possible inflation outcomes falls in the middle of the RBA forecast and target ranges. CEG said that the RBA's use of wide forecast ranges implies a level of uncertainty, and that the top and bottom of the ranges move only in 0.25 per cent increments. CEG agreed that it might be reasonable to make the assumption that inflation outcomes fall in the middle of the RBA ranges over a long period (20 years or longer), but over a shorter period it is irrational for investors to assume this would always occur.¹⁶³

The QCA's analysis (see section 4.2) indicates that since the commencement of the 2006 Undertaking, the average inflation rate has been close to the mid-point of the RBA's 2–3 per cent target band. The QCA agrees that this is only achieved over the long run and may not be achieved within one regulatory period. However, by using RBA forecasts for the first two years of the regulatory period, the forecast average takes account of short-term expectations driven by economic conditions and therefore should provide a better forecast.

CEG also noted that the RBA forecast/target method implies that bond investors are expecting inflation of 2.37 per cent, which gives a real return on bonds of –0.47 per cent. CEG said this

¹⁵⁷ QRC, sub. 21: 13.

¹⁵⁸ Aurizon Network, sub. 26: 10.

¹⁵⁹ The RMSE measures the difference between estimated and observed data points; it is derived as the average of the squared errors. A lower RMSE implies a better estimator.

¹⁶⁰ Tulip & Wallace 2012.

¹⁶¹ Lally 2017a.

¹⁶² Lally 2017a.

¹⁶³ Aurizon Network, sub. 33: 17–18.

was not credible given that the same investor could buy an inflation-protected government bond and earn a positive 0.28 per cent return.¹⁶⁴ However, this finding supports CEG's explanation that bond investors potentially are happy to earn less because they value being exposed to inflation risk and are seeking a guaranteed nominal return rather than a real return.¹⁶⁵ The break-even method in this case is underestimating the forecast inflation rate and therefore could not be considered as the best unbiased estimator of inflation.

Given the shortcomings of the break-even approach, the QCA considers that the RBA forecast/target approach is appropriate. It is more observable and transparent and, as noted by the AER, does not respond to short-term surprises in inflation outcomes. While inflation targeting by the RBA remains effective, the RBA forecast method provides the best unbiased estimator of inflation.¹⁶⁶

4.2 Indexation of the asset base for pricing and roll-forward purposes

4.2.1 Aurizon Network's 2017 DAU proposal

Aurizon Network proposes to apply the forecast rate of inflation used for the development of reference tariffs for the purposes of determining indexation when applying the RAB roll-forward principles (see Schedule E, cl. 1.1.1(a)).

QCA analysis and draft decision

Summary of draft decision 4.2

- **The QCA is minded to approve the Aurizon Network 2017 DAU proposed indexation of the RAB using forecast inflation for the roll-forward process, which aligns with the forecast inflation used to develop reference tariffs and maximum allowable revenues.**
- **The QCA is willing to consider alternative approaches, including, but not limited to:**
 - (a) **using forecast inflation to determine reference tariffs and using actual inflation to roll forward the RAB for the purposes of setting new reference tariffs for a future regulatory period**
 - (b) **aligning actual inflation with reference tariffs and the RAB roll-forward by the use of a true-up adjustment at the end of the regulatory period. This would be achieved by an *ex post* adjustment to reflect the difference between the actual inflation rate and the *ex ante* forecast rate.**

A forecast inflation rate is required to determine Aurizon Network's forward-looking reference tariffs and allowable revenues. These are based on a nominal WACC and the RAB, both of which include forecast indexation. To avoid double counting, the inflationary gain is deducted from allowable revenues.

The QRC specifically considered that:

¹⁶⁴ Aurizon Network, sub. 33: 18–19.

¹⁶⁵ Aurizon Network, sub. 33: 3.

¹⁶⁶ AER 2017c: 24.

- Any decision to align the approaches to forecasting inflation should continue to satisfy the NPV=0 principle.¹⁶⁷ In collaborative submissions, Aurizon Network responded that it is still important to have an accurate inflation forecast as it affects the timing of cash flows.¹⁶⁸
- Removing the differences in inflation methods applying to the RAB and revenues to reduce risks should lead to a reduction in the beta.¹⁶⁹ In its collaborative submission, Aurizon Network submitted that it is not a sound conclusion that correcting the inflation rate inconsistency will reduce systematic risk. Aurizon Network said that if investors prefer a real return, the change actually increases an equity investor's risk.¹⁷⁰

The QRC also noted that it appears Aurizon Network is seeking to change an approach that has applied since its very first undertaking.¹⁷¹

The QCA recognises that Aurizon Network's recent access undertakings have been developed on the basis of using forecast inflation rates when setting reference tariffs and maximum allowable revenues,¹⁷² and actual inflation when rolling forward the RAB.¹⁷³ Although, the QCA notes that the 2001 Undertaking was based on a CPI-X price cap, with reference tariffs being escalated quarterly based on actual CPI, while the indexation of the RAB for roll-forward purposes using actual CPI was settled during the consideration of the subsequent 2006 Undertaking. The method of forecasting inflation has changed since the first access undertaking was approved for the central Queensland coal network and has been maintained during UT2–UT4.¹⁷⁴

Aurizon Network submitted that in the event that actual inflation is higher/lower than the forecast inflation used for determining reference tariffs, Aurizon Network will gain/lose from the indexation applied as part of the RAB roll-forward process at the start of the subsequent regulatory period. Aurizon Network noted that in certain circumstances this effectively means that it achieves a lower rate of return.¹⁷⁵

Aurizon Network's proposed treatment of inflation is intended to address a perceived mismatch between the actual inflation rate applied to the RAB and the forecast inflation rate applied to develop reference tariffs.

A key consideration for the QCA informing this draft decision is the application of the NPV=0 principle. In theory, this is maintained if the best unbiased estimate of inflation is applied to deduct inflationary gain for purposes of developing forward-looking reference tariffs.¹⁷⁶ Over time, the variations in the actual inflation rate used for the RAB as compared to the forecast inflation rate used to adjust revenues would be expected to offset each other, on the basis that the actual inflation rate aligns closely with the best estimate forecast over the long run.

¹⁶⁷ QRC, sub. 21: 12.

¹⁶⁸ Aurizon Network, sub. 26: 9–10.

¹⁶⁹ QRC, sub. 21: 10, 12.

¹⁷⁰ Aurizon Network, sub. 26: 10.

¹⁷¹ QRC, sub. 21: 11.

¹⁷² That this, for pricing purposes forecast inflation is applied to the capital components of the MAR.

¹⁷³ Aurizon Network, sub. 1: 114.

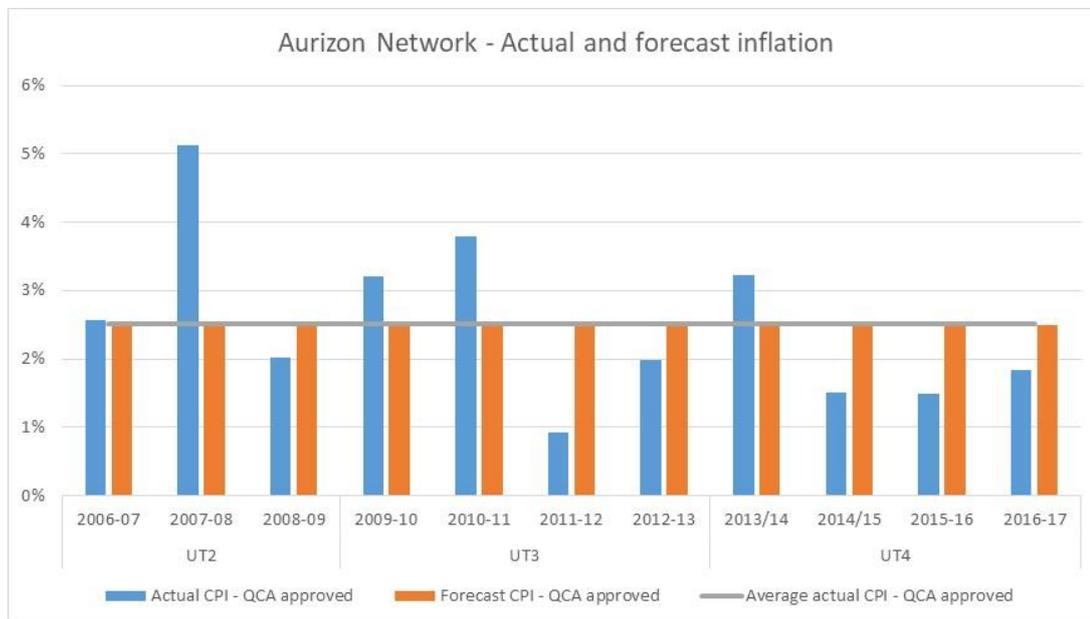
¹⁷⁴ The QCA propose using RBA short-term forecasts where available rather than the midpoint of the RBA target band (2.5 per cent) as used in previous decisions relating to the central Queensland coal network (for example, UT2–UT4). In UT1, the QCA used the difference between the nominal bond rate and inflation-indexed bonds over the same period. This means that the QCA's view of the best unbiased estimator has changed over time. In addition, actual inflation in recent times has fallen below the 2-3% RBA target band. For these reasons, the QCA considers that the continuity argument is weak.

¹⁷⁵ Aurizon Network, sub. 1: 114–15.

¹⁷⁶ The QCA's discussion on the best unbiased estimate of inflation is at section 4.1.

The QCA intends to apply a consistent approach in relation to these matters into the future in order to provide regulatory stability. Relevantly, the QCA notes that an analysis of forecast and actual inflation rates since the 2006 Undertaking highlights that Aurizon Network's proposal is not unreasonable at this time (see below).

Figure 7 QCA analysis of actual and forecast inflation since UT2



While recent undertakings have used forecast inflation to deduct the inflationary gain from revenues, and applied actual inflation to index the RAB, further analysis of the advantages and disadvantages of this method as compared to other methods is warranted. Accordingly, we have considered this matter as part of this draft decision in order to reach an explicit determination on it which will apply going forward.

In considering afresh the treatment of inflation for Aurizon Network, the QCA identified three approaches. Since the forecast of expected inflation is an unbiased estimator of the actual inflation rate, the expectation of the revenue deduction equals the expectation of the RAB adjustment. As a result, each of the approaches identified below will satisfy the NPV=0 principle. The three approaches are:

- **Forecast–Forecast**—as proposed by Aurizon Network, this method uses forecast inflation to determine reference tariffs (revenues) and for the purposes of indexation of the RAB.

By using forecast inflation for reference tariffs and indexation of the RAB, with no correction for actual inflation outcomes, this method locks in the nominal rate of return as set at the start of the regulatory period. At the commencement of the subsequent regulatory period, a new inflation forecast (and therefore WACC) would apply and the historical RAB would be rolled forward using the previous period's inflation forecast.

A result of this approach is that for future regulatory periods the RAB is indexed at the forecast rate of inflation rather than the actual inflation. If forecast inflation is consistently higher/lower than actual inflation, the RAB value at the next reset would be higher/lower as compared to actual inflation.

An advantage of this approach is that it minimises adjustments being made and provides all stakeholders with certainty and stability in respect of the future value of the indexation to

the RAB and prices. By providing a target nominal rate of return it conceptually aligns with fixed nominal debt contracted by Aurizon Network.¹⁷⁷

- Forecast–Actual—using forecast inflation to determine reference tariffs (revenues) but applying actual inflation for the purposes of indexation of the RAB roll-forward at the subsequent regulatory reset.

This method maintains an approximate real rate of return, as it resets the RAB at the actual rate of inflation for the subsequent regulatory period. This approach has been approved by the QCA in recent regulatory decisions, including Aurizon Network's 2016 Undertaking. An advantage is that the RAB is maintained at a value commensurate with the actual inflation rate that occurred over the previous regulatory period. A disadvantage of this approach is that it creates a perceived mismatch between the inflation rates applied to the revenue deduction and the RAB roll-forward.

- Actual–Actual—effectively applying actual inflation to both reference tariffs (revenues) and indexation of the RAB by use of a true-up adjustment at the end of the period. This could be achieved by an *ex post* adjustment to reflect the difference between the actual inflation rate and the forecast rate of inflation. The end-of-period adjustment would involve an assessment of the cumulative actual inflationary gain as compared to expected inflation incorporated into the revenues/prices.

With the WACC constant in nominal terms over the regulatory period, the actual real rate of return varies depending on the variation between actual and forecast inflation over the period. Hence, Aurizon Network bears the risk that the real rate of return achieved on an *ex post* basis varies from that established at the start of the regulatory period.

An advantage of this method, like the Forecast–Actual method, is that the RAB is maintained at a value commensurate with actual inflation over the regulatory period. A disadvantage is the uncertainty created by additional adjustments that need to be made at the end of the regulatory period.

While the QCA notes that there are several approaches that can satisfy the NPV=0 principle, these three are presented to assist stakeholders in providing comments.

In its recent decisions on DBCTM, and Aurizon Network's 2016 Undertaking, the QCA approved the Forecast–Actual approach.

However, as noted above, we have considered this matter afresh, taking account of the advantages and disadvantages of each approach in the application to Aurizon Network's circumstances.

Aurizon Network noted that the Forecast–Actual approach delivers a real cost of capital. Aurizon Network considered that the approach is problematic because debt is usually contracted in nominal terms, and that the approach of using different inflation rates (for the MAR and RAB) is not appropriate from a debt investor perspective.¹⁷⁸

Aurizon Network said the market has priced in an inflation expectation of only 1.22 per cent (since updated to 1.62 per cent¹⁷⁹), materially below a 2.5 per cent forecast. Therefore, applying an inflation rate of 2.5 per cent to determine reference tariffs, and actual inflation to roll

¹⁷⁷ Aurizon Network, sub. 1: 115.

¹⁷⁸ Aurizon Network, sub. 1: 115.

¹⁷⁹ Aurizon Network, sub. 33: 2.

forward the RAB, results in a return lower than the regulatory allowed return, due to the higher deduction from the allowable revenues and the lower opening RAB for the next undertaking period.¹⁸⁰

Aurizon Network's consultant, CEG, observed that the mismatch in inflation rates has been significant and that Aurizon Network has not been compensated for the estimated nominal cost of capital over the UT4 period; this experience would likely be repeated in the UT5 period.¹⁸¹

Aurizon Network proposed that, by using a forecast inflation rate to roll forward the RAB, both before and after MAR has been determined, the inconsistency would be resolved. If the forecast inflation rate is used to roll forward the RAB, investors will receive the same targeted nominal rate of return regardless of actual inflation. Aurizon Network submitted that this approach will promote regulatory certainty around the regulatory reset, because the final year actual inflation is not known at the beginning of the next regulatory period. Aurizon Network and stakeholders will have certainty over the value of the opening RAB if the forecast inflation rate is used to roll forward the RAB.¹⁸²

The choice of method for the treatment of inflation is finely balanced. In essence, if the actual inflation rate aligns with the forecast inflation rate over many regulatory periods, there is in effect no difference between the approaches, and all meet the NPV=0 principle.

For the draft decision, the QCA is minded to approve the approach proposed by Aurizon Network (Forecast–Forecast). It is consistent with the NPV=0 principle and is simple to apply. In this instance, the QCA notes that an analysis of forecast and actual inflation rates since the 2006 Undertaking highlights that Aurizon Network's proposal is not unreasonable at this time. Based on the above conceptual overview, the Forecast–Forecast method provides an appropriate balance between the competing interests of Aurizon Network, access holders and access seekers.

The key concern with adopting the Forecast–Forecast approach is that the RAB value may diverge from actual CPI if there are significant variations in actual CPI from the inflation forecast. However, the QCA is confident that the inflation forecast is the best available unbiased forecast and such variations should be minimised.

Given the choice of options is finely balanced, the QCA considers it appropriate to test the level of consensus amongst stakeholders, noting that once a method is chosen, it should remain in place for future regulatory periods.

The QCA considers that the proposed approach is consistent with the object of promoting the economically efficient operation of, and investment in, infrastructure, and the legitimate business interests of the owner or operator of the services (ss. 138(2) (a) and (b) of the QCA Act).

¹⁸⁰ Aurizon Network, sub. 1: 115.

¹⁸¹ Aurizon Network, sub. 2: 6.

¹⁸² Aurizon Network, sub. 1: 116.

5 RATE OF RETURN

5.1 Aurizon Network's 2017 DAU proposal

Aurizon Network's proposed reference tariffs and allowable revenues are based on a proposed post-tax nominal (vanilla) WACC of 6.78 per cent per annum, comprising:¹⁸³

- return on equity of 9.13 per cent per annum
- return on debt of 4.86 per cent per annum
- capital structure of 55 per cent debt (45 per cent equity)
- gamma of 0.25.

'Approved WACC' is also a defined term in Aurizon Network's 2017 DAU.

5.2 Key issues identified during the QCA's investigation

The QCA has considered all elements of Aurizon Network's proposed WACC in making this draft decision. The following issues attracted comment from stakeholders or have been identified for further consideration:

- approach to assessing Aurizon Network's rate of return (see section 5.4)
- risk-free rate (see section 5.5)
- market risk premium (see section 5.6)
- beta (see section 5.7)
- overall return on equity (see section 5.8)
- benchmark capital structure and credit rating (see section 5.9)
- cost of debt (see section 5.10)
- gamma (see section 5.11).

5.3 Overview of the QCA's draft decision

Summary of draft decision 5.1

- **The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to revise its proposed allowable revenues and reference tariffs, based on a WACC of 5.41%.¹⁸⁴**
- **The QCA also requires consequential amendments to the definition of Approved WACC to reflect this draft decision.**

The QCA considers it appropriate for Aurizon Network to amend the 2017 DAU to apply a post-tax nominal (vanilla) WACC of 5.41 per cent per annum, comprising:

¹⁸³ Aurizon Network, sub.1: 246.

¹⁸⁴ Annexure 1 (UT5 allowable revenue inputs—Excel Format) is part of this draft decision and provides the specific calculations used in the financial modelling to determine reference tariffs and allowable revenues. As such, figures in this draft decision have been rounded solely for presentational purposes.

- return on equity of 6.99 per cent per annum
- return on debt of 4.13 per cent per annum
- capital structure of 55 per cent debt (45 per cent equity)
- gamma of 0.46, comprising a distribution rate of 0.83 and a utilisation rate of 0.55.

Aurizon Network's proposed WACC parameters and the QCA's draft decision are outlined in Table 22 and considered in detail in this chapter.¹⁸⁵

Table 22 UT5 WACC parameters

<i>WACC parameter</i>	<i>Aurizon Network proposal</i>	<i>QCA draft decision</i>
Risk free rate*	2.13%	1.90%
Capital structure (% debt)	55%	55%
Benchmark credit rating	BBB+	BBB+
Asset beta	0.55	0.42
Equity beta	1.0	0.73
Market risk premium*	7.0%	7.0%
Debt risk premium*	2.47%	2.00%
Debt issuing and hedging costs*	0.262%	0.23%
Gamma	0.25	0.46

* *Inherent in Aurizon Network's proposal is the assumption that WACC parameters based on an indicative time period are to be updated to take into account the approved averaging period.*

The above figures have been rounded for presentational purposes. Refer to Annexure 1 (UT5 allowable revenue inputs—Excel Format) for the QCA's draft decision parameters.

5.4 The QCA's assessment approach

The QCA's role, when considering the reference tariffs and allowable revenues in the 2017 DAU, is to assess the rate of return proposed by Aurizon Network for providing below-rail services to coal-carrying trains, having regard to the factors at s. 138(2) of the QCA Act.

Aurizon Network submitted that it has undertaken a comprehensive review of the WACC methodology, noting that it disagreed with many aspects of the QCA's UT4 WACC decisions and that there have been changes in the financial market and coal market conditions.¹⁸⁶ Aurizon Network submitted that, although it has undertaken a fresh review of these matters, it has done so having regard to recent QCA precedent, as well as to relevant regulatory precedent from other jurisdictions.¹⁸⁷

A number of other stakeholders considered that the application of accepted methodologies and parameters approved in the 2016 Undertaking investigation should be retained for consistency,

¹⁸⁵ Annexure 1 (UT5 allowable revenue inputs—Excel Format) is part of this draft decision and provides the specific calculations used in the financial modelling to determine reference tariffs and allowable revenues. As such, figures in this draft decision have been rounded solely for presentational purposes.

¹⁸⁶ Aurizon Network, sub. 26: 22.

¹⁸⁷ Aurizon Network, sub. 1: 245.

while market-based parameters should be updated for the UT5 regulatory period.¹⁸⁸ The QRC strongly supported the view that ‘in the absence of compelling reasons to change the approach, the principle of regulatory continuity and predictability strongly supports continued application of the approach adopted in UT4’.¹⁸⁹

In considering whether previous QCA decisions provided Aurizon Network with a return reflecting its efficient cost of capital, the QRC pointed to analysis undertaken by its consultant, Castalia, which did not show material decreases, or deterioration, in Aurizon's share price performance caused by QCA decisions.¹⁹⁰ Aurizon Network considered that such comparison of Aurizon's share price to provide meaningful indications of the appropriateness of the QCA's decision is flawed.¹⁹¹

There are clear limitations in using Aurizon's share price to consider the appropriateness of previous regulatory rate of return decisions.

The QCA Act requires the QCA to consider the 2017 DAU submitted by Aurizon Network and either approve, or refuse to approve, that DAU, having regard to the criteria listed in section 138(2) of the QCA Act. Amongst other things, the QCA is required to consider Aurizon Network's WACC proposal afresh, examining whether the WACC parameters proposed by Aurizon Network generate an appropriate return commensurate with the commercial and regulatory risks involved in providing the below-rail service.¹⁹²

Given that Aurizon Network has reviewed various aspects of the WACC methodology as part of its 2017 DAU submission, we are considering Aurizon Network's proposal afresh. In assessing Aurizon Network's WACC proposal, we have had regard to the factors in s. 138(2) of the QCA Act. The QCA's full consideration of the matters raised by Aurizon Network and stakeholders, and of the statutory factors in s. 138(2) of the QCA Act, is set out in this draft decision.

Aurizon Network considered it essential that the rate of return reflect its commercial and regulatory risks:

The rate of return must be tailored to the specific regulatory and commercial risks to which Aurizon Network is subject and any benchmarking must be aligned to those specific risks faced by Aurizon Network.¹⁹³

Aurizon Network submitted that its UT5 revenue proposal has been prepared and assessed in the context of its current commercial and financial market environment, having regard to the conditions that are expected to prevail over the four-year regulatory period.¹⁹⁴ Aurizon Network submitted that, in establishing an appropriate return, the QCA must have regard to empirical market evidence and, where the QCA applies benchmarks, it must use data for firms that are comparable to Aurizon Network.¹⁹⁵

The regulatory rate of return allows Aurizon Network to compensate investors for the risk of committing capital to fund investments in the CQCN. The rate of return for the UT5 undertaking should, amongst other things, reflect Aurizon Network's commercial and regulatory risks. In

¹⁸⁸ BMA, sub. 24: 2; Fitzroy, sub. 22: 2; QCoal, sub. 16: 7; Anglo American, sub. 18: 13; QRC; sub. 21, Annexure 1: 2, 7–9; QRC, sub. 21: 5.

¹⁸⁹ QRC, sub. 21: 14.

¹⁹⁰ QRC, sub. 21, Annexure 1: 7–9.

¹⁹¹ Aurizon Network, sub. 26: 24–25.

¹⁹² As reflected in the pricing principles in s. 168A(a) of the QCA Act.

¹⁹³ Aurizon Network, sub. 1: 247.

¹⁹⁴ Aurizon Network, sub. 1: 247.

¹⁹⁵ Aurizon Network, sub. 1: 247.

assessing Aurizon Network's WACC proposal, the QCA has taken into consideration the current commercial and financial market environment that Aurizon Network faces. However, as outlined in Chapter 2, this needs to be considered in the context of how Aurizon Network's regulatory framework addresses relevant risks associated with the current commercial and financial market environment.

Aurizon Network considered the WACC needs to be estimated having regard to the following characteristics that drive its 'core' systematic risk profile:

- Aurizon Network operates a stand-alone below-rail coal network that has a long economic life and no alternative use.
- Aurizon Network has high operating leverage (i.e. a high proportion of its costs are fixed).
- The CQCN operates as part of a complex integrated supply chain.
- The nature and scale of Aurizon Network's operations require it to raise capital in both domestic and global markets.
- The demand for services is ultimately derived from the seaborne coal market, which depends on the relative competitiveness of CQCN producers and can also be influenced by government policy actions.
- Aurizon Network's user base is highly concentrated.¹⁹⁶

The QCA has taken into consideration these characteristics in assessing the overall rate of return and estimating specific WACC parameters, as outlined, where relevant, throughout this chapter.

Additionally, Aurizon Network submitted that it is essential that the rate of return:

- is assessed from the perspective of investors—it is necessary to have regard to the approach that investors will take in practice when forming their return expectations and evaluating alternative investments.
- has regard to the characteristics of the investor base and its requirements.¹⁹⁷

Aurizon Network stated that its investor base has the following characteristics:

- It comprises sophisticated domestic and global investors, who are constantly evaluating opportunities in the global marketplace.
- Investors evaluate investments over a long-term, forward-looking horizon.
- Investors are becoming increasingly focused on regulatory risk, and value stability and predictability in the regulatory framework.
- Investors evaluate Aurizon Network as part of a broader infrastructure asset class, which comprises regulated and unregulated assets.
- Investors are more likely to focus on the overall return (relative to the risks involved), rather than on underlying parameter estimates.¹⁹⁸

While Aurizon Network's regulatory rate of return is estimated using a benchmarking approach, the QCA's assessment of Aurizon Network's WACC proposal has taken into account the

¹⁹⁶ Aurizon Network, sub. 1: 258, 271.

¹⁹⁷ Aurizon Network, sub. 1: 245–46.

¹⁹⁸ Aurizon Network, sub. 1: 258–59.

perspective of investors, where it has been relevant to do so. This includes consideration of the characteristics of Aurizon Network's investor base. As outlined above, the QCA's draft decision has given consideration to Aurizon Network's commercial and financial market environment, as well as the regulatory and commercial risks faced by Aurizon Network.

More specifically, the QCA's assessment of Aurizon Network's WACC parameters incorporates the characteristics of Aurizon Network's investor base. Relevantly, this entails a forward-looking, market-based assessment of Aurizon Network's opportunity cost of capital for the UT5 undertaking period.

By taking this approach, the QCA considers that it has estimated a rate of return that is sufficient to compensate investors for Aurizon Network's exposure risk, given the way in which risk is addressed in the regulatory framework.

The QCA has developed a detailed, bottom-up estimate of the individual parameters and considered Aurizon Network's proposal and submissions. While we have undertaken a detailed review of the individual WACC parameters of Aurizon Network's proposed rate of return to test their reasonableness, we are ultimately guided by whether the overall level of rate of return is reasonable and appropriate to approve having regard to the criteria in section 138(2) of the QCA Act. In making this assessment, we have considered whether the proposed rate of return is sufficient for Aurizon Network to provide a return on investment commensurate with the commercial and regulatory risks involved, while balancing the legitimate business interests of Aurizon Network and the interests of its customers and the general public.

The draft decision on Aurizon Network's UT5 WACC allows for the economically efficient operation of the declared service, as it is based on a reasonable rate of return required by the access provider for providing these services. In considering the extent to which the draft decision promotes the economically efficient use of, and the economically efficient investment in, infrastructure, the QCA has taken into account the legitimate business interests of Aurizon Network and the incentives for investment, by setting a WACC that is commensurate with the commercial and regulatory risks involved.

5.5 Risk-free rate

Aurizon Network's proposal

Aurizon Network proposed that the averaging period be set confidentially, although it provided an indicative estimate of the risk-free rate of 2.13 per cent per annum, based on the nominal yields of 10-year Commonwealth Government bonds and an (indicative) averaging period of the 20 business days ending 30 June 2016.¹⁹⁹ Aurizon Network proposed the averaging period would be set as follows:

Aurizon Network proposes, consistent with QCA practice, that the risk free rate be updated prior to the QCA's Final Decision on UT5. Aurizon Network proposes that this is done by it confidentially proposing the averaging period for QCA approval. The final averaging period and resulting estimate is then published in the UT5 Final Decision.

Aurizon Network has applied a risk free rate of 2.13% for the purpose of this proposal. This will be updated prior to the QCA's Final Decision on UT5 based on an averaging period to be confidentially agreed with the QCA.²⁰⁰

¹⁹⁹ Aurizon Network, sub. 1: 246.

²⁰⁰ Aurizon Network, sub. 1: 267.

On 13 February 2017, Aurizon Network proposed the actual averaging period to be the 20 business days immediately prior to the UT5 period. On 10 March 2017, the QCA noted Aurizon Network's proposal was consistent with established regulatory practice and that the QCA was favourably disposed towards this proposal.²⁰¹

QCA analysis and draft decision

Summary of draft decision 5.2

- **The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to apply a WACC of 5.41% based on a risk-free rate of 1.90 per cent per annum.**
- **In this draft decision, the risk-free rate for the UT5 undertaking averaging period is based on:**
 - (a) **approval of Aurizon Network's choice of Commonwealth Government nominal bonds as the proxy for the risk-free asset**
 - (b) **approval of Aurizon Network's proposed averaging period of the 20 business days up to, and including, 30 June 2017**
 - (c) **a term to maturity consistent with the term of the regulatory period (i.e. four years).**

The rate of return on a risk-free asset (i.e. the risk-free rate) compensates the investor for the time value of money. As such, the risk-free rate is the base rate to which the investor adds a premium for risk. It is used as an input to estimate both the cost of equity and cost of debt components of the WACC. The QCA's draft decision is that it is appropriate to approve a risk-free rate of 1.90 per cent.

The QCA accepts Aurizon Network's proposed averaging period of the 20 business days immediately prior to 1 July 2017, using Commonwealth Government nominal bonds as the proxy for the risk-free asset.²⁰² The QCA notes that the Reserve Bank of Australia (RBA) provides a reliable information source, and the rates, as well as the estimation approach, are simple to understand, transparent and auditable.

Subsequently, in a September 2017 submission, Aurizon Network observed that the risk-free rate outcome of its proposed June 2017 averaging period was significantly lower, both before and after this period. Aurizon Network considered this would appear to be due to anomalous market factors and would not appear to reflect the likely rate that would apply during the regulatory period; therefore, the QCA should take this matter into account in determining the overall WACC.²⁰³

The QCA has investigated this matter and is not aware of anomalous market factors that would justify departing from Aurizon Network's proposed June 2017 averaging period. While bond rates were observably lower during Aurizon Network's proposed June 2017 averaging period, bond rates can vary in the short term and could be expected to do so over the course of the regulatory period. Aurizon Network has not identified, nor provided evidence for, any anomaly.

²⁰¹ QCA 2017a.

²⁰² The estimate is based on interpolation of relevant Commonwealth Government bond yields to obtain a four-year rate.

²⁰³ Aurizon Network, sub. 36: 2.

Arguments have been presented by stakeholders supporting a 10-year bond term (e.g. Aurizon Network) and alternatively, stakeholders supporting a 'term-matching' approach (e.g. the QRC).²⁰⁴ The QCA is required to form a view as to whether it is appropriate to approve this aspect of Aurizon Network's WACC proposal, taking into account the differing views of stakeholders.

After taking into consideration matters raised by Aurizon Network and other stakeholders, as well as the expert advice of our consultant, Dr Martin Lally, the QCA does not consider that Aurizon Network's proposed use of a 10-year bond promotes economically efficient investment compared to a bond term matched to Aurizon Network's proposed UT5 undertaking term (four years). In forming this view, the QCA notes that, in current market conditions, the difference between risk-free rates under the two different approaches is material. Specifically, Frontier Economics (Frontier) noted that the difference between four-year and 10-year government bond yields has varied in the 50 to 70 basis point range throughout 2017.²⁰⁵

Aurizon Network summarised its proposal as follows:

Aurizon Network has applied a ten year maturity for the term of the risk free rate. This is supported by the accompanying report by Brattle (refer Brattle WACC Report). Ten years is the longest liquid proxy for the risk free rate available in Australia and is consistent with the long-term horizon of investors in infrastructure that has a long life.

As highlighted by Brattle, a long-term horizon is consistently adopted by all other Australian regulators (the only exception being the ERA) as well as North American regulators and Ofgem. The Australian Competition Tribunal has also observed that the use of ten year term to maturity "is not contentious". It is also commonly applied by practitioners. Ernst & Young also finds the overwhelming majority (~98%) of valuation experts use a long-term (10 year) risk free rate in independent expert reports.

The reasons Brattle cites for other regulators relying on the long-term Government bond yield as the risk free rate (which is ten years in Australia and longer in North America) is that:

- "long-term government rates, which are commonly used to measure the risk free rate, are less influenced by monetary policy than are short-term rates;
- regulated assets are long-lived;
- equity investments have a perpetual horizon, representing a claim on cashflows generated by the company's assets in perpetuity;
- the Market Risk Premium (MRP) is often measured relative to a long-term government bond."

Aurizon Network does not consider that the term to maturity should be aligned with the length of the regulatory period, as was applied for UT4.²⁰⁶

In setting the term of risk-free rate, the QCA notes that some regulators have generally accepted the argument that the term of the bond should be a proxy for the life of the regulated asset. However, after considering all of the submissions and evidence, the QCA finds arguments for matching the term of the risk-free rate to the term of the regulatory period more persuasive and consistent with the pricing principles in s. 168A of the QCA Act (s. 138(2)(g)); accordingly, 'term-matching' for setting the risk-free rate is proposed for the UT5 undertaking period.

The QCA considers that setting the term of the risk-free rate with reference to the length of the regulatory term satisfies the condition that the net present value (NPV) of the expected future

²⁰⁴ Aurizon Network, sub. 1: 282–85; Aurizon Network, sub. 4; QRC, sub. 21: 15–16; Anglo American, sub. 18: 13; Fitzroy Australia Resources, sub. 22: 2; BMA, sub. 24: 2.

²⁰⁵ Aurizon Network, sub. 37: 4.

²⁰⁶ Aurizon Network, sub. 1: 266.

cash flows of the access provider should equal its initial investment (i.e. the 'NPV=0 principle'). In summary, the QCA considers:

- (a) Term-matching satisfies the NPV=0 principle regardless of the term structure of interest rates, while the 10-year rate, in general, will not satisfy this principle.²⁰⁷
- (b) If the term of the risk-free rate is longer than the term of the regulatory period and there is a positive yield curve, Aurizon Network will be compensated for interest rate risk that it does not bear. Conversely, if there is an inverted yield curve, Aurizon Network will be undercompensated.
- (c) Practical reasons advanced to justify the use of a 10-year rate are less persuasive, as they are effectively seeking to address issues that are fundamentally unrelated to the QCA's regulatory task of determining a rate of return, having regard to the factors set out in s. 138(2) of the QCA Act and weighing them appropriately.

In forming this draft decision, the QCA notes that if Aurizon Network had proposed a UT5 undertaking term of 10 years, then a consistent approach by the QCA would be to term-match the risk-free rate to the (10-year) regulatory period. Relevantly, Aurizon Network has proposed a four-year term for the UT5 regulatory period.

²⁰⁷ QCA 2014a. For further details on estimating the risk-free rate and detailed comments on the NPV=0 principle, see section 2.3 of the QCA's Market Parameters decision.

The NPV=0 principle and the appropriate term of the risk-free rate

The net present value principle (NPV=0 principle) states that the present value of the regulated firm's expected net cash flows should equal investors' initial investment, using a discount rate that reflects the opportunity cost of the investment.²⁰⁸

If allowed revenues are less than the expected revenues that satisfy the NPV = 0 principle, then investors will not have an incentive to invest. If allowed revenues are more than the expected revenues that satisfy this principle, then the additional revenue reflects the excess profit that the regulatory regime seeks to prevent in the first place.

Relevant literature

Schmalensee²⁰⁹ shows that, in order to satisfy the NPV=0 principle, the period of the risk-free rate should match the term of the regulatory cycle, but assumes that the only source of risk is over future interest rates and that the firm is financed only by equity.

Lally²¹⁰ extends Schmalensee's research by considering more realistic situations that include additional sources of risk, such as operating cost risk (which includes taxes), demand risk, and situations where aggregate depreciation might deviate from the initial cost of the asset. Lally also shows that, even in the presence of the risk of revaluations to the firm's RAB, the possibility of such risk should be dealt with through a risk allowance rather than by changing the term of the risk-free rate. Even under these more complex circumstances, Lally shows that Schmalensee's 'term-matching' result still holds—the correct term for the risk-free rate is a term matching the term of the regulatory period.

Lally further extends this work to consider the implications of corporate debt and shows that the only scenario in which the NPV=0 principle can be satisfied is where the regulator sets the terms of the risk-free rate and debt risk premium to match the term of the regulatory period.^{211,212}

Davis²¹³ extends Lally's result for corporate debt to allow for the debt risk premium provided by the regulator to vary over time and to consider a greater variety of borrowing arrangements. In this context, Davis notes that use of a debt maturity equal to the term of the regulatory period involved in the resetting of allowable, expected cash flows is the only approach consistent with achieving the goals of access pricing regulation as it has been practised under the 'building block' approach generally adopted in Australia.

Using a different approach, Davis also provides further support for matching the term of the risk-free rate to the term of the regulatory period. Davis applies the 'tracking portfolio' interpretation of the CAPM and determines that a term for the risk-free asset that matches the term of the regulatory period is the term that gives the best tracking portfolio and ensures the regulated asset has a net present value of zero.^{214, 215}

A tracking portfolio is a portfolio that has the same systematic risk characteristics and will have the same expected return as the asset in question. Effectively, the systematic component of a cash flow can be reproduced by investing in appropriate positions in the risk-free asset and the market portfolio. In this context, for example, a one-year cash flow can be mimicked by a portfolio of a one-year bond and a one-year investment in the market. The tracking portfolio should aim to minimise the tracking error of the actual return, but the actual return can differ if the asset (or the tracking portfolio) has non-systematic risk.

Davis demonstrates that using a term for the risk-free asset that exceeds the term of the regulatory period provides excess returns for the regulated asset if there is a positive term premium in the yield curve that is unrelated to interest rate expectations.

²⁰⁸ Marshall et al. 1981.

²⁰⁹ Schmalensee 1989.

²¹⁰ Lally 2004.

²¹¹ Lally 2007a.

²¹² Empirical evidence is that firms take out long-term debt (e.g. 10 years) to manage refinancing risk. However, given regular regulatory resets, firms have the incentive to match the term of this debt to the term of the regulatory period, the latter of which is less than 10 years. In practice, it is difficult to hedge the debt risk premium component of the cost of debt using credit default swap contracts, due to the lack of market liquidity in these instruments.

²¹³ Davis 2014.

²¹⁴ Davis 2003.

²¹⁵ The tracking portfolio approach to the CAPM is set out in Grinblatt and Titman 2002.

Aurizon Network and its consultants (Frontier and The Brattle Group) raised a number of concerns with term-matching. By way of background, Aurizon Network said that the NPV=0 principle requires the term of the discount rate to reflect the period over which there is cash flow uncertainty. Accordingly, if the cash flow uncertainty lasts for only five years, a five-year discount rate would be consistent with the NPV=0 principle. However, if the cash flow uncertainty lasts for the life of the asset, a long-term discount rate would be consistent with the NPV=0 principle.²¹⁶

Given this, Aurizon Network's first point is that the NPV=0 principle only implies the term of the risk-free rate should match the term of the regulatory period if the end-of-period asset value is certain. Accordingly, the firm's uncertain asset value at the end of the regulatory period means that the NPV=0 principle is violated under term-matching. Aurizon Network considered that its end-of-period asset value is uncertain because, as an asset servicing a single commodity that trades in a highly competitive global market, there is no certainty its RAB will be fully recovered over the long capital recovery period.²¹⁷

In its later September 2017 submission, Frontier said that there are two separate issues with regard to uncertainty:

- The horizon of the cash flows, which is determined by the time over which the future cash flows are uncertain.
- The risk of the cash flows, which is determined by the extent to which those cash flows are uncertain, that is, the quantum of the uncertainty.

Frontier added that for regulated assets, there are long-term, uncertain cash flows and these are what determine the horizon of the risk-free rate. The quantum of the uncertainty determines the amount of the risk premium. Therefore, adding a premium for risk has no bearing on the horizon over which there are uncertain cash flows.²¹⁸ In support of this view, Frontier said there are two ways to highlight the time over which cash flows are uncertain and the quantum of that uncertainty:

- If it is correct to 'cut off' a series of long-run risky cash flows on the basis that uncertainty, after a certain subset of the period (for example, four years), is picked up in beta, that approach could be applied to any series of long-term risky cash flows—on the basis that the beta somehow makes up for the use of the 'wrong' risk-free rate. However, there is no way of knowing whether the adjustment to the beta is sufficient to offset the use of a risk-free rate that does not match the horizon of the risky cash flows.
- The QCA's process for estimating beta is independent of its choice of the term of the risk-free rate. If there was a 10-year or one-year risk-free rate, there would be no change to its beta estimate. Therefore, it cannot be the case that beta somehow makes up for the use of the 'wrong' risk-free rate (i.e. a short-term risk-free rate has been applied to cash flows that are uncertain and risky over the long term).²¹⁹

Aurizon Network's second concern is that term-matching represents a departure from commercial practice—in particular, the NPV=0 principle will only hold with regard to an investment if the term of the risk-free rate is set at the term consistent with the market's

²¹⁶ Aurizon Network, sub. 1: 282.

²¹⁷ Aurizon Network, sub. 1: 282.

²¹⁸ Aurizon Network, sub. 37: 6, 18, 24.

²¹⁹ Aurizon Network, sub. 37: 24–25.

expectation, which is 10 years. In this context, Aurizon Network said that the QCA's practice is a purely theoretical approach that has no regard to how investors approach WACC in practice.²²⁰

On a related point, Frontier said that the QCA's term-matching approach is not consistent with a workably competitive market benchmark, and therefore it is not consistent with the Australian Competition Tribunal's (Tribunal's) and Full Federal Court of Australia's (Federal Court's) recent decisions and IPART's views. In particular, Frontier said the Tribunal and Federal Court established that the allowed rate of return must be gauged by the disciplines of a workably competitive market; that is, an unregulated market.²²¹ Frontier further stated that, under such an approach, evidence on required returns of otherwise similar, but unregulated, firms that operate in competitive markets would be relevant. Frontier concluded that, as the QCA's previous approach has involved adopting the perspective that regulated firms require a different return than firms operating in a competitive market—due to the former being subject to a regulatory reset process—the QCA's approach is inconsistent with the Tribunal's and Federal Court's findings.²²²

Aurizon Network's third concern is that the application of term-matching makes the QCA an outlier in regulatory practice, with the exception of the Economic Regulation Authority of Western Australia (ERA) in energy—Aurizon Network questioned why the QCA's regulatory task is different to that of other Australian regulators, which rely on similar legislative frameworks (all originating from the Competition Principles Agreement).²²³

Finally, Aurizon Network and Frontier said that if the QCA insists on applying term-matching in setting the risk-free rate, then for consistency the QCA should also use a risk-free rate of the same term (i.e. four years) in estimating the MRP.²²⁴

Aurizon Network's consultant, The Brattle Group, also presented a number of detailed arguments relating to the appropriate term for the risk-free rate (see Table 23 below).

In contrast, the QRC supported term-matching, noting it is preferable to Aurizon Network's proposed 10-year bond approach because:

- the outcome of using 10-year bond rates does not satisfy the NPV=0 principle when a regulatory reset of the risk-free rate occurs after four years
- any systematic risk should be compensated through the beta parameter in the CAPM, not by extending the term of the risk-free rate to a longer term
- the fact that some regulators apply different approaches is not determinative, as the QCA's approach should be assessed on its inherent merits.²²⁵

Anglo American supported the QRC's position on WACC matters.²²⁶ Fitzroy Australia Resources (Fitzroy) considered that no market or environmental changes have occurred since the UT4 process to justify any changes to WACC, with the exception of updating the time-variant parameters.²²⁷

²²⁰ Aurizon Network, sub. 1: 284.

²²¹ Aurizon Network, sub. 37: 13.

²²² Aurizon Network, sub. 37: 15.

²²³ Aurizon Network, sub. 1: 285.

²²⁴ Aurizon Network, sub. 1: 292–93; sub. 37: 7.

²²⁵ QRC, sub. 21: 15–16.

²²⁶ Anglo American, sub. 18: 13.

²²⁷ Fitzroy, sub. 18: 2.

After considering Aurizon Network's proposal and submissions by stakeholders, the QCA's draft decision is that the appropriate term for the risk-free rate is the term of the regulatory period. We do not agree with Aurizon Network and its consultants on the first three principal points raised. The reasons for our position with respect to these three concerns are set out in the following subsections.

5.5.2 The NPV=0 principle and end-of-period uncertainty

A key point raised by Aurizon Network and Frontier is that our position on term-matching, is based on the assumption that the end-of-period value of the regulatory assets is known with certainty at the outset. Therefore, if the firm's asset value at the end of the regulatory period is uncertain, then term-matching will violate the NPV=0 principle.

We do not agree with this position, and further note that Aurizon Network and Frontier have not provided evidence to support their views.²²⁸ Our view is that term-matching will satisfy the NPV=0 principle even if there is *ex ante* uncertainty about the value of the regulatory assets at the end of the regulatory period. Lally's analysis of this point shows that, when the end-of-period asset value is uncertain at the beginning of the regulatory period, the appropriate discount rate that satisfies the NPV=0 principle is one that involves a risk-free rate with a term that matches the term of the regulatory period.²²⁹

Further, other work by Lally considers a number of uncertainties and demonstrates that the appropriate risk-free rate is one with a term matching the term of the regulatory period. In the context of this result, Lally states, 'This holds even in the presence of cost and volume risks, and risks arising from asset valuation methodologies'.²³⁰

We do note that Frontier's claim that the appropriate risk-free rate should match the horizon of the cash flows is true in some situations. For example, if a project produces a certain cash flow in five years, then the value now of that cash flow is the cash flow discounted by the current five-year risk-free rate. Likewise, if a project produces an uncertain cash flow in five years, and that uncertainty is not determined, at least in part, by an observable risk-free rate (at some intervening point), then the value now of that cash flow is the expected cash flow discounted by the current five-year risk-free rate plus a premium for risk.

This situation reflects a standard valuation scenario. However, the regulatory situation differs from this standard scenario in (at least) one important way, and that difference involves the intermittent reset of the discount rate, including the risk-free rate. If the uncertainty in the future regulatory cash flows is determined, at least in part, by an observable risk-free rate at intervals then the analytical process applied differs from the standard valuation process.²³¹ Therefore, Frontier's claim is not valid in the specific context of regulation with periodic resets.

As a general principle, valuation uncertainties are allowed for by adding a risk premium to the discount rate used to value the cash flows, not by altering the term of the risk-free rate. We do not accept Frontier's point that an approach that 'cuts off' a series of long-run risky cash flows could be applied to any series of long-run risky cash flows. Assuming that Frontier's reference to 'cutting off' cash flows refers to a recursive valuation process, such a process applies to cash

²²⁸ The analysis of the arguments related to this topic are highly technical in nature and involve considering the views in a series of related papers over time. For instance, see Lally 2007a, Hall 2007 and Lally 2007b.

²²⁹ Lally 2017b: 5–8.

²³⁰ Lally, 2004: 18.

²³¹ In particular, the analytical process requires recursive valuation.

flows that are subject to regular resets in a regulatory situation—the process does not apply to risky cash flows in general.

We also do not accept Frontier's related argument that, given our beta estimation process is independent of the choice of the term for the risk-free rate, it cannot be the case that beta somehow makes up for the fact that the 'wrong' risk-free rate has been applied. The beta to which Frontier refers is not compensation for a 'wrong' risk-free rate. Rather, it is compensation for systematic risk and depends on the nature of that risk, not on differences in risk-free rates.

In principle, uncertainty during the regulatory period will be captured in the returns of relevant comparators (by definition). To the extent this uncertainty has a systematic effect on returns, that effect will be reflected in the beta estimates of these comparators.²³² Accordingly, there is no rationale for making an adjustment to beta. Whether the QCA applies a five-year or a 10-year risk-free rate (for example) has no implication for beta.

Moreover, to the extent any uncertainty is non-systematic, such risks could be addressed (if appropriate) through other mechanisms. The QCA notes that the UT5 undertaking (under this draft decision) provides a range of mechanisms that materially reduce such uncertainty (see Chapter 2).

Relevantly, it does not follow that the existence of end-of-period asset value uncertainty mandates the use of a long-term risk-free rate (in the presence of a shorter regulatory period). Specifically, Aurizon Network suggests that investors face uncertainty over the life of the asset and that a long-term risk-free rate would be appropriate given this long-term investor view.²³³ The implication is that the difference between the 10-year and four-year bond rate is somehow related to compensation for long-term uncertainty. However, this argument is problematic:

- The difference between these rates is determined principally by factors that relate to risk-free rates, such as expected future rates and compensation for holding long-term bonds.
- When the 10-year rate is above/below the four-year rate, the regulated firm will be over-/undercompensated as a general result. In particular, if the term structure of interest rates is such that the 10-year rate is less than the four-year rate, it is very difficult to see regulated firms proposing that the 10-year rate provides them with adequate compensation.

5.5.3 Commercial practice and the workably competitive market benchmark

The QCA considers that commercial valuation practice is not a suitable basis for determining the appropriate term of the risk-free rate for regulatory purposes. The setting of the regulatory rate of return is an exercise with the purpose of determining a regulated entity's appropriate return on investment over the regulatory period. On the other hand, the examples provided by Aurizon Network to represent commercial practice focus on valuing equities involving cash flows over very long periods. These exercises are two fundamentally different tasks. The QCA considers that satisfying the NPV=0 principle by matching the term of the risk-free rate to the term of the regulatory period achieves an appropriate return on investment over the regulatory period.

We have also considered Frontier's suggestion that the relevant benchmark is an unregulated firm in a competitive market and that we should seek to replicate workably competitive market outcomes. We have examined the Tribunal's and Federal Court's decisions, notwithstanding that they relate to a different regulatory regime and are therefore not binding on the QCA. The

²³² Refer to section 5.7 of this document for more information about our assessment of the beta.

²³³ Aurizon Network, sub. 1: 282.

two bodies' views are similar, in that they conclude that the benchmark firm should have a similar degree of risk to the regulated firm (and there is no need to characterise the benchmark firm as either a regulated or unregulated firm) and that when benchmarking efficient outcomes, regulation should reference a workably competitive market (i.e. an unregulated market).²³⁴

The first of these conclusions (i.e. similarity of risk) strongly indicates that the benchmark firm should be a regulated firm, notwithstanding the Federal Court's views that this characteristic is not necessary. It is well-established in the economics literature that regulation affects risk.²³⁵ This effect is also consistent with views in commercial valuation practice.²³⁶ As (systematic) risk affects beta, regulation must therefore affect beta. Therefore, it is highly improbable that one would find an unregulated firm with risk that is comparable to the risk of a regulated firm.

This conclusion seems to conflict with the second conclusion reached by the Tribunal and Federal Court, which is that regulation should benchmark a workably competitive market; however, we consider this apparent conflict to be superficial. Regulation should seek to mimic competitive market outcomes in the sense that (unregulated) firms in competitive markets charge prices that just cover their efficient costs, including the cost of capital—regulation should seek to do likewise.

However, it does not follow that the regulator should attempt to 'match' the regulated firm to an unregulated, competitive firm in all respects—the two firms are fundamentally different. Regulated firms, by definition, are subject to regulation, which implies that they face circumstances that differ from circumstances that unregulated firms in competitive markets face—for example, regulated firms face periodic resets of their allowed revenues, while unregulated firms do not. There are a range of models applied to regulated firms; these models include revenue caps and price caps, for example. These models also contain other mechanisms, like cost pass-throughs, which affect the risk and, in turn, the cost of capital of the regulated firm. This is not the case for unregulated firms in competitive markets.

In conclusion, the QCA's view is that there is nothing in the Tribunal's and Federal Court's rulings that specifically suggests that term-matching is not appropriate; that is, there is no indication in these decisions that a regulatory model based on the NPV=0 principle is not aligned with relevant competitive market benchmarks. In this regard, the QCA's view is that term-matching is consistent with the recovery of efficient costs, and is therefore consistent with the comparable competitive benchmark.

5.5.4 The practice of other regulators

The QCA acknowledges that most Australian regulators use a 10-year term for the risk-free rate. Nonetheless, the QCA also notes that other Australian regulators have used, or are using, a

²³⁴ *Federal Court of Australia 2017a, Australian Energy Regulator v Australian Competition Tribunal (No 2)* [2017] FCAFC 79 [536]–[537].

²³⁵ Rosenberg and Guy (1976) find that regulated industries have among the lowest betas after allowing for various firm-specific variables. Binder and Norton (1999) and Davidson, Rangan and Rostenstein (1997) show that systematic risk is inversely related to the intensity of regulation.

²³⁶ For example, in the context of a systematic risk assessment of DBCT, Grant Samuel states: 'A beta in the range 0.7–0.8 has also been adopted for DBCT. While this appears low, none of the other listed ports are regulated and in Grant Samuel's view, the regulated nature of the asset (and the certainty of its cash flows) warrants a lower beta.' See Grant Samuel 2010, Appendix 1—Selection of Discount Rates: 10.

regulatory term for setting the risk-free rate. For example, the ERA matches the term of the risk-free rate to the term of the regulatory period for its gas decisions.²³⁷

Some of these practices appear to arise from differences in regulatory objectives and underlying statutory factors. For example, IPART has adopted a 10-year term on the basis that this term is more consistent with long-term averages applied in setting a WACC. In addition, IPART also considered achieving NPV neutrality is not its most important regulatory objective.²³⁸ Similarly, the ERA adopted a 10-year term for setting the risk-free rate for the railway networks, even though it applied term-matching in its gas decisions.

The ERA justified these different positions by noting differences in the respective codes that apply to these two sectors in Western Australia—the rail code requires estimation of a 'long-term' WACC, whereas the gas code does not.²³⁹ Specifically, the effective term for the ERA's estimates is the 'economic life of the assets', as this is the requirement under the Rail Code. The ERA states that:

The Authority notes that the longer term estimates developed for the rail WACC are not directly comparable to the five year forward looking estimate of the rate of return used for its gas decisions. The term of the gas rate of return is conditioned by the five year term of the regulatory period, which requires a five year term for the rate of return estimate in order to maintain the present value ("NPV=0") condition. In contrast, the term of the rail WACC is conditioned by the explicit requirement for a 'gross replacement value' annuity, which is paid over the 'economic life' of the rail assets. This is a different regulatory framework to that utilised for the Authority's gas pipeline regulation.²⁴⁰

The QCA's position is that it does not consider that consistency with long-term estimates should take priority over satisfying NPV neutrality. Moreover, the QCA considers that achieving NPV neutrality is more important in the context of the QCA Act to provide for an appropriate balance of the factors set out in s. 138(2) of the QCA Act.

The QCA has given due regard to Aurizon Network's proposal that, in the event of forming a view on term-matching when considering the risk-free rate, the QCA should also use a risk-free rate of the same term (i.e. four years) in estimating the MRP. The QCA's consideration is at section 5.6 of this draft decision.

The table below details our consideration of the detailed arguments from stakeholders in relation to the risk-free rate.

Table 23 QCA consideration of stakeholders' comments relating to the risk-free rate

<i>Issue</i>	<i>QCA analysis</i>
The Brattle Group said one common reason to use the long-term government bond rate, as cited by regulators, is that monetary policy influences long-term rates less, relative to short-term rates. ²⁴¹	We do not consider the effects of monetary policy to be relevant to setting the term of the risk-free rate. The cost of capital for an asset with a life of one year and no risk would be the one-year risk-free rate, because the latter is the alternative investment with exactly the same risk. Accordingly, this would hold true even if that risk-free rate was significantly influenced by monetary policy. This is consistent with the CAPM.

²³⁷ ERA 2016a: 11.

²³⁸ IPART 2013: 9, 13. IPART is currently in the process of reviewing its WACC methodology.

²³⁹ ERA 2015: 55.

²⁴⁰ ERA 2015: 55.

²⁴¹ Aurizon Network, sub. 4: 6.

<i>Issue</i>	<i>QCA analysis</i>
<p>The Brattle Group said the fact that Aurizon Network's assets are long-lived is inconsistent with Schmalensee's extension of the NPV=0 principle for shorter periods (rather than over the life of the project), which requires the firm to face no cash flow and asset value risks and to be solely financed by equity.²⁴²</p> <p>Even accounting for Lally's previous work, The Brattle Group viewed the NPV=0 principle over a four-year horizon as only truly feasible if the risk of stranded assets or significant asset revaluations is minimal, and if the regulated price continues to be reset periodically.</p>	<p>We consider that matching the term of the risk-free rate with the term of the regulatory cycle is consistent with the NPV=0 principle (in contrast to applying a 10-year bond term in general). This position is supported by Lally's research and by the research of other prominent finance academics.</p> <p>Furthermore, and as explained in the text, risks of asset stranding and revaluation are not relevant to the choice of the appropriate term for the risk-free rate.²⁴³</p> <p>Finally, we do not view The Brattle Group's requirement that regulated prices are reset periodically to be difficult to satisfy. Natural monopolies are typically subject to some form of price regulation. In this context, Lally noted there is no reasonable basis to believe that price regulation, which has been in effect in Australia for almost 20 years, will be abandoned.²⁴⁴</p>
<p>The Brattle Group pointed out that infrastructure companies, such as Aurizon, rely primarily on long-term financing.²⁴⁵ Moreover, The Brattle Group said that equity is inherently infinite and the magnitude of long-term debt by far outweighs the short-term debt of infrastructure companies.</p>	<p>We consider this argument is more relevant for setting the cost of debt rather than the cost of equity.</p> <p>As pointed out by Lally, there is no inconsistency between firms using long-term debt and a regulator resetting the risk-free rate component of the cost of debt every four years using the prevailing four-year rate because firms can match their costs to the regulatory allowance via the use of swap contracts.²⁴⁶ We note that Aurizon Network is provided with benchmark allowances for the costs of implementing the relevant swap contracts (see section 5.10).</p>
<p>The Brattle Group said that the difference between government and corporate bond yields has widened since the financial crisis of 2008–09.²⁴⁷ It said this indicates that either monetary policy is suppressing the risk-free rate, and/or investors now require a higher risk premium to invest in assets other than government bonds.</p> <p>In The Brattle Group's view, the implications are that the risk-free rate is too low relative to a normal benchmark and/or the MRP is too low.²⁴⁸ As a result, in estimating the cost of equity, one should apply an upward adjustment to either the risk-free rate or the MRP.</p>	<p>We consider The Brattle Group's analysis is not well-founded. As pointed out by Lally, The Brattle Group treats the debt risk premiums observed in the 2005–07 period (prior to the financial crisis) as the historical norm but supplies no evidence in support of such a claim.²⁴⁹</p> <p>Also, it appears that The Brattle Group attributes all of the increase in the debt risk premiums to systematic risk. Importantly, The Brattle Group omitted an allowance for the inferior liquidity of corporate bonds relative to government bonds, and this allowance has risen because of the global financial crisis.²⁵⁰ Relevant research supports taking into account an allowance for inferior liquidity.²⁵¹</p>

²⁴² Aurizon Network, sub. 4: 9.

²⁴³ Lally 2017a: 15; Lally 2004: 21.

²⁴⁴ Lally 2017a: 15.

²⁴⁵ Aurizon Network, sub. 4: 11.

²⁴⁶ Lally 2017a: 16.

²⁴⁷ Aurizon Network, sub. 4: 13.

²⁴⁸ Aurizon Network, sub. 4: 13–15.

²⁴⁹ Lally 2017a: 34–35.

²⁵⁰ Lally 2017a: 35.

<i>Issue</i>	<i>QCA analysis</i>
<p>EY said that independent experts do not apply a mechanistic approach in their application of the CAPM to estimate the cost of equity, especially after the global financial crisis.²⁵² For example, in its sample, EY found that 23 of the 24 expert reports in 2015 adjusted the calculated weighted average cost of capital.²⁵³ Of the 23 reports, EY found 12 reports where a higher risk-free rate was adopted than the prevailing spot risk-free rate at the time.²⁵⁴ EY also observed that some experts used long-term averages of the government bond yield for the risk-free rate as opposed to a short-term spot rate.²⁵⁵</p>	<p>We do not consider it directly relevant that, in estimating the risk-free rate, independent experts relied on long-term rates, or adopted a risk-free rate higher than the prevailing rate in their reports.</p> <p>Specifically, these reports are concerned with valuing equities involving cash flows out to infinity.²⁵⁶ Given the term structure of risk-free rates is upward-sloping at present, it is appropriate for the experts to use a risk-free rate in excess of even the prevailing 10-year rate in these situations. Lally confirmed this practice has no implications for the QCA, as the risk-free rate in the regulatory context is revised periodically.</p> <p>We consider that the setting of the regulatory rate of return and the valuation of equities are two fundamentally different tasks.</p>
<p>Castalia suggested that the use of a 10-year risk-free rate might be warranted if Aurizon Network was facing financeability issues.²⁵⁷</p>	<p>We do not agree with Castalia's point. We note that if the term structure of interest rates is downward-sloping, then this proposal would not help alleviate financeability concerns in any case.</p> <p>Further, as pointed out by Lally, the appropriate compensation for a regulated entity could not be provided by using a 10-year rate, as the margin between a 10-year rate and those of shorter terms bears no connection to any financeability issues.²⁵⁸</p>

In conclusion, our view is that an appropriate estimate for the risk-free rate is 1.90 per cent per annum, based on a four-year bond term and an averaging period of the 20 business days up to, and including, 30 June 2017 (using Commonwealth Government bonds as the proxy for the risk-free asset). This risk-free rate has been determined having regard to the relevant factors set out in the QCA Act and weighing them appropriately, thereby achieving an appropriate balance between the competing interests of the various stakeholders.

5.6 Market risk premium

Aurizon Network's proposal

In its 2017 DAU, Aurizon Network proposed an MRP estimate of 7.0 per cent per annum. Aurizon Network said this estimate is based on applying Frontier's proposed decision-making framework (described in more detail later) to the QCA's preferred set of MRP estimates (from the QCA's estimation methods) in its DBCT draft decision.²⁵⁹ Aurizon Network further said that

²⁵¹ Relevantly, Dick-Nielsen et al. 2012 conclude that the illiquidity element of the debt risk premium on United States' A-rated corporate bonds rose from 0.02 per cent in the 2005–2007 (pre-GFC) period to 0.5 per cent in the 2007–2009 (intra-GFC) period.

²⁵² Aurizon Network, sub. 8: 2.

²⁵³ Aurizon Network, sub. 8: 2.

²⁵⁴ Aurizon Network, sub. 8: 22.

²⁵⁵ Aurizon Network, sub. 8: 21.

²⁵⁶ Lally 2017a: 16.

²⁵⁷ QRC sub. 21, Annexure 1: 11.

²⁵⁸ Lally 2017a: 17.

²⁵⁹ Aurizon Network, sub. 1: 269–70.

its proposed estimate is conservative, noting that its consultants, Frontier and The Brattle Group, proposed estimates of 7.55 per cent and 7.7 per cent respectively.²⁶⁰ The basis of Aurizon Network's estimate is described in Table 24.

Table 24 The MRP proposed in the 2017 DAU (Frontier's framework with QCA's DBCT draft decision estimates)

<i>Method</i>	<i>MRP (%) Nov 2016^a</i>
<i>What would the MRP estimate be, based upon past return information?</i>	
Historical excess returns (Ibbotson)	6.40
Historical excess returns adjusted for inflation (Siegel)	5.40
Historical real returns (Wright)	8.87 ^b
Average historical estimates	6.89
<i>What would the MRP estimate be, based upon contemporaneous information?</i>	
Dividend discount model (Cornell)	8.17 ^b
Market indicator approach	No specific estimate
Survey evidence	6.00
Average contemporaneous estimates	7.09
<i>What is the overall MRP estimate?</i>	6.99^c

a Aurizon Network's 2017 DAU was submitted in November 2016, but the relevant time period for the estimates in the table is October 2015, which was the indicative averaging period for the DBCT draft decision.

b Aurizon Network apparently adopts the estimate from Frontier's report. Frontier explains it adjusts the QCA estimate from the DBCT draft decision by subtracting the difference in risk-free rates. Frontier uses a risk-free rate of 2.13%, while the draft decision uses a risk-free rate of 2.1% (Aurizon Network, sub. 9: 38).

c To obtain an overall estimate, Aurizon Network averages the 'average historical estimate' and 'average contemporaneous estimate' (Aurizon Network, sub. 1: 269–70).

In its subsequent September 2017 submission, Aurizon Network revised its estimate to 7.5 per cent.²⁶¹ This estimate is based on setting aside the QCA's preferred estimates in the DBCT draft decision and applying the decision-making framework to Frontier's updated estimates corresponding to Frontier's framework.

In particular, Frontier excluded the Siegel method and the survey method but included an estimate for 'market indicators'. Frontier averaged the Ibbotson and Wright estimates to obtain an historical estimate and then averaged the Cornell dividend growth model (DGM) estimate and 'market indicators' estimate to obtain an estimate from prevailing market data. Frontier took an equally weighted average of these two results to obtain an overall estimate. These are set out in Table 25, which reproduces Frontier's summary of MRP estimates.²⁶²

²⁶⁰ Aurizon Network, sub. 1: 270–271.

²⁶¹ Aurizon Network, sub. 36: 3.

²⁶² Aurizon Network, sub. 38: 39.

Table 25 Summary of Frontier MRP estimates

<i>Method</i>	<i>November 2016 report</i>	<i>Data at June 2017</i>
Ibbotson	6.4	6.5
Wright	8.9	8.9
Historical data (avg)	7.6	7.7
Cornell DGM	8.1	7.5
Market indicators	6.9	7.3
Prevailing market data (avg)	7.5	7.4
Final estimate	7.5	7.6

Note: The November 2016 report refers to a report by Frontier Economics, The market risk premium.

Source: Aurizon Network, sub. 38: 39.

Further, Aurizon Network said that retaining the QCA's methods, but applying Frontier's framework, results in an updated MRP of 7.5 per cent.²⁶³ That is, if one includes (and updates from the DBCT draft decision) estimates from the Siegel method (5.7%), surveys (8.3%) and independent expert reports (7.9%) with the above—and takes a simple average across all estimates—the result would be 7.5 per cent.²⁶⁴ However, Frontier considered 7.5 per cent to be downward-biased in current market conditions because the estimate gives weight to the Siegel estimate and it doubles the weight applied to historical excess returns (by relying on both the Ibbotson and Siegel methods). Frontier considered that the 2017 DAU proposal of 7.0 per cent was conservative and has become more conservative since the November 2016 proposal.^{265,266}

²⁶³ Aurizon Network, sub. 36: 3.

²⁶⁴ For this calculation, Frontier excluded the 'market indicators' estimate, as the QCA considers market indicators qualitatively (Aurizon Network, sub. 38: 40).

²⁶⁵ Aurizon Network, sub. 38: 39–40.

²⁶⁶ Presumably, this remark is in reference to the increase in the overall MRP estimate from 7.5% to 7.6%.

QCA's analysis and draft decision

Summary of draft decision 5.3

- **Our draft decision is to approve Aurizon Network's 2017 DAU's proposed estimate of 7.0 per cent for the MRP, but not Aurizon Network's underlying methodology used to reach its proposed estimate.**
- **Our draft decision to approve an MRP of 7.0 percent is based on:**
 - (a) **considering various MRP estimates from the**
 - (i) **Ibbotson historical averaging method**
 - (ii) **Siegel historical averaging method**
 - (iii) **survey evidence/independent expert reports**
 - (iv) **Cornell dividend growth model**
 - (v) **Wright method**
 - (b) **considering conditional information, including volatility measures, corporate debt premiums and the relationship between the risk-free rate and market risk premium**
 - (c) **exercising our judgement to reach a view on the appropriate estimate of the MRP.**

Assessing the appropriate estimate of the MRP requires the QCA to exercise its judgement, as the MRP is not observable and there is no single estimation technique that is capable of producing a 'correct' estimate of the MRP.²⁶⁷ Consequently, the QCA must weigh the evidence from each estimation technique, having regard to its relative strengths and weaknesses. Relevantly, the QCA has also considered the reasonableness of Aurizon Network's proposed MRP.

Aurizon Network said a key concern regarding our approach is that it presumes the MRP is stable through time, noting that the QCA's estimate has remained at 6.5 per cent since 2013.²⁶⁸ Frontier said that the QCA's approach produces implausible results—that the QCA's MRP estimates are 'sticky' regardless of market circumstances, and as a result, the QCA's allowed return on equity always rises and falls one-for-one with changes in government bond yields.²⁶⁹ Referring to the QCA's draft decision on DBCT's 2015 DAU, Frontier said it appears that the QCA did not allow current market information to impact upon its conclusion.²⁷⁰

For these reasons, Aurizon Network and Frontier both expressed a strong preference for a framework that groups methods into different categories, based on their historical or forward-looking perspectives, and then applies specific weights to the estimates in those categories. Frontier's view is that such a framework would allow current information to be better taken into account, and this is important as current conditions are materially different from the long-term average.²⁷¹

²⁶⁷ Australian Competition Tribunal 2016b, *Applications by Public Interest Advocacy Service Ltd and Ausgrid Distribution* [2016] ACompT 1 [800]; Australian Competition Tribunal 2012, *Application by WA Gas Networks Pty Ltd (No 3)* [2012] ACompT 12 [105]–[110].

²⁶⁸ Aurizon Network, sub. 1: 285.

²⁶⁹ Aurizon Network, sub. 9: 23–25.

²⁷⁰ Aurizon Network, sub. 9: 24–25.

²⁷¹ Aurizon Network, sub. 9: 10–13.

We have considered this submission and agree that it is important for our decision on the MRP to be informed by current market conditions. However, we do not believe a decision on an appropriate MRP estimate is readily amenable to the mechanical procedure proposed by Aurizon Network and Frontier. We consider this matter in more detail further below.

In response to Aurizon Network's proposal, the QRC proposed that the QCA should return to the long-run MRP estimate:

The QRC continues to consider that the most appropriate estimate for the market risk premium (MRP) is 6%, and that the QCA's UT4 estimate of 6.5% is overly conservative and favourable to Aurizon Network ...

The QRC has never been convinced that, given that analysis, a move from 6% to 6.5% was justified. That is particularly the case given the upward bias present in the Cornell dividend growth model, as acknowledged by the QCA, and its higher sensitivity to input assumptions.²⁷²

In recognition of the unobservable nature of the MRP, the QRC also accepted that the QCA was required to exercise informed judgement in deciding on the appropriate MRP:

The QRC continues to accept the QCA's views that MRP is, by its nature, not observable and requires estimation, which in return requires regulatory judgement and an assessment of the strengths and weaknesses of available estimation techniques and examination of other information.²⁷³

The QCA is required to form a view on the appropriate MRP for the UT5 undertaking. As the QCA estimates the MRP for the regulatory term, it could be anticipated that short-term market fluctuations during the regulatory cycle result in the true MRP being either higher or lower than the MRP estimated at the previous regulatory reset. Further, it is likely that the MRP varies over time.²⁷⁴ This point is relevant given the observably low risk-free rate and the plausible (negative) correlation between the risk-free rate and the MRP.

In making this draft decision, we have considered all information before us and have undertaken our own analysis of these matters. We have placed greater emphasis on current market conditions. By doing so, we believe that our consideration of evidence from historical information and prevailing market conditions is evenly balanced.

First, the Cornell-type DGM, notwithstanding the volatility of estimates from that method, should be given more emphasis, as it is the only method that is fully forward-looking. In this context, we make the observation that the Ibbotson and Cornell DGM are the only two methods that are completely distinct estimators (i.e. the former being historical and the latter being forward-looking). Other methods are variants of these two principal methods.

Second, the Wright method, which assumes a constant (i.e. stable) real cost of equity, should receive greater emphasis than before. Even though available empirical evidence in the Australian context supports more stability in the MRP relative to the return on equity, this evidence is not determinative.²⁷⁵

We consider that this approach gives appropriate emphasis to estimates from methods that reflect current market conditions, including both the Cornell DGM method and the Wright method. We also note our considerations are consistent with Lally's view that the 'best' estimate of the MRP at a particular time is normally understood to be the estimate that

²⁷² QRC, sub. 21: 17, 18.

²⁷³ QRC, sub. 21: 18.

²⁷⁴ QCA 2014c: 87.

²⁷⁵ See the subsection on the Wright method where we elaborate on this point.

minimises the mean square error (MSE).²⁷⁶ Importantly, the MSE is likely to be minimised by having regard to estimates from valid methods using estimators that are less than perfectly correlated.

The QCA has considered Aurizon Network's concern regarding the perceived inconsistency between using a four-year risk-free rate in the first term of the cost of equity and a 10-year risk-free rate to estimate the MRP. As a result, we have made an explicit adjustment to most of the MRP estimates to address this matter (discussed in detail further below).²⁷⁷

Taking this factor into account, the updated estimates are the following:²⁷⁸

- The Ibbotson estimate is 6.6 per cent for the preferred sampling period of 1958–2017.
- The Siegel estimate is 5.9 per cent for the preferred sampling period of 1958–2017.
- Survey and independent expert report evidence supports an estimate of 6.6 per cent excluding imputation credits, and 7.4 per cent including imputation credits—the midpoint is 7.0 per cent.
- Cornell dividend growth estimates range from 5.6 per cent to 7.5 per cent, with a median estimate of 6.4 per cent.
- The Wright estimate is 9.5 per cent for the preferred sampling period of 1958–2017.

These estimates of the MRP range from 5.9 to 9.5 per cent. In examining the estimates, we note the central estimate is the Ibbotson historical estimate of 6.6 per cent. Of the three methods that convey information about current market conditions, we observe the Cornell DGM estimate of 6.4 per cent sits marginally below the central estimate of 6.6 per cent, while both the survey estimate of 7.0 per cent and the Wright estimate of 9.5 per cent sit materially above 6.6 per cent.²⁷⁹

The selection of a point estimate from within this range ultimately involves applying a degree of regulatory discretion, given that the current MRP is unobservable and there are difficulties with identifying a single set of objective weights and with deterministically applying such weights to obtain a final MRP estimate.

That said, summary statistics, such as the mean and median, serve as useful reference points to inform our judgement. However, we emphasise again that such statistics are not determinative. With these considerations in mind, we note that a simple average of the five estimates gives an MRP estimate of 7.1 per cent, while the median is 6.6 per cent. A weighted mean, based on a credible set of weights consistent with our assessment of the relative strengths and weaknesses of the methods, is 7.0 per cent.²⁸⁰

²⁷⁶ The mean square error (MSE) is the sum of the variance and the square of the bias.

²⁷⁷ Specifically, the historical bond yield difference applies to the Ibbotson estimate, Siegel estimate and to the independent experts' estimate. A current difference applies to the Wright estimate. However, there is no basis for any adjustment to the survey estimate or to the Cornell DGM estimate.

²⁷⁸ These results were estimated with respect to the 20 business days immediately preceding 1 July 2017 in order to maintain consistency with Aurizon Network's proposed averaging period. All estimates are based on a utilisation rate of imputation credits of 0.55.

²⁷⁹ The Wright method is a hybrid because it is based on the historical real return on equity and a current expected rate of inflation and a current risk-free rate.

²⁸⁰ For example, one such credible set of weights is: Ibbotson (25%); Cornell DGM (25%); Siegel (15%); Wright (15%); and surveys (20%).

The simple mean, weighted mean and median all lie within a relatively narrow range of 6.6 per cent to 7.1 per cent. Applying our judgment to the various information before us and having regard to this range, we consider that an appropriate estimate of the MRP is 7.0 per cent at this time.²⁸¹

In forming this view, and as previously explained, the QCA has placed greater emphasis on the Cornell DGM and Wright estimates than in previous decisions.²⁸² In addition, we note that a component of the survey estimate (that is, the Fernandez et al. 2017 survey result) has materially increased, from 6.0 per cent to 7.6 per cent, since our previous assessment. Finally, estimates from four of the five methods have increased, in some cases materially, since the DBCT final decision—our most recent assessment of the MRP, which applied an MRP of 6.5 per cent.

However, we do not consider that the MRP is higher than 7.0 per cent at this time. Both the Ibbotson estimate of 6.6 per cent and the Siegel estimate of 5.9 per cent sit below 7.0 per cent, and it is important to have appropriate regard to these historical estimates when properly taking into account both the bias and variance of the estimates from all of the methods (and the historical methods tend to have lower variances than the estimates produced by the other methods).

Therefore, having taken into account the circumstances before the QCA—including, but not limited to, the level and term of risk-free rates, the robustness of the data available, the range of MRP estimates and the overall return on equity proposed by the QCA's draft decision—the QCA's decision is to approve an MRP of 7.0 per cent. Nevertheless, the QCA does not accept the underlying methodology used by Aurizon Network to reach its proposed estimate.

Given the true MRP changes over time and historical averages may adjust slowly to changes in current market conditions, the QCA emphasises that the draft decision to adopt an MRP of 7.0 per cent does not establish a new benchmark MRP of 7.0 per cent to apply for future reviews. Rather, the QCA will consider the relevant information and evidence before it at the time of each future decision.

The QCA's approach reflects the fact that there is no single analytical methodology capable of determining the 'right' estimate for the MRP; hence, it is necessary to assess the strengths and weaknesses of the available techniques, as well as to examine other relevant information, to determine an overall value for the MRP. In our view, this is consistent with the requirement for us to have regard to the relevant factors set out in the QCA Act for assessing Aurizon Network's 2017 DAU, thereby achieving an appropriate balance between the competing interests of stakeholders. The QCA Act contains no requirements for the QCA to adopt a mechanistic methodology for determining a value for the MRP.

We also note that our draft decision estimate of 7.0 per cent per annum is consistent with the range of recent estimates from other regulators (see Figure 8).

5.6.2 Market risk premium estimates from various regulators' decisions

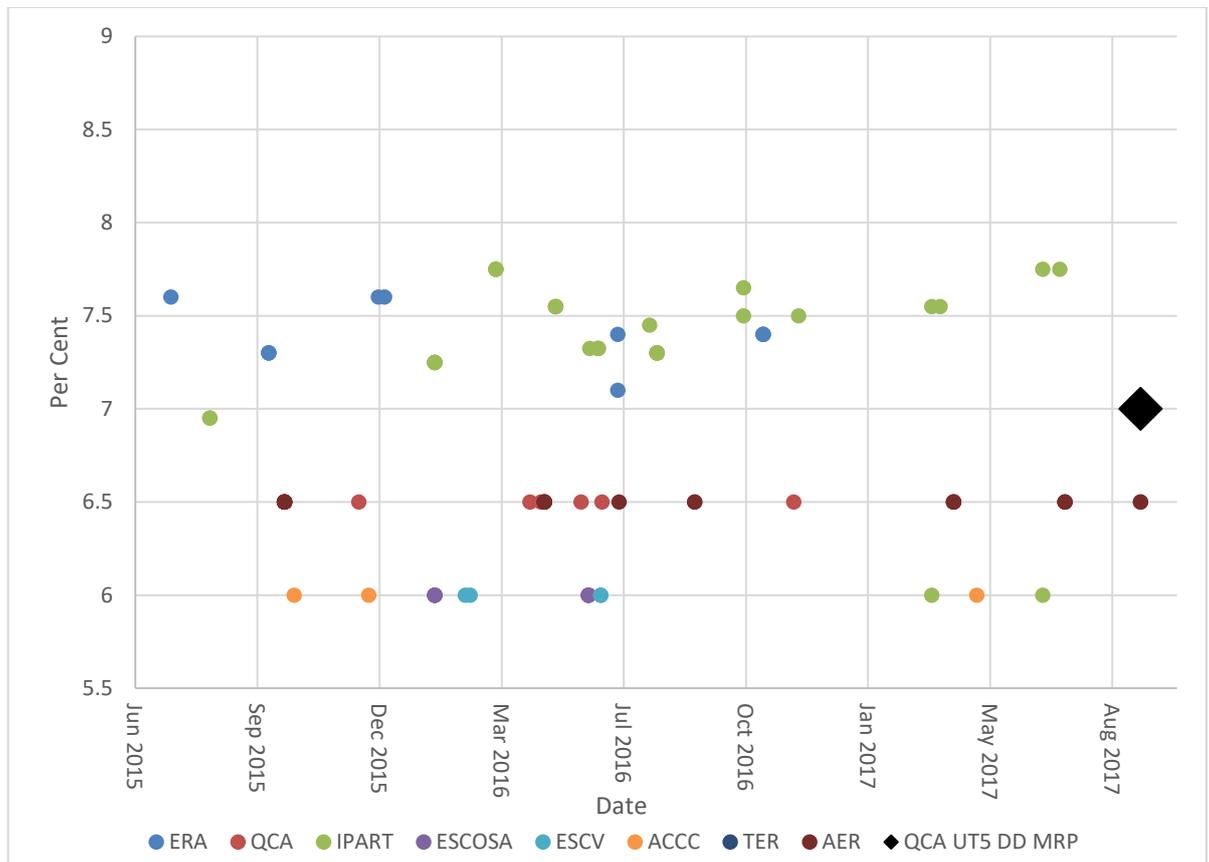
The QCA notes estimates of the MRP from other Australian regulatory decisions (dated between June 2015 and September 2017) generally range between 6.0 to 7.75 per cent. **Figure 8**

²⁸¹ While our preferred estimate of 7.0 per cent corresponds to the weighted average, we did not mechanically compute a statistic to arrive at our preferred estimate.

²⁸² See the discussion of the Wright method in Appendix F.

highlights that our estimate of 7.0 per cent for the MRP for this draft decision is within the range of estimates by other regulators, over time.

Figure 8 Market risk premium estimates from other regulators' decisions



Source: QCA analysis.

In addition, the QCA notes that the combination of an MRP of 7.0 per cent and an equity beta of 0.73 produces a margin of 509 basis points above the risk-free rate, which provides Aurizon Network with an appropriate return on equity, when taken with the most appropriate empirical estimate of Aurizon Network's systematic risk (having regard to the overall systematic risk that arises under the regulatory framework).²⁸³ See section 5.8 for the QCA's consideration of the overall return on equity.

5.6.3 Frontier's proposed decision-making framework

Aurizon Network has applied Frontier's proposed decision-making framework for determining an MRP estimate. In Aurizon Network's and Frontier's view, the MRP estimation process should be more objective, transparent and responsive to timely market information.²⁸⁴

As seen in Table 24, Frontier's framework assigns individual estimation methods to separate categories and then assigns weights at two different levels (at the method level and then at the category level) to calculate the MRP estimate. Frontier considered this framework reflects the

²⁸³ The 509 basis points is less than the product of 0.73 and 7.0% (i.e. 511 basis points) because the equity beta is rounded up to 0.73 for presentation purposes.

²⁸⁴ Aurizon Network, sub. 1: 286; sub. 9: 1–3.

fact that not all estimation methods relate to the same thing—some address the question of what the MRP estimate would be, on average, and others address the question of what the MRP estimate is today, given current market circumstances (i.e. stock prices, government bond yields, etc.).²⁸⁵

The QCA does not accept Frontier's framework for arriving at an estimate of the MRP.²⁸⁶ The QCA considers that it has appropriately considered past information as well as contemporaneous market information. As mentioned above, there is no single analytical methodology capable of determining the 'right' estimate for the MRP; hence, it is necessary to assess the strengths and weaknesses of valid techniques, as well as examine other relevant information, to determine an overall value for the MRP. With respect to the concerns about transparency, we consider that substantial detail has been made available to inform stakeholders on the approach used by the QCA.

Further, we do not see any clear incremental benefit in separating the individual methods into categories and then assigning weights at two separate levels. Our methodology involves assessing the relative strengths and weaknesses of the individual methods, and this analysis serves as a basis for informing our overall judgement on an appropriate MRP for Aurizon Network's declared service. As pointed out by Lally, the attempt to classify the MRP estimation methods into categories is itself problematic.²⁸⁷

In particular, our view is that such an approach conveys a false sense of methodological rigour. As an example, Frontier estimates an MRP of 7.5 per cent based on applying 50 per cent weight to estimates from historical methods and 50 per cent weight to estimates from prevailing market data.²⁸⁸ In doing so, Frontier categorises the Wright method as historical.

However, the Wright method is a hybrid method, because it relies on both historical and contemporaneous data. Specifically, it uses an (average) historical real return on equity but combines it with a current expected inflation rate and then deducts a current risk-free rate. On the basis that the latter two components reflect prevailing market conditions, the method could be categorised as an estimate based on prevailing market data. Categorising the Wright method in this way would decrease Frontier's MRP estimate from 7.5 per cent to 7.125 per cent. It is not clear that such an approach brings clarity and objectivity to the estimation and decision-making process.

5.6.4 Further MRP considerations

Aurizon Network said that applying Frontier's framework to estimates from the QCA's methods results in an MRP of 7.5 per cent.²⁸⁹ Frontier considered the 7.5 per cent updated estimate to be biased downward, as it gives weight to the Siegel method and double-counts the weight given to historical excess returns (that is, by including estimates from both the Ibbotson and Siegel historical methods).²⁹⁰

²⁸⁵ Aurizon Network, sub. 9: 39.

²⁸⁶ The QCA notes that Frontier's framework contradicts Aurizon Network's argument that our pre-2013 MRP methodology was too 'mechanistic' (see Aurizon Network 2013: 117).

²⁸⁷ Lally 2017a: 29.

²⁸⁸ In the former category, Frontier includes the following methods: Ibbotson (6.5%), Siegel (5.7%) and Wright (8.9%)—the average is 7.0%. For the latter category, Frontier includes Cornell DGM (7.5%), surveys (8.3%) and independent expert reports (7.9%)—the average is 7.9% (Aurizon Network, sub.38: 40.).

²⁸⁹ Aurizon Network, sub. 36: 3.

²⁹⁰ Aurizon Network, sub. 38: 39–40.

We do not agree with Aurizon Network's and Frontier's conclusions. While Frontier produces an estimate of 7.5 per cent from the set of methods we rely upon, Frontier's implementation of them involves Frontier's methodological assumptions and choices, some of which are not consistent with our approaches. In particular, the QCA's view is that Frontier does not implement the Cornell DGM in an appropriate manner.²⁹¹ In addition, in deducing 'effective MRPs' from independent expert reports, Frontier adds each valuer's risk-free rate to the baseline MRP and then deducts a (typically lower) contemporaneous risk-free rate. By doing so, Frontier attributes all uplifts (above the contemporaneous risk-free rate) to the MRP. The QCA does not agree with this practice—there are a number of reasons why valuers apply uplifts, and such reasons, in general, are not relevant to the regulatory situation.

Further, for the reasons set out in Appendix F, we maintain that the Siegel method is a valid approach for estimating the MRP. While there is substantial correlation between the Ibbotson method and the Siegel method, they both contain different, relevant information. Relevantly, we also note that the Ibbotson and Wright methods involve substantial correlation. Therefore, it is not consistent for Frontier to claim that the MRP estimate of 7.5 per cent is biased downward from 'double-counting', due to us considering both Ibbotson and Siegel estimates, while at the same time Frontier ignores the substantial correlation between the Ibbotson and Wright estimates.²⁹²

Finally, we note Frontier highlights a research paper, which, according to Frontier, indicates that, in Australia price-earnings (P/E) ratios have generally fallen with the recent decline in government bond yields.²⁹³ Frontier said this evidence suggests that equity investors have offset the decline in government bond yields by adopting a higher MRP, leaving the required return on equity largely unchanged.²⁹⁴ However, as pointed out by Lally, the P/E ratios, and the inverse earnings (E/P) yields, are also affected by other factors, such as growth forecasts for cash flows and short-term fluctuations in earnings.²⁹⁵ For that reason, we do not consider that one can deduce anything conclusive about changes in the market cost of equity from changes in P/E ratios and earnings yields.

5.7 Beta

Aurizon Network's proposal

Aurizon Network proposed an equity beta of 1.0, based on an asset beta of 0.55, gearing of 55 per cent and a debt beta of 0.12.²⁹⁶ Aurizon Network's beta proposal was accompanied by reports from the consultants, The Brattle Group and Frontier.²⁹⁷

Aurizon Network's proposal applies an ordinary least squares regression analysis of stock returns on market returns, using five years of weekly data, to identify the equity betas for a sample of comparator businesses. Aurizon Network's proposal considered North American gas and oil pipelines to be the most appropriate comparators for Aurizon Network, with some weight given to railway companies, and that broad utility businesses are not appropriate.

²⁹¹ Given the technical nature of these issues, the QCA's views are outlined in Appendix F .

²⁹² The largest source of variation, the real equity return, is common across the Ibbotson, Siegel and Wright methods.

²⁹³ Aurizon Network, sub. 9: 16–19.

²⁹⁴ Aurizon Network, sub. 9: 18.

²⁹⁵ Lally 2017a: 26.

²⁹⁶ Aurizon Network applied the Conine de-levering/re-levering model to convert the equity and asset betas.

²⁹⁷ Aurizon Network, sub. 4; Aurizon Network, sub. 6.

Analysis undertaken by The Brattle Group estimated an asset beta range of 0.55 to 0.65 for these comparators. Aurizon Network proposed to use the lower bound of this range for the UT5 undertaking period, submitting an asset beta of 0.55.²⁹⁸

Summary of draft decision 5.4

- **The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to revise its proposed allowable revenues and reference tariffs by applying a WACC based on an equity beta of 0.73.**

The QCA has assessed Aurizon Network's proposal, and has considered submissions from stakeholders and their consultants, as well as the advice from Incenta Economic Consulting (Incenta).²⁹⁹ The QCA's draft decision beta estimates are in Table 26.

Table 26 QCA's beta estimates for the draft decision

<i>Beta</i>	<i>Estimate</i>
<i>Debt beta</i>	0.12
<i>Asset beta</i>	0.42
<i>Equity beta</i>	0.73

One of the factors that the QCA must have regard to under s. 138(2)(g) is the pricing principles in section 168A. Relevantly, the pricing principles provide that the price of access to a service should generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service and include a return on investment commensurate with the regulatory and commercial risks involved (s. 168A(a)).

After considering the submissions provided by stakeholders and the analysis provided by Incenta,³⁰⁰ the QCA does not consider that North American pipelines or rail freight transportation businesses are appropriate comparators for Aurizon Network.

In comparing those relevant characteristics that are expected to affect systematic risk and examining the underlying economic fundamentals, the QCA considers regulated energy and water businesses are comparable firms of similar systematic risk to Aurizon Network at this time.

The QCA considers that an equity beta of 0.73 is commensurate with the commercial and regulatory risks involved in providing access to the declared service.

Key issues identified during the QCA's investigation

The QCA has considered all elements of Aurizon Network's beta proposal as well as other relevant aspects of Aurizon Network's 2017 DAU proposal in making this draft decision. The following issues attracted comment from stakeholders or were identified for further consideration:

- the appropriate beta estimate for Aurizon Network's 2017 DAU (see 5.7.1).
- identifying appropriate comparator businesses for Aurizon Network. This assessment:

²⁹⁸ Aurizon Network, sub. 1: 273–74.

²⁹⁹ The QCA engaged Incenta to provide independent, expert advice on an appropriate asset/equity beta value for Aurizon Network and to inform our assessment of Aurizon Network's beta proposal.

³⁰⁰ Incenta 2017. Incenta completed a first principles analysis.

- examines key considerations when evaluating Aurizon Network's systematic risk (see 5.7.2)
- provides an overview of the samples of industry groups that possess characteristics relevant to the systematic business risk of Aurizon Network (see 5.7.3)
- reviews each of the industry group samples to assess whether they are appropriate comparators for Aurizon Network, including:
 - North American pipelines businesses as proposed by Aurizon Network (see 5.7.4)
 - freight rail transportation businesses as proposed by Aurizon Network (see 5.7.5)
 - regulated energy and water businesses (see 5.7.6)
 - toll roads businesses (see 5.7.7)
- examines whether the available empirical evidence supports the first principles analysis (see 5.7.8)
- considers other regulatory decisions (see 5.7.9)
- the estimation methodology used to estimate Aurizon Network's asset beta (see 5.7.10).
- the reliability of the Sharpe-Lintner CAPM (see 5.7.11).

5.7.1 The appropriate beta estimate for Aurizon Network's 2017 DAU

The Brattle Group calculated a range of asset betas from 0.4 to 1.1 using its estimation methodology. The Brattle Group considered the asset betas associated with regulated energy and water sample are lower than what is representative for Aurizon Network's equity, with the electric utilities sample being the least comparable to Aurizon Network. The Brattle Group also found the United States Class 1 rail subsample to have higher risk than Aurizon Network. Excluding these two end points (electric utilities and United States Class 1 rail subsamples), The Brattle Group narrowed the range of asset betas to 0.45 to 0.85.³⁰¹

The Brattle Group considered firms in the North American pipeline sample to be most directly comparable to Aurizon Network for purposes of determining a representative asset beta. The Brattle Group concluded that the beta range of 0.55 to 0.65 associated with the North American pipeline sample is reasonable, and that the midpoint of 0.6 represents the best point estimate of Aurizon Network's asset beta.³⁰² Aurizon Network proposed to use the lower bound of this range for the UT5 undertaking period, submitting an asset beta of 0.55.

In contrast, Incenta identified regulated energy and water businesses as most similar to Aurizon Network on the basis of systematic risk. In estimating Aurizon Network's asset beta, Incenta's preferred methodology relies on 10-year estimation periods for its asset beta estimates and took account of both monthly and weekly data. Incenta noted that, for the sample period, there was considerable divergence in the asset beta estimates for regulated energy and water businesses, depending on whether weekly or monthly data is employed, and depending on the period of analysis (i.e. 5 or 10 years).³⁰³ Incenta's assessment produced an asset beta point estimate for Aurizon Network of 0.42.

³⁰¹ Aurizon Network, sub. 4: 57.

³⁰² Aurizon Network, sub. 4: 57.

³⁰³ Incenta Economics 2017: 76.

Incenta also established an upper bound estimate for Aurizon Network's asset beta of 0.50, based on the higher of the average/median estimates using 10-year monthly and weekly data for toll roads. Incenta considered that identifying a lower bound estimate (using five years of observations) would entail considerable imprecision. While identifying an upper bound is also subject to imprecision, Incenta's first principles analysis concluded that toll roads would likely be an upper bound. Incenta considered these toll road firms to have greater systematic risk than Aurizon Network.³⁰⁴

Incenta calculated an equity beta estimate of 0.73 for Aurizon Network, by re-levering the benchmark asset beta of 0.42 (applying the benchmark level of gearing (55 per cent) and the Conine formula, using a debt beta of 0.12 and a gamma value of 0.46).

As indicated in the analysis below, the QCA considers that the regulated energy and water businesses sample provides the most appropriate set of comparators for Aurizon Network at this time, and the QCA has a preference for adopting a 10-year period to estimate Aurizon Network's beta.

The QCA considers that it is not appropriate to approve Aurizon Network's proposed asset and equity betas. In particular, the QCA considers that Aurizon Network's use of the North American pipeline sample in establishing its beta will materially overstate Aurizon Network's systematic risk. As such, Aurizon Network's proposed asset and equity betas do not reflect appropriate measures of the underlying business risk of Aurizon Network relative to the risk of the market as a whole.

The QCA's view is that 0.42 reflects the most appropriate empirical estimate of Aurizon Network's asset beta at this time and is commensurate with the regulatory and commercial risks involved in providing access to the service. This asset beta converts to an equity beta of 0.73, using the Conine re-levering approach applied by both Aurizon Network and Incenta. The QCA's draft decision is to adopt these point estimates, specifically an asset beta of 0.42 and equity beta of 0.73.

In making this decision, the QCA notes that the QRC considered that the asset beta should be based on the asset betas determined for the closest comparators.³⁰⁵ In this context, the QRC also submitted that a new undertaking is an appropriate time to reconsider that estimate.³⁰⁶

The QCA's assessment of beta for the 2016 Undertaking determined that the equity beta estimate be set at 0.8 but recognised that Incenta's recommended estimate of 0.73 was justifiable.³⁰⁷ In approving an equity beta of 0.8, among other considerations, the QCA acknowledged the need for regulatory certainty, noting the 2016 Undertaking was Aurizon Network's first regulatory reset since the privatisation of its parent company.³⁰⁸

In any case, the QCA indicated, as part of its assessment of Aurizon Network's 2014 DAU, that the evidence suggested that an equity beta of 0.8 (asset beta of 0.45) could be considered conservative. The QCA also noted that future considerations of a beta estimate for Aurizon Network could lead to reductions in this estimate.³⁰⁹

³⁰⁴ Incenta Economics 2017: 14.

³⁰⁵ QRC, sub. 21: 32.

³⁰⁶ QRC, sub. 21: 23.

³⁰⁷ QCA 2014e: 253.

³⁰⁸ QCA 2015: 249–52.

³⁰⁹ QCA 2014e: 253.

The QCA recognises that caution is required when making decisions on beta estimates. These decisions have important implications for both access providers and access seekers/holders. Our decision to adopt an equity beta estimate of 0.73 reflects our assessment of the regulatory arrangements proposed by Aurizon Network in its 2017 DAU. Furthermore, the approach for estimating an appropriate asset beta for Aurizon Network is different here to the approach adopted for the 2016 Undertaking—the former reflecting both monthly and weekly return interval beta estimates (see section 5.7.10). In considering these matters afresh, Aurizon Network has not demonstrated that it is appropriate to apply an uplift to the recommended equity beta estimate.

The QCA considers that an asset beta of 0.42 is the best available empirical estimate of Aurizon Network's asset beta, based on the information, analysis and weight of evidence provided. The QCA notes that this is not based on any material change in Aurizon Network's systematic risk between regulatory periods, but rather on recognising that the uplift previously provided can no longer be supported. Further, future consideration of changes in the beta estimate should be related to changes in Aurizon Network's underlying systematic risk (for example, to Aurizon Network taking on an additional business risk that has a systematic component).

The QCA notes that Aurizon Network's 2017 DAU has not proposed or outlined any reason to benchmark the equity beta to the equity beta adopted in previous undertaking assessments. Aurizon Network has undertaken, and sought from the QCA, a fresh review of these matters, and this is the approach the QCA has taken.

5.7.2 QCA considerations when evaluating Aurizon Network's systematic risk

Aurizon Network said that the equity beta is one of the key parameters that reflects Aurizon Network's commercial and regulatory risks and that the first step in the estimation process is to define the firm's risk profile.³¹⁰ Aurizon Network stated that its commercial and business risk environment is the key driver of beta. Aurizon Network considered:

- The beta estimate needs to reflect the key risk characteristics of its industry and market environment.
- The key priority is identifying firms that have comparable risk characteristics, having regard to their business and operating environments.³¹¹

Aurizon Network did not consider that being subject to regulation is a primary driver of the beta estimate. Aurizon Network and Frontier considered that regulation, at most, is just one of the many dimensions that should be considered in determining the appropriate comparator businesses for Aurizon Network. As such, Aurizon Network did not support the sole reliance on an industry comparator based on the form of regulation. Aurizon Network considered that this approach results in the form of regulation being the dominant firm characteristic that determines Aurizon Network's exposure to systematic risk.³¹²

Similarly, The Brattle Group said that supply risk, demand risk, operating risk, and stranding risk represent important considerations when evaluating the systematic business risk of commodity transportation infrastructure networks like Aurizon Network.³¹³ Frontier said that industry characteristics, customer concentration, and exposure to a particular type of customer also

³¹⁰ Aurizon Network, sub. 1: 271.

³¹¹ Aurizon Network, sub. 1: 273–74.

³¹² Aurizon Network, sub. 1: 273, 293, 295; Aurizon Network, sub. 6: 8.

³¹³ Aurizon Network, sub. 4: 38.

matter for risk. Frontier considered that, as firms in the same industries under different forms of regulation have similar beta estimates, the firm's industry is at least one relevant criteria for analysis.³¹⁴

The QRC's consultant, Castalia, said that in practice the variability of returns relative to the market portfolio as a whole may be driven by a mix of industry-specific and regulation-specific factors.³¹⁵

The QCA has had regard to Aurizon Network's key risk characteristics, as well as to risk characteristics of potential comparators, in order to identify appropriate comparators for Aurizon Network. The QCA agrees with Aurizon Network that regulation is one of a number of drivers of systematic risk that should be considered in determining the appropriate comparator businesses for Aurizon Network.

In establishing appropriate comparators for Aurizon Network, the QCA considers Aurizon Network's exposure to systematic risk—that is, the movement of Aurizon Network's returns with the returns of the market. This analysis necessarily includes examining industry and market characteristics that affect Aurizon Network's exposure to risk, as well as the extent to which such risk is addressed by the regulatory framework. In taking this approach, the QCA's analysis does not rely solely on the form of regulation to establish an appropriate set of comparator firms.

In relation to considering the influence that the regulatory framework has on Aurizon Network's exposure to systematic risk, Frontier stated that there is no substantial evidence that any particular intensity of regulation leads to a measurable difference in beta estimates.³¹⁶

It does not matter whether regulation offers high or low powered incentives, or whether a price cap or revenue cap is involved – different types of regulation do not show up in the data as leading to different beta estimates.³¹⁷

As such, Frontier concluded that it is highly questionable whether the presence of regulation is the primary determinant of risk.³¹⁸ Aurizon Network considered that Frontier's analysis demonstrates that regulation has not been a driving difference in beta estimates in previous research.³¹⁹

Alternatively, Castalia submitted that the conventional wisdom has long been that betas for companies in the same sector in jurisdictions with higher powered regulation are greater than in jurisdictions with lower powered regulation. However, Castalia considered that broad similarities or differences between regulatory regimes of comparators provide relatively little insight about the specifics of risk allocation.³²⁰

Incenta did not agree with Aurizon Network and Frontier that regulation cannot be an important determinant of asset beta. Incenta acknowledged that there is a body of empirical work that has found no consistent differences in beta risk based on the *form* of regulation. However, Incenta noted that these studies typically have tested for differences in beta caused by applying a different form of price control among utilities whose revenues are dominated by

³¹⁴ Aurizon Network, sub. 6: 6.

³¹⁵ QRC, sub. 21, Annexure 1: 12.

³¹⁶ Aurizon Network, sub. 6: 15.

³¹⁷ Aurizon Network, sub. 6: 6.

³¹⁸ Aurizon Network, sub. 6: 15.

³¹⁹ Aurizon Network, sub. 1: 273.

³²⁰ QRC, sub. 21, Annexure 1: 12.

residential customers. Given that residential demand tends not to have a substantial pro-cyclical component, there is a low likelihood of finding material differentials in beta estimates in such circumstances.³²¹

More importantly, Incenta stated that the studies referred to by Frontier do not examine the more general question of how beta under certain types of 'cost-based regulation' compares with beta when there is an absence of 'cost-based regulation'.³²² Incenta provided evidence that cost-based regulation insulates the business from earnings variations that would otherwise be pro-cyclical, resulting in a lower asset beta relative to the absence of cost-based regulation.

As indicated by Incenta, Peltzman³²³ hypothesised that regulatory buffering of the firm's cash flows will decrease the firm's asset beta. Incenta identified a number of studies that have concluded, all else equal, that the presence of regulation reduces beta:³²⁴

- Rosenberg and Guy³²⁵ found that regulated industries have amongst the lowest betas after allowing for various firm-specific variables.
- Davidson, Rangan and Rostenstein³²⁶, and Binder and Norton³²⁷ showed systematic risk was inversely related to the intensity of regulation for the electric utility industry in the United States.

Incenta noted that more studies indicating that the type of regulation matters are examined by Pedell³²⁸, who concluded:

All the studies find a significant influence of regulatory climate on the cost of capital. They confirm the conjectured correlation between a more favourable regulatory climate and a lower cost of capital. Obviously, a more continuous and cost-orientated regulation is associated with a lower risk, which can be understood as an indication that the buffering hypothesis proves true.³²⁹

In addition to the studies identified by Incenta, Alexander and Irwin³³⁰ measured the betas of more than 100 infrastructure companies subject to price cap or rate-of-return regulation. Overall, the results showed that price cap regulation was associated with higher betas than rate-of-return regulation in Canada, Japan, Sweden, United Kingdom and the United States.

The QCA considers that Aurizon Network's regulatory framework is a relevant factor to consider in identifying appropriate comparators to benchmark Aurizon Network's exposure to systematic risk. The QCA agrees with Incenta that the available evidence supports the view that aspects of regulation can insulate the business from systematic earnings variations that would otherwise be pro-cyclical.

³²¹ Incenta Economics 2017: 62-3.

³²² Incenta's term, 'cost-based regulation', is not referring to a specific form of price control or incentive regime, but to the fact that regulation is undertaken at specified points in time when revenues or prices are re-set relative to costs in order to provide an expected return on investment that, given the level of risk, is consistent with returns that would be earned in competitive markets.

³²³ Peltzman 1976.

³²⁴ Incenta Economics 2017: 28.

³²⁵ Rosenberg and Guy 1976.

³²⁶ Davidson, Rangan and Rostenstein 1997.

³²⁷ Binder and Norton 1999.

³²⁸ Pedell 2006.

³²⁹ Pedell 2006: 250.

³³⁰ Alexander and Irwin 1996.

While the form of regulation is a relevant consideration in establishing how the regulatory framework allocates and mitigates risk, it is only one element of Aurizon Network's regulatory framework. As outlined in Chapter 2, Aurizon Network's regulatory framework contains various mechanisms that allocate risk to industry stakeholders and/or seek to mitigate the extent to which Aurizon Network is exposed to certain risks.

The way in which Aurizon Network's regulatory framework allocates and mitigates risk is an important consideration for distinguishing the extent to which Aurizon Network is exposed to systematic risk and for identifying appropriate comparators. The QCA has considered the extent to which the regulatory framework affects Aurizon Network's exposure to systematic risk.

While some empirical evidence supports the conclusion of no differences in beta risk based on form of regulation, the QCA notes the limitations of these studies.³³¹ In particular, these studies are unlikely to detect any differences in beta risk given the nature of demand for utilities' services.

5.7.3 Samples of potential comparators

The Brattle Group constructed samples of publicly traded companies from industry groups that it considered to possess characteristics relevant to the systematic business risk of Aurizon Network.³³²

As part of its first principles assessment, Incenta reviewed samples from the gas and oil transmission pipelines; class 1 railways; and regulated energy and water distribution industries. In addition to these three business groups, Incenta also examined a toll roads sample.

A comparison of The Brattle Group's and Incenta's industry samples is presented in Table 27.

Table 27 Comparison of industry samples examined by The Brattle Group and Incenta

<i>Business group</i>	<i>The Brattle Group sample</i>	<i>Incenta sample</i>
North American pipelines	<p>The Brattle Group's 'North American pipelines' sample includes:</p> <ul style="list-style-type: none"> • a natural gas subsample, consisting of four United States publicly traded partnerships with between approximately 50% and 80% of their plant assets dedicated to regulated natural gas transmission • a liquids subsample, consisting of six United States publicly traded partnerships with between approximately 40% and 90% of their plant assets dedicated to operation of regulated 'liquids' pipelines • one U.S publicly traded partnership with approximately 40% of its net plant assets dedicated to regulated pipeline (natural gas and natural gas liquids) operations • two Canadian corporations with approximately 75% of assets dedicated to regulated natural gas and oil pipeline operations. 	<p>Incenta's 'gas and oil transmission pipelines' sample includes the 13 businesses included in The Brattle Group's North American pipelines sample and an additional two natural gas pipeline companies from the United States that are routinely included as comparators by the Federal Energy Regulatory Commission (FERC).</p>

³³¹ Namely, these studies typically have tested for differences in beta by applying a different form of price control among utilities whose revenues tend not to have a substantial pro-cyclical component.

³³² Aurizon Network, sub. 4: 33.

Business group	The Brattle Group sample	Incenta sample
Freight rail transportation	The Brattle Group's 'Freight rail transportation' sample comprises 10 businesses with an exposure to bulk commodity shipping, incorporating a variety of United States and non-United States Class 1 freight rail companies.	Incenta's 'Class 1 railways' sample contains the same businesses as The Brattle Group's freight rail transportation sample.
Regulated energy and water	The Brattle Group's 'Regulated distribution utilities' sample includes: <ul style="list-style-type: none"> • 27 United States electric utilities with more than 50% of their assets under regulation, but several of the utilities providing power generation as well as distribution • six United States natural gas local distribution companies with between approximately 65% and 90% of their assets dedicated to regulated local distribution of natural gas • nine United States water utilities with over 80% of their assets dedicated to regulated water distribution service. 	Incenta's 'regulated energy and water distribution' sample comprises: <ul style="list-style-type: none"> • 67 regulated energy businesses, which includes the 33 energy businesses included in The Brattle Group's sample and 34 additional energy businesses • 11 regulated water distribution businesses, which includes the nine businesses included in this industry by The Brattle Group and two additional UK water businesses.
Toll roads	Not examined by The Brattle Group.	Incenta's sample comprises six companies.

Note: The Brattle Group considered that the electric utilities sample is less directly representative of distribution network business characteristics than the other two sub-groups of utilities due to its higher share of unregulated activity and inclusion of some vertically integrated electric utilities (Aurizon Network, sub. 4: 36).

Source: Aurizon Network, sub. 4; Incenta Economics 2017.

The characteristics that are expected to affect systematic risk for each of these business group samples have been analysed in order to determine which of these business groups contains appropriate comparators for Aurizon Network. Our analysis of whether these business groups are appropriate comparators for Aurizon Network is presented in sections 5.7.4 to 5.7.7.

5.7.4 North American pipelines businesses

Both Aurizon Network and The Brattle Group submitted that North American pipelines are the most relevant comparators for determining Aurizon Network's asset beta. Aurizon Network considered that the North American pipelines have key similarities to Aurizon Network, including that both are:

- servicing a limited number of commercial customers
- subject to regulation and under an open access regime
- single commodity transportation assets.

Aurizon Network also noted that North American pipelines businesses are underwritten by long-term contracts with customers.³³³

In response, Castalia said it was not convinced by the arguments for the comparability of the North American pipelines sample.³³⁴

Incenta undertook a detailed analysis to assess the comparability of the North American pipelines sample, which included a review of those similarities suggested by Aurizon Network

³³³ Aurizon Network, sub. 4: 46; Aurizon Network, sub. 1: 273.

³³⁴ QRC, sub. 21, Annexure 1: 12.

and The Brattle Group. Based on its analysis, Incenta concluded that North American pipelines are not an appropriate comparator industry for Aurizon Network. Incenta expected North American pipelines to have materially higher systematic risk than Aurizon Network, noting that oil and gas transmission pipelines:

- compete against parallel pipelines and alternative transport modes, and are therefore subject to competitive pressures
- have a light-handed regulatory regime, differing from that applied to Aurizon Network
- are vulnerable to changing market conditions and contract roll-off for uncontracted pipeline capacity.³³⁵

The QCA acknowledges that certain similarities exist between North American pipeline businesses and Aurizon Network—the prevalence of long-term contracts, a limited number of commercial customers and single commodity transportation pipelines. However, Aurizon Network has a number of other business and operating characteristics that are not present for North American pipeline businesses, which serve to limit its exposure to systematic risk. For instance, Aurizon Network, as the monopoly service provider of the CQCN, has a high degree of market power in relation to its customer base. Furthermore, Aurizon Network's customer base:

- is captured, given there is no viable alternative for customers to transport their commodities to port
- has a resilient demand for CQCN services, given the strong position that CQCN coal producers occupy on the global seaborne coal cost curve.

CQCN coal producers have an incentive to maximise production even at low prices. The strong position that CQCN coal producers occupy in the seaborne market, as well as the fact that coal haulage costs are only a fraction of the costs they incur, combined with Aurizon Network's regulatory framework (such as take-or-pay contractual arrangements) result in coal haulage services (and Aurizon Network's regulatory earnings) not being pro-cyclical. As such, a coal producer's income elasticity of demand for the CQCN services is largely decoupled from the elasticity of the demand for coal from the CQCN.

In contrast, North American pipeline businesses are subject to competitive pressures from parallel pipelines and alternative modes of transport. North American pipeline businesses are susceptible to changing market conditions in the oil and gas markets, such as shifts in the regional demand for capacity. As a result, North American pipeline businesses do not have a captured and resilient customer base to the same extent as Aurizon Network has. Therefore, the QCA expects the North American pipeline businesses' earnings to be more pro-cyclical than Aurizon Network's.

Furthermore, Aurizon Network's regulatory framework differs substantially from the United States' regulatory regime for gas and oil pipelines, which does not buffer cash flows in the manner that the regulatory framework buffers the cash flows of Aurizon Network. Thus, North American pipelines are exposed to market forces on their uncontracted capacity.

The QCA considers that these different characteristics will expose North American pipelines to materially higher systematic risk than Aurizon Network is exposed to. Therefore, the QCA considers that North American pipeline businesses are not an appropriate comparator for Aurizon Network.

³³⁵ Incenta Economics 2017: 5.

Further analysis examining the appropriateness of North American pipeline businesses as a comparator for Aurizon Network is below. In particular, this analysis examines those characteristics proposed by Aurizon Network and The Brattle Group in support of North American pipeline businesses being an appropriate comparator.

The regulatory framework

Aurizon Network and The Brattle Group noted that North American pipelines are subject to regulation and operate under an open access regime. These businesses provide service under cost-of-service regulation by the Federal Energy Regulatory Commission (FERC), the Canadian National Energy Board (NEB), and certain state regulatory bodies in the case of intrastate pipelines.³³⁶

The Brattle Group considered that this regulation and long-term capacity contract features of the North American pipeline industry serve to buffer revenue variability in the manner identified by the QCA and Incenta with respect to Aurizon Network. The Brattle Group acknowledged that the specific rate design applied to regulated natural gas and oil pipelines by FERC and the NEB are not perfectly analogous to the QCA's regulation of Aurizon Network. However, The Brattle Group referred to the QCA's UT4 decision:

We also accept that the empirical evidence, as provided by Incenta, suggests that, while cost based regulation will reduce a firm's systematic risk, variations in the specific form of cost-based regulation, including additional regulatory mechanisms, are unlikely to be reflected in observed measures of systematic risk.³³⁷

As such, The Brattle Group considered that any difference in the asset beta of regulated pipeline companies is likely to be explained by structural differences between the transmission and distribution businesses.³³⁸

Castalia stated that, to the extent that Aurizon Network is exposed to the variability of returns, the drivers of such variability primarily have to do with the workings of the regulatory regime rather than with the specifics of the industry in which it operates.³³⁹ Aurizon Network submitted that despite this statement, Castalia mainly cited industry-specific differences of United States pipeline companies when rejecting them as the most comparable firms for Aurizon Network.³⁴⁰

Castalia considered that, although there are many broad similarities between the Australian and North American approaches to economic regulation of monopolies, there are also many material differences in how regulatory decisions are made and the risks that regulated companies take.³⁴¹ The QRC noted that Aurizon Network has the benefit of a myriad of revenue protection mechanisms—many of these mechanisms are outlined in Chapter 2. The QRC considered that Aurizon Network's regulatory framework, which aligns revenue with cost at periodic intervals and minimises revenue risk during a regulatory period, is a key feature relevant to its systematic risk.³⁴²

As noted, there are limitations in interpreting the available empirical evidence as concluding there is no difference in beta risk based on the form of regulation. Instead, the QCA has

³³⁶ Aurizon Network, sub. 1: 273; Aurizon Network, sub. 4: 40–41, 46.

³³⁷ QCA 2014e.

³³⁸ Aurizon Network, sub. 4: 46.

³³⁹ QRC, sub. 21, Annexure 1: 15.

³⁴⁰ Aurizon Network, sub. 26: 25.

³⁴¹ QRC, sub. 21, Annexure 1: 13.

³⁴² QRC, sub. 21: 30.

considered the extent to which the regulatory framework affects Aurizon Network's exposure to systematic risk.

Aurizon Network's regulatory framework entails more than the application of revenue cap regulation. The regulatory compact contains various mechanisms that allocate risk among industry stakeholders and/or seek to mitigate the extent to which Aurizon Network is exposed to certain risks. These mechanisms are further discussed in Chapter 2.

Incenta considered that the regulatory approach applied to North American pipelines is substantially different in nature to that applied to Aurizon Network. As such, it is incorrect to assume that Aurizon Network and North American pipelines are subject to comparable regulatory frameworks. Incenta considered that cost-of-service regulatory tariffs for the pipelines are influenced by fluctuations in the market with no pre-determined regulatory period.³⁴³

The way in which regulatory rates are established for liquid and natural gas pipeline companies in the United States is summarised below (also see the boxes further below).

The regulatory regime for United States oil and natural gas pipelines is light-handed and relies on the fact that pipelines are subject to competitive pressures. Where North American pipeline rates are constrained by competition, pipeline companies are not necessarily subject to cost-of-service rates. As noted by Incenta, in competitive markets, North American pipeline rates are constrained by competition, not regulation.³⁴⁴ Where this is the case, regulation does not buffer North American pipelines' cash flows.

Market-based rates and settlement rates are a common feature in United States oil pipeline ratemaking. Relevantly, it appears that a number of the businesses in the North American pipelines sample have numerous tariffs established as either market-based rates or settlement rates—and thus are not subject to cost-of-service regulation.

In regards to negotiation rates for gas pipelines, FERC does not compile an industry-wide list of negotiated rate agreements or volumes transported under negotiated rate agreements. However, FERC notes that the use of negotiated rate agreements has become routine for both long-term and short-term service agreements.³⁴⁵

While cost-of-service regulation is adopted in the regulatory regimes to mitigate any existing market power the pipeline carriers may have, cost-of-service rates (where applied) are influenced by the economic cycle. For instance, these tariffs:

- provide a ceiling for oil pipeline transportation rates, which are indexed by tracking economy-wide costs rather than pipeline-specific costs
- expose the gas pipeline transportation rates to the volume risk of the uncontracted portion of their capacity.³⁴⁶

Aurizon Network's regulatory framework, on the other hand, applies a revenue cap regulatory regime to all access holders with periodic price reviews using the 'building block' approach. Incenta said that unlike the cost-of-service rates for North American pipelines, Aurizon Network's revenue cap provides for revenue to be recovered irrespective of short-run fluctuations in usage. Incenta considered that Aurizon Network's regulatory framework, which

³⁴³ Incenta Economics 2017: 5, 8, 61-62.

³⁴⁴ Incenta Economics 2017: 8.

³⁴⁵ Correspondence with FERC, 27 July 2017.

³⁴⁶ Incenta Economics 2017: 8.

incorporates a revenue cap and pre-determined periodic price reviews, will result in cash flows that are essentially independent of the economic cycle, which in turn will result in relatively low systematic risk.³⁴⁷

Incenta considered that the extent of FERC's regulatory buffering of the cash flows of North American pipelines is substantively different to the buffering of Aurizon Network's cash flows under the QCA's regulatory framework.³⁴⁸

After examining both Aurizon Network's and United States gas and oil pipeline regulatory frameworks, we conclude that the FERC regulatory regime does not buffer North American pipelines' cash flows to the extent that Aurizon Network's regulatory framework buffers its cash flows. Therefore, the QCA considers that, in comparison to North American pipeline businesses, Aurizon Network is substantially insulated by its regulatory framework from earnings variations that would otherwise be pro-cyclical.

In the United States, regulatory ratemaking for oil and natural gas pipelines is light-handed in comparison to Aurizon Network's regulatory framework; for the pipelines, regulation relies on the existence of competition within the markets. FERC regulates the transportation rates of natural gas and oil pipelines in the United States but applies two different regulatory frameworks (see the boxes below).

³⁴⁷ Incenta Economics 2017: 29, 31.

³⁴⁸ Incenta Economics 2017: 30.

Regulatory ratemaking for oil pipelines

The oil pipeline rate methodologies and procedures are outlined in the Code of Federal Regulations. In establishing the initial rates for access to the pipeline, the pipeline carrier must justify an initial rate under Title 18, Section 342.2 of the Code of Federal Regulations for a new service by filing either:

- (a) cost, revenue, and throughput data supporting such a rate; or
- (b) a sworn affidavit that the rate is agreed to by at least one non-affiliated person who intends to use the service in question.

As such, it is not the case that all rates are established with respect to the cost-of-service method. However, where a rate is established through agreement with a non-affiliated shipper, it may be challenged by anyone with an economic interest to which the pipeline must then justify using the cost-of-service method.

Following the establishment of initial rates, Title 18, Section 342.3 of the Code of Federal Regulations requires the pipeline carrier to compute a rate 'ceiling level' for each index year by multiplying the previous index year's ceiling level by an index published by FERC. The indexing methodology establishes a rate ceiling, not the rate itself, with the index tracking economy-wide costs rather than pipeline-specific costs. Pipeline carriers are able to readily propose rate changes within the indexed ceiling. Alternatively, if a carrier shows that there is a substantial divergence between the actual costs experienced by the carrier and the rate resulting from application of the index, it may change the rate.

Additionally, Title 18, Section 342.4 of the Code of Federal Regulations outlines instances under which the pipeline carrier may change a rate without having regard to the ceiling level:

- (a) market-based rates—a carrier may attempt to show that it lacks significant market power in the market in which it proposes to charge market-based rates
- (b) settlement rates—the proposed change has been agreed to by each person who is using the service covered by the rate.

Therefore, it does not necessarily hold that the liquid pipelines contained in the North American pipelines sample are subject to cost-of-service rates. Market-based rates and settlement rates are common features in United States oil pipeline ratemaking. For instance, Buckeye Pipe Line Company L.P., Magellan Pipeline Company L.P., and TransCanada Keystone Pipeline, which are all part of the North American pipelines sample, have numerous tariffs established as either market-based rates or settlement rates.

Sources: Federal Energy Regulatory Commission 1999 Code of Federal Regulations, Title 18, Section 342.4; Revisions to Oil Pipeline Regulations Pursuant to the Energy Policy Act of 1992, Order No. 561, October 22, 1993; Federal Register / Vol. 61, No. 26 / Wednesday, February 7, 1996 / Notices, p4634; FERC correspondence.

Regulatory ratemaking for natural gas pipelines

The Natural Gas Act requires that rates charged for interstate pipeline services be ‘just and reasonable’. The basic methodology used by FERC to establish ‘just and reasonable’ rates is cost-of-service ratemaking.

With the issuance of Order No. 636, FERC adopted the straight fixed-variable (SFV) method for cost-of-service ratemaking for interstate natural gas pipelines. Under the ‘straight fixed-variable’ methodology, all fixed costs are classified to the demand component and all variable costs are classified to the commodity component.

Transmission costs are allocated among the various types of transportation services offered by the pipeline carrier to reflect the varying types of services provided (e.g. transportation contracts differ in regard to the reliability of natural gas delivery). Rates may be classified as either firm service rates or interruptible rates.

Firm service contracts reserve the allocated capacity of a pipeline, which guarantees the reserved capacity is available for the contract holder to use as requested. Firm service rates usually consist of two parts:

- (a) A reservation charge represents the amount that a customer must pay monthly to guarantee service on any day up to the daily contract demand. The reservation charge is payable regardless of whether the customer transports gas.
- (b) A usage charge bills the customer per unit of gas actually shipped.

Interruptible service contracts are considered less reliable, as contract holders are not guaranteed in advance of whether an interruption will occur. Interruptible rates are designed as volumetric rates and charged per unit of gas transported. The interruptible service rate is derived using a 100% load factor rate.

Both firm service and interruptible service rates are designed to recover a proportion of the fixed and variable costs associated with the two contract types. The total usage costs are divided by the projected annual firm and interruptible transportation volumes, with the reservation costs divided by the contract demand volumes for firm services plus an imputed volume for interruptible service.

When designing reservation rates, a pipeline must either credit interruptible revenues against its cost of service or allocate costs to its interruptible service. If a pipeline’s interruptible revenues do not match its credit or allocation of costs, it is possible a pipeline will under recover its fixed costs.

Carriers argued, particularly in regard to the appropriate rate treatment for the costs associated with a pipeline’s loss of revenues resulting from the expiration of contracts, that additional rate design flexibility was needed in order to market excess capacity and recover costs associated with their turned-back capacity. As a result, there are instances where a pipeline carrier can deviate from cost-of-service rates:

- (a) Market-based rates—where a natural gas company can establish that it lacks significant market power, market-based rates are a viable option for achieving the flexibility and added efficiency required by the current marketplace.
- (b) Incentive rates—incentive regulation provides for light-handed regulation without harm to consumers, where pipeline carriers possess market power. Rates are performance-based proposals where carriers share resulting efficiency gains of the program with their ratepayers.
- (c) Negotiated/recourse rates—these offer the potential for increased market responsiveness in pipeline services without protracted disputes regarding market power, where pipelines do not attempt to establish a lack of market power and do not want to undertake an incentive rate program. The availability of a recourse service assures that users can fall back to cost-of-service rates if the pipeline carrier unilaterally demands excessive prices or withholds service.

Sources: Federal Energy Regulatory Commission 1999; Revisions to Oil Pipeline Regulations Pursuant to the Energy Policy Act of 1992, Order No. 561, October 22, 1993; Federal Register / Vol. 61, No. 26 / Wednesday, February 7, 1996 / Notices, p4634; FERC correspondence.

Elasticity of demand

The Brattle Group stated that:

since the explosion of North American oil and natural gas production over the last decade, demand for transportation services has become increasingly reliable and insensitive to commodity prices.³⁴⁹

³⁴⁹ Aurizon Network, sub. 4: 40.

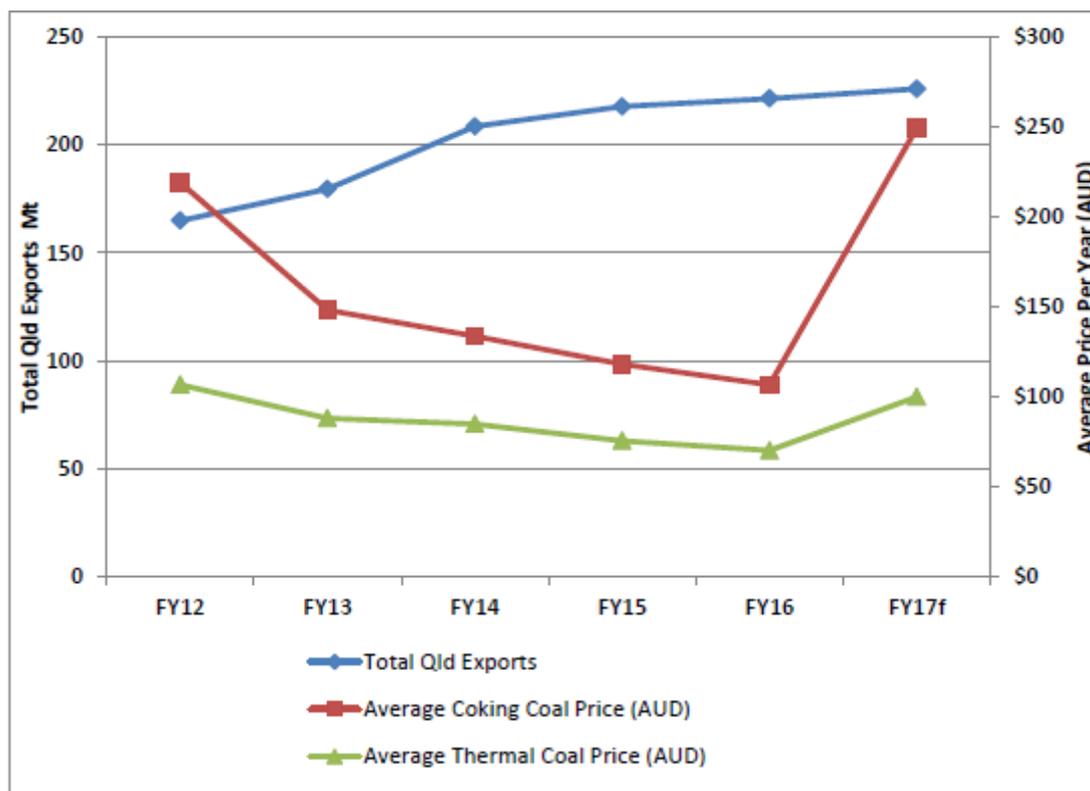
Incenta concluded that income elasticity of demand is more likely than price elasticity of demand to be associated with beta, as it relates to demand through the economic cycle, while empirical evidence linking price elasticity of demand to beta has shown varying results.³⁵⁰

Incenta reported that what matters for systematic risk is whether the firm’s cash flows are pro-cyclical, in which case systematic risk is higher. While Aurizon Network's customer base may be affected by the pro-cyclical nature of the coal market, Incenta considered that the coal producers' income elasticity of demand for the CQCN services is, to a large extent, decoupled from the elasticity of the demand for coal from the CQCN. This is due to:

- miners having an incentive to maximise production even at low prices—and even if the price dips below the all-in cash cost of production—if the price is expected to rise above that cost in due course
- Aurizon Network’s revenue cap regulatory framework that ensures, in NPV terms, any pro-cyclicality is eliminated.³⁵¹

This conclusion is supported by analysis undertaken by Resource Management International (RMI), which shows that despite the falling coal prices there has been no corresponding reduction in overall coal exports from Queensland (Figure 9).

Figure 9 Queensland coal exports vs coal prices



Source: RMI, 2017.

The income elasticity of demand for the North American pipeline services, in contrast to that of Aurizon Network, is not decoupled from that of the commodity being transported, with the

³⁵⁰ Incenta Economics 2017: 60.

³⁵¹ Incenta Economics 2017: 33.

exception of the contracted demand for the pipeline. Unlike Aurizon Network, North American pipelines are subject to:

- competitive pressure from parallel pipelines and alternative modes of transport
- a regulatory framework that does not buffer their cash flows in the same way that regulation buffers the cash flows of Aurizon Network.³⁵²

The Brattle Group submitted that demand for retail natural gas distribution service has few substitutes and is highly inelastic. The Brattle Group said that shippers usually do not have competitively priced transportation alternatives along a given route, and so it dismissed alternative transportation approaches as not being effective. However, The Brattle Group noted that if dynamics shift in supply markets or downstream demand centres, over time, a given pipeline's customers may shift their demand to alternative routes.³⁵³

Castalia submitted that, until recently, the domestic United States gas market was isolated from the rest of the world. In contrast to Queensland coal, the historical estimates of beta for the United States gas market would capture variability that is highly specific to the North American gas market conditions. Castalia noted that, as Queensland coal is largely exported, coal producers face much more diversified market risks.³⁵⁴

Incenta considered that the competitive environment has been accentuated by the fracking revolution, which has driven down the price of oil and gas, causing a substitution of gas-fired for coal-fired power stations.³⁵⁵ In a previous publication, The Brattle Group drew attention to these developments, noting that:

Recent years have seen fundamental changes in the supply and competitive landscape of the North American natural gas market. In response to high natural gas prices that prevailed during most of the last decade, gas producers in the lower 48 now have developed new sources of supply and technology, particularly to access new shale gas formations. These new supplies have encouraged a substantial expansion of the natural gas pipeline network in North America to allow the producers to reach end-use markets... The result has been a considerable increase in competition and risk, which can have serious consequences for pipelines and their required rates of return.³⁵⁶

Additionally, Incenta noted that North American gas and liquids transmission pipelines have a high component of industrial/commercial demand. As such, Incenta expects the demand of North American pipelines to be pro-cyclical.³⁵⁷

The QCA considers that while volatile coal prices have had implications for Aurizon Network's customer base, the income elasticity of demand for the CQCN services is decoupled from that of the commodity being transported. As such, Aurizon Network's cash flows would not be expected to be pro-cyclical.

Alternatively, the income elasticity of demand for North American pipelines' services is not in all cases decoupled from that of the commodity being transported. Given that North American pipelines have a high component of industrial/commercial demand, the QCA considers that their cash flows are expected to be more pro-cyclical than that of Aurizon Network.

³⁵² Incenta Economics 2017: 29-30.

³⁵³ Aurizon Network, sub. 4: 40.

³⁵⁴ QRC, sub. 21, Annexure 1: 13.

³⁵⁵ Incenta Economics 2017: 29-30.

³⁵⁶ Carpenter et al. 2012.

³⁵⁷ Incenta Economics 2017: 34.

Long-term contracts

Aurizon Network and The Brattle Group both said that long-term capacity reservation contracts are a central feature of the North American pipelines industry. The Brattle Group submitted that the companies in the North American pipelines sample have substantial contract cover over relatively long time horizons, suggesting a high degree of comparability to Aurizon Network.³⁵⁸

The Brattle Group estimated the average, median, and aggregate levels of contract cover for United States natural gas pipelines for 5, 10, and 15 years from the present (Table 28). Aurizon Network and The Brattle Group considered that this analysis demonstrates the prevalence of long-term, take-or-pay contracts in the natural gas pipeline industry. Additionally, The Brattle Group submitted that it is confident that a very high proportion of capacity in the natural gas subsample and for TransCanada Corp is contracted in the near-term, with possibly more than 50 per cent remaining contracted 15 years out.³⁵⁹

Table 28 Age-discounted contract cover for 33 largest United States natural gas pipelines

	<i>5-year contract cover</i>	<i>10-year contract cover</i>	<i>15-year contract cover</i>
Average	70%	56%	49%
Median	68%	54%	46%
Aggregate	68%	55%	48%

Source: Aurizon Network, sub. 4: 45.

The Brattle Group submitted that in the United States major liquids pipeline expansion projects are mostly or fully-subscribed under long-term capacity reservation contracts before the project enters service (or even begins construction).³⁶⁰

Long-term, take-or-pay contracts are also a feature of Aurizon Network's regulatory framework.

As noted by Incenta, a business will be less pro-cyclical if it has long-term contracts with suppliers and customers, other things being equal. The existence of long-term contracts is therefore likely have a reducing effect on the beta of both North American pipelines and Aurizon Network.

However, Incenta also considered that the impact of long-term contracts on North American pipelines is different from the impact of long-term contracts on Aurizon Network. Incenta considered that the extent of contract capacity is more important to North American pipelines than it is to Aurizon Network, in terms of limiting exposure to systematic risk.³⁶¹

In contrast to Aurizon Network, North American pipelines are subject to competitive pressure from parallel pipelines and alternative modes of transport and to light-handed regulation, and are exposed to market forces on their uncontracted capacity. North American pipelines' volumes are not protected once the contract expires or is terminated. Thus, Incenta considered that in a downturn North American pipelines are exposed to counterparty risk on their contracted capacity, as the failure of a contracting counterparty immediately impacts the pipeline. Incenta considered that this implies that contract roll-off is likely to be a significant

³⁵⁸ Aurizon Network, sub. 1: 273; Aurizon Network, sub. 4: 40–41, 45–46.

³⁵⁹ Aurizon Network, sub. 1: 273; Aurizon Network, sub. 4: 43–44.

³⁶⁰ Aurizon Network, sub. 4: 43.

³⁶¹ Incenta Economics 2017: 62.

issue for North American pipelines and that a material proportion of pipeline capacity would be vulnerable to changing demand in a given year.³⁶²

Castalia submitted that the risk allocation in the gas carriage contracts typically used in North America is materially different to the risk allocation under the typical Australian rail access agreements. Castalia also considered that on-shore gas production locations tend to be significantly shorter lived than coal mines, increasing stranding risks for mid-stream service providers.³⁶³

By contrast, Incenta said Aurizon Network is the monopoly provider of the CQCN with a captive and resilient customer base. Incenta considered that the position that these captive users occupy in the global seaborne coal cost curve is more important to Aurizon Network's long-term cash flows than the coverage and scope of its take-or-pay contracts. If the users are positioned at the favourable (lower) end of the cost curve, their export volumes are likely to be maintained and contracts renewed in the event of an economic downturn.³⁶⁴ Furthermore, Incenta noted that Aurizon Network's regulatory framework does not expose it to the volume risk of uncontracted capacity in the same manner as North American pipelines.

Incenta noted that Aurizon Holdings Limited, with reference to Aurizon Network, has itself commented to its shareholder base that its regulated below rail business is a:

- Defensive, regulated asset supporting major export industry with RAB of \$5.6bn, with
- Low volume and commodity price risk with socialisation and revenue protection, and
- High quality customers with high quality mines.³⁶⁵

Incenta considered that these statements imply that Aurizon Network considers it has low risk because its counterparties occupy strong positions in their own industry. The depth and diversification of Aurizon Network's customer base was also acknowledged by Moody's in its February credit opinion on Aurizon Network:

The rating [BBB+ stable] is further underpinned by the take-or-pay nature of Network's contracts with users over the entire Queensland coal export rail network – which provides it with the right to recover operating costs and earn a return on its assets – and the depth and diversification of its customer base.³⁶⁶

Further, Incenta considered that even if the mine's parent business fails and the assets are sold, it would be expected that the volumes would be recontracted to new users. Thus, Incenta considered that contract roll-off is not likely to be a significant issue for Aurizon Network.³⁶⁷

The QCA considers that, regardless of the economic cycle, Aurizon Network's railing volumes are likely to be maintained and contracts renewed—based on the position that Aurizon Network's captive users occupy in the global seaborne coal cost curve, as well as the way in which Aurizon Network's regulatory framework allocates volume risk. As such, the QCA does not consider that Aurizon Network is vulnerable to cyclical market conditions and associated contract roll-off risk. Furthermore, the competitiveness of CQCN producers and long-term market outlook for CQCN coal do not suggest that a structural change in the coal export market could materially affect

³⁶² Incenta Economics 2017: 43.

³⁶³ QRC, sub. 21, Annexure 1: 13.

³⁶⁴ Incenta Economics 2017: 35.

³⁶⁵ Aurizon Holdings 2016.

³⁶⁶ Moody's Investor Service 2017.

³⁶⁷ Incenta Economics 2017: 62.

the risk of long-term demand deterioration in the foreseeable future, based on the evidence provided.

The QCA considers that North American pipeline businesses, in comparison, remain exposed to market forces on their uncontracted capacity, particularly given these businesses:

- are subject to competitive pressures and a light-handed regulatory regime
- do not necessarily have a captured customer base.

Servicing a limited number of commercial customers

Aurizon Network and The Brattle Group said that both the North American pipelines and Aurizon Network service a limited number of commercial customers. The Brattle Group also submitted that pipeline companies are often geographically focused. As such, it considered that energy commodity transportation has relevant business characteristics that are more directly comparable to the operation of a coal rail network than to the regulated energy and water distribution utilities.³⁶⁸

In considering the implication of Aurizon Network servicing a relatively small number of customers, Incenta noted that resilience of revenue/earnings through the economic cycle is ultimately what is important for beta. Incenta considered that Aurizon Network's absence of sensitivity to the economic cycle is due to its market power, captured and resilient customer base, long-term contracting, and regulatory framework³⁶⁹—not due to the number of customers it services.

The QCA notes that both Aurizon Network and North American pipelines service a limited number of commercial customers.

Single commodity transportation assets

Aurizon Network and The Brattle Group noted that, similar to Aurizon Network, the North American pipelines are single commodity transportation pipelines. The Brattle Group considered that pipelines are more like Aurizon Network than distribution utilities, in terms of market structure and operational characteristics.³⁷⁰

However, Incenta considered that this characteristic provides insufficient information to consider whether two activities are appropriate comparators for a beta analysis. The fact that two types of firms share similar physical characteristics does not necessarily mean that they share similar systematic relationships between their returns and those of the market. The nature of the commodity transported may or may not be important for beta risk, depending on factors such as how the transporting business obtains its returns from the carriage of the commodity. As an example, Incenta noted that if the transporting business obtains returns that are dependent on the price of the commodity and that price is correlated to the market, it will have a higher beta than a transport business whose revenue is independent of the commodity's price.³⁷¹

The QCA agrees with Incenta that the key consideration for estimating the relevant beta is the co-variability of a firm's earnings with the economy. The QCA considers that it is important that a beta analysis, in the absence of direct comparators, takes the approach of 'looking through'

³⁶⁸ Aurizon Network, sub. 1: 273; Aurizon Network, sub. 4: 40.

³⁶⁹ Incenta Economics 2017: 59.

³⁷⁰ Aurizon Network, sub. 1: 273; Aurizon Network, sub. 4: 46.

³⁷¹ Incenta Economics 2017: 59.

the physical characteristics of operations to the economic fundamentals. Such an approach most closely identifies firms that match Aurizon Network on the basis of systematic risk. As such, the QCA does not consider that the 'single commodity' attribute is determinative for North American pipelines to be considered an appropriate comparator for Aurizon Network.

5.7.5 Freight rail transportation businesses

Aurizon Network and The Brattle Group proposed that freight transportation companies, including railways, have similar industry characteristics and are exposed to similar industry risks as Aurizon Network. Specifically, The Brattle Group considered that patterns of cash flows relating to operating expenses, maintenance and expansion capital expenditures, and working capital balances for freight rail companies are likely to be most comparable to those of other freight rail companies.^{372,373}

The Brattle Group noted that, while none of the firms in the non-United States Class 1 freight rail sample is directly comparable to Aurizon Network in every aspect, it viewed them as broadly reflecting the operating characteristics of the bulk commodity freight rail business and as adding context to asset beta estimates for the United States Class 1 railroads. However, The Brattle Group found that the United States Class 1 rail subsample has materially higher risk than Aurizon Network.³⁷⁴ As such, the United States Class 1 rail transportation sample was not used to establish the range for Aurizon Network's beta estimate, while the non-United States Class 1 freight rail sample formed the upper bound of the range.

Frontier considered that it is more likely that the risk exposure of Aurizon Network falls between that of regulated network businesses (energy, water, ports and toll roads) and of rail and transport companies and other network owners.³⁷⁵

The QRC did not consider the proposed freight rail transportation businesses to be appropriate comparators for Aurizon Network, noting the different forms of regulation and market position of the comparator group.³⁷⁶

Castalia stated that there is almost no similarity between Aurizon Network (serving a diversified, export-oriented market) and competitive, vertically integrated coal freight businesses serving a closed domestic market where coal competes with the over-supply of gas.³⁷⁷

Incenta agreed with The Brattle Group that the United States Class 1 rail subsample has higher risk than Aurizon Network. Incenta considered freight rail transportation businesses are not appropriate comparators for Aurizon Network. Incenta said freight rail transportation businesses are expected to have materially higher systematic risk than Aurizon Network, noting that Class 1 railroads:

- are subject to competitive pressure from parallel railroads and alternative transport modes
- carry loads that are highly sensitive to GDP shocks
- have relatively higher operating leverage

³⁷² Aurizon Network, sub. 1: 293; Aurizon Network, sub. 4: 46.

³⁷³ The freight rail transportation businesses referred to consist of a United States Class 1 freight rail subsample and a non-United States Class 1 freight rail subsample.

³⁷⁴ Aurizon Network, sub. 4: 47, 57.

³⁷⁵ Aurizon Network, sub. 6: i–ii.

³⁷⁶ QRC, sub. 21: 22.

³⁷⁷ QRC, sub. 21, Annexure 1: 15.

- only have a rate-of-return monitoring regulatory regime that does not buffer cash flows.³⁷⁸

Furthermore, Incenta considered that Class 1 railroads' capacity would be vulnerable to shifting demand in any year, as they typically have contracts with one to three year durations, and only in the case of coal traffic are contracts of up to five years observed. Incenta reported that the fracking revolution in recent years placed pressure on thermal coal, resulting in a reduction in thermal coal railings by United States Class 1 railroads.³⁷⁹

Incenta also stated that The Brattle Group provided no evidence to support the assertion that the 'patterns of cash flows' of Aurizon Network and Class 1 railroads are likely to be comparable. Incenta did not consider these matters raised by The Brattle Group to be correct or relevant, noting:

- An examination of operating leverage showed that Aurizon Network's operating expenditure / assets ratio of 0.10 is much closer to that of regulated energy and water (0.13) than it is to Class 1 railroads (0.24).
- In relation to maintenance and expansion capital expenditures, Aurizon Network's tracks are built to carry materially heavier loads, and consequently the capital expenditure per kilometre of track will be higher than that of Class 1 railroads.
- Working capital balances are irrelevant for beta given that the QCA compensates for working capital via a direct allowance and not through the WACC—nor was an explanation provided as to how, or whether, a link between working capital and beta exists.³⁸⁰

The QCA considers that the freight rail transportation group is exposed to materially higher systematic risk than Aurizon Network. Freight rail transportation businesses are subject to competitive pressures from parallel railroads and alternative transport modes, and transport freight that is highly sensitive to GDP shocks. Furthermore, the regulatory regime for freight rail transportation businesses does not buffer cash flows in the same manner as that of Aurizon Network's regulatory framework. Therefore, the QCA considers that freight rail transportation businesses' cash flows will be more pro-cyclical than the cash flows of Aurizon Network.

While freight rail transportation companies have similar industry characteristics, it is unclear how these industry similarities affect the extent to which these firms' earnings are exposed to movements in the economy. As outlined above, Aurizon Network has a different market position, customer base and regulatory framework than that of the freight rail transportation businesses sample. Therefore, the QCA considers that the firms' exposure to systematic risk will be markedly different as a result.

The QCA considers that freight rail transportation businesses are not an appropriate comparator for Aurizon Network.

5.7.6 Regulated energy and water businesses

Aurizon Network submitted that its inherently volatile commercial environment presents a very different risk profile to a regulated energy or water utility. Aurizon Network considered that this view is reinforced by the position taken by the ratings agencies and the difference between the benchmark metrics applied to Aurizon Network and utilities in the same BBB+ credit rating

³⁷⁸ Incenta Economics 2017: 43.

³⁷⁹ Incenta Economics 2017: 35.

³⁸⁰ Incenta Economics 2017: 64.

category.³⁸¹ Aurizon Network noted that, in a recent credit rating report on Aurizon Network, Moody's stated:

Network's rating tolerance level is set at a materially higher level than equivalently rated regulated electricity and gas utilities in order to reflect Network's intrinsically higher business risk, a consequence of the higher volatility to which its key customers are exposed.³⁸²

The Brattle Group noted that energy and water distribution utilities have two business characteristics in common with Aurizon Network:

- They operate infrastructure networks dedicated to transportation of a commodity.
- The rates they charge are generally subject to cost-of-service regulation.

However, The Brattle Group considered that the electric, natural gas, and water distribution utilities differ fundamentally from Aurizon Network on two important dimensions:

- nature of customer base—the diffuse and geographically diverse nature of the customer base for energy and water distribution companies serves to mitigate their demand risk
- elasticity of demand for service—distribution utilities benefit from relatively inelastic demand for their service, due to the features of their customer bases and the lack of substitutes for their service to those customers.³⁸³

The Brattle Group considered that these two characteristics lower the energy and water distribution utilities' business risk relative to that of Aurizon Network. Consequently, The Brattle Group viewed the asset beta estimates from this sample as being lower than what is reasonable for Aurizon Network's asset beta.³⁸⁴ Frontier also considered that these factors are likely to have different implications for the systematic risk of the CQCN in comparison to regulated energy and water businesses.³⁸⁵

In a report commissioned by Aurizon Network, Synergies³⁸⁶ compared Aurizon Network's commercial and regulatory risks to those typically found in regulated energy and water network businesses in Australia (with a specific focus on Queensland³⁸⁷). Synergies' analysis also outlined differences relating to the nature of customer base and elasticity of demand for service for the two business groups. From its analysis, Synergies considered that electricity and urban water networks face very different market risks to Aurizon Network, with the demand for Aurizon Network's services likely to be significantly more variable and subject to market shocks than is the case for Australian electricity and water networks.³⁸⁸

Synergies also considered the regulatory frameworks that apply to electricity and urban water networks differ in some important ways to the framework applying to Aurizon Network.³⁸⁹

The QRC, however, considered that the alignment of Aurizon Network's systematic risks to regulated energy and water utilities is evident from a first principles analysis of the risks faced

³⁸¹ Aurizon Network, sub. 1: 294; Aurizon Network, sub. 26: 26.

³⁸² Moody's Investor Service 2017.

³⁸³ Aurizon Network, sub. 4: 38–39.

³⁸⁴ Aurizon Network, sub. 4: 40.

³⁸⁵ Aurizon Network, sub. 6: 7–8.

³⁸⁶ See Aurizon Network, sub. 35.

³⁸⁷ The major Queensland energy and water network businesses Synergies considered are Powerlink, Energex, Ergon Energy, Queensland Urban Utilities (QUU) and Unitywater.

³⁸⁸ Aurizon Network, sub. 35: 30–37.

³⁸⁹ Aurizon Network, sub. 35.

by Aurizon Network. The QRC considered that regulated energy and water businesses are the best comparator groups for Aurizon Network, given these firms:

- are subject to similar regulation
- have a regulatory framework that buffers revenue risk
- have relatively low operational cost risk
- are generally subject to low stranding risk.³⁹⁰

Incenta also considered that regulated energy and water businesses are the best available comparators at this time to estimate Aurizon Network's systematic risk. Incenta said both Aurizon Network and regulated energy and water businesses are monopoly service providers, have a 'captured' customer base with resilient demand for the service, and are subject to cost-based regulation for pre-set periods, which largely insulates their cash flows. The regulatory approaches for Aurizon Network and regulated energy and water businesses are cost-based, set controls for a pre-determined period of time, and ensure recovery of revenues with a high degree of probability.³⁹¹

Incenta considered that these common characteristics jointly result in low sensitivity of demand/revenue to GDP shocks. As such, Incenta expects Aurizon Network and regulated energy and water businesses to have similar levels of exposure to systematic risk.³⁹²

For the reasons outlined by Incenta, the QCA considers that Aurizon Network and regulated energy and water businesses share common attributes that will result in these firms having similar levels of exposure to systematic risk.

In reaching this conclusion, the QCA considered the two characteristics raised by Aurizon Network, The Brattle Group and Synergies, which they consider lower the energy and water distribution utilities' business risk relative to that of Aurizon Network (i.e. nature of customer base and elasticity of demand). The QCA considers that Aurizon Network's customer base and income elasticity of demand for CQCN services provide for low sensitivity of demand/revenue to GDP shocks (the two characteristics are further examined below).

The QCA has assessed the extent to which the regulatory frameworks affect the risks that Aurizon Network and regulated energy and water businesses are exposed to. While the way in which the regulatory frameworks account for risk may differ for these comparators, the QCA considers that Aurizon Network's exposure to volume, counterparty and asset stranding risk is similar to that faced by regulated energy and water businesses—the QCA's analysis is detailed below.

As such, the QCA considers that regulated energy and water businesses are appropriate comparators for Aurizon Network.

Nature of customer base

Aurizon Network noted that the regulated utility network businesses' risks and costs are spread across their large and diverse customer bases. The Brattle Group noted that:

- energy and water distribution utilities serve large populations of retail customers—end users of the commodity—in their franchise service territories

³⁹⁰ QRC, sub. 21: 21, 30.

³⁹¹ Incenta Economics 2017: 4, 29.

³⁹² Incenta Economics 2017: 4.

- many publicly traded firms in the energy and water distribution business operate multiple regulated utility operating companies in geographically diverse regions.³⁹³

The Brattle Group considered that the diffuse and geographically diverse nature of the customer bases of energy and water distribution companies serves to mitigate their demand risk, since changes in usage by any individual customer have relatively little impact on overall system revenue.³⁹⁴

The Brattle Group submitted these features contrast with Aurizon Network's dedicated operation of the CQCN, with corporate customers accessing its network to transport coal from supply regions to downstream distribution channels. While Aurizon Network's take-or-pay contract arrangements help to reduce its demand risk, The Brattle Group considered that the potential for declining revenue from the gradual roll-off of contracts is likely to be high relative to the potential for similar usage declines among distribution utility customer bases.³⁹⁵

Synergies also noted that electricity and water networks are characterised by large numbers of low volume customers (low customer concentration), with low dependence on high volume customers for revenue. Alternatively, Aurizon Network has a small number of users (high customer concentration). Synergies also noted that electricity and water networks face diversified economy-wide risk³⁹⁶, while Aurizon Network is exposed only to large industrial customers, which in turn are exposed entirely to international coal markets.³⁹⁷

Noting that electricity and water networks are not exposed to significant volume or revenue risk in relation to individual customers on their networks, Synergies submitted that take-or-pay contracts for supply are not a feature of these sectors. Synergies considered that Aurizon Network relies on long-term, take-or-pay contracts in order to protect its asset stranding risk. Synergies said that 35 per cent of volume will come off contract in the next five years and in an environment of surplus capacity, there is a reduced incentive for users to commit to long-term contracts.³⁹⁸

Frontier noted that, while losses that arise from disconnecting customers can be socialised in both the CQCN and regulated energy and water businesses, socialisation is practically more difficult in the case of the CQCN where the disconnection of a single customer might amount to a loss of 10 per cent of the revenue base. Further, Frontier noted that the risk of losses from disconnections is more likely to arise during market downturns.³⁹⁹

In considering the nature of the customer base for regulated energy and water businesses, the QRC noted that for particular regulated entities, such as the Gladstone Area Water Board, the bulk of their customers by volume are major industrials and not individual consumers.⁴⁰⁰

Incenta acknowledged that regulated energy and water business serve a diverse range of residential customers.⁴⁰¹ The diverse nature of the customer base for energy and water

³⁹³ Aurizon Network, sub. 1: 294; Aurizon Network, sub. 4: 38–39.

³⁹⁴ Aurizon Network, sub. 4: 39.

³⁹⁵ Aurizon Network, sub. 4: 39.

³⁹⁶ Specifically, there is exposure to a broad cross-section of the domestic economy, with high weighting towards domestic, residential users. Commercial and industrial users typically cover a range of market segments, creating a broadly diversified demand risk.

³⁹⁷ Aurizon Network, sub. 35: 25–27, 30.

³⁹⁸ Aurizon Network, sub. 35: 29–30.

³⁹⁹ Aurizon Network, sub. 6: 7.

⁴⁰⁰ QRC, sub. 21: 31.

⁴⁰¹ Incenta Economics 2017: 35.

distribution companies serves to mitigate their demand risk. As such, the long-term demand risk for regulated energy and water companies is limited.

Incenta said that the risk inherent in Aurizon Network's relatively small number of customers depends on the competitive position of those customers in the global supply of seaborne coal exports. However, Incenta stated that the position of Aurizon Network's customers is strong (as customers are positioned at the favourable/lower end of the seaborne coal market cost curve), so this risk is low.⁴⁰²

In considering the implication of servicing a relatively small number of customers, Incenta noted that resilience of revenue/earnings through the economic cycle is ultimately what is important for beta—not the number of customers *per se*. As outlined above, Incenta considered that Aurizon Network's absence of sensitivity to the economic cycle is not related to the number of customers it services, but rather to its market power, captured and resilient customer base, long-term contracting and regulatory framework.

As noted above, the QCA does not consider that there is a significant risk of contract roll-off for Aurizon Network. Due to the position that Aurizon Network's captive users occupy in the global seaborne coal cost curve and the high fixed shut-down and start-up costs at mines, Aurizon Network's railing volumes are likely to be maintained and its contracts renewed. Aurizon Network's regulatory framework limits its exposure to the volume risk of uncontracted capacity. Furthermore, the exposure to any such risk may be mitigated by Aurizon Network's ability to submit changes to the regulatory compact as part of regulatory reset every four years or through a DAAU submission.

The QCA considers that, similar to regulated energy and water businesses, Aurizon Network is not vulnerable to cyclical market conditions and associated contract roll-off risk.

Elasticity of demand

As outlined above, Incenta concluded that income elasticity of demand is more likely than price elasticity of demand to be associated with beta, as it relates to demand through the economic cycle, while empirical evidence linking price elasticity of demand to beta has shown varying results.

The QCA notes that analysis presented by Aurizon Network, The Brattle Group, Frontier and Synergies in relation to Aurizon Network's elasticity of demand focused on the price elasticity of demand.

In this context, Aurizon Network considered that a regulated utility network's demand is comparatively stable and predictable, and customers have a low price elasticity of demand. The Brattle Group attributed this, in part, to the features of utilities' customer bases and the lack of substitutes for their services to those customers. In general, retail end users have limited opportunities to substitute away from the commodity delivered, and the local distribution utility has a natural monopoly, preventing entry of alternative suppliers of the distribution service. Synergies submitted that the clear majority of demand for electricity and water networks relates to residential users, who are not subject to competitive pressures, or domestic economic activity.⁴⁰³

The Brattle Group submitted that demand for access to Aurizon Network's infrastructure fundamentally depends on the ability of its customers to profit from transporting coal from, and

⁴⁰² Incenta Economics 2017: 59-60.

⁴⁰³ Aurizon Network, sub. 1: 294; Aurizon Network, sub. 4: 39; Aurizon Network, sub. 35: 27–28, 30.

to, the nodes of that network. This will depend on regional and global demand for Queensland coal, as well as the price of that coal. Synergies also considered that Aurizon Network's customers are price takers in international coal markets, with demand subject to market conditions. Given the recent and ongoing shifts in global energy markets, The Brattle Group submitted that demand for Queensland coal is likely to be more price-elastic and variable than the demand for electric, natural gas, and water distribution services. While noting that regulation and contract cover may reduce Aurizon Network's exposure to demand risk in the short term, The Brattle Group considered that those forces cannot eliminate such risks entirely.⁴⁰⁴

Frontier also considered that the price elasticity of demand is likely to be much higher for the CQCN compared with regulated water and electricity businesses. Frontier noted that regulated energy and water businesses distribute essential commodities to largely residential customer bases that have no viable option other than to pay the network business for providing the essential service. In contrast, Frontier considered that CQCN customers have realistic alternatives in responding to price increases, including securing access to alternative, existing rail links and/or funding new spurs and connections, or reducing contracted volumes.⁴⁰⁵

Frontier also submitted that coal-mining companies are likely to be more sensitive to price during periods when coal prices are lower, coinciding with a downturn in the Australian market. Furthermore, Frontier considered that the CQCN is subject to the risk of a prolonged decline in coal prices, given the volatility in coal prices.⁴⁰⁶

The QRC strongly disagreed with these type of characterisations. It considered that differences in the elasticity of demand ignore that take-or-pay contracts, large sunk costs and lack of available alternatives result in marginal producers continuing to operate, provided they cover their variable costs of production. The QRC also considered that the assertion that the demand for coal is less stable and predictable ignores the fact that electricity network businesses face major industry challenges like:

- batteries/storage solutions
- household solar panels exporting power to the grid
- distributed energy and off-grid power arrangements that have reshaped demand for the services provided by such electricity network businesses.⁴⁰⁷

Incenta reported that regulated energy and water businesses' revenues are resilient to economic cycles and that this is not due to customer numbers, but to:

- the demand having a significant component of residential consumption, which has a low income elasticity of demand
- the firms being subject to cost-based QRC regulation that further buffers their cash flows.⁴⁰⁸

As a result, Incenta expected very little remaining pro-cyclicality in the revenues of regulated energy and water businesses.

⁴⁰⁴ Aurizon Network, sub. 4: 39; Aurizon Network, sub. 35: 27–28, 30.

⁴⁰⁵ Aurizon Network, sub. 6: 7.

⁴⁰⁶ Aurizon Network, sub. 6: 7–8.

⁴⁰⁷ QRC, sub. 21: 28, 31.

⁴⁰⁸ Incenta Economics 2017: 6.

While recognising pro-cyclical fluctuations in the demand for Australia's metallurgical coal, Incenta highlighted that Aurizon Network's cash flows are not pro-cyclical, as miners have an incentive to maximise production even at low prices. Incenta considered Aurizon Network's revenue is similarly resilient to economic cycles, given its market power, the characteristics of its customers and its regulatory framework. Incenta considered that Aurizon Network's regulatory framework is likely to achieve 'cash flow buffering' similar to that of regulated energy and water businesses. Aurizon Network's cash flows, like those of regulated energy and water businesses, vary with changes in the RAB, rather than with the state of the economy.⁴⁰⁹

As outlined above, the QCA recognises that volatile coal prices have had implications for Aurizon Network's customer base. However, the income elasticity of customers' demand for the CQCN services is largely decoupled from the elasticity of the demand for coal from the CQCN. Noting that income elasticity of demand is more likely than price elasticity of demand to be associated with beta, the QCA considers that Aurizon Network, The Brattle Group and Frontier have presented no evidence that the income elasticity of demand for energy and water distribution services is lower relative to that of Aurizon Network. Furthermore, Incenta's analysis shows that Aurizon Network's cash flows are not pro-cyclical with the market.

The regulatory framework

Synergies said its analysis indicates that electricity and urban water networks face a somewhat different regulatory impact on their commercial risks compared to Aurizon Network. The Synergies submission and corresponding QCA analysis are summarised in Table 29.⁴¹⁰

In particular, Synergies considered that Aurizon Network is subject to significantly higher volume and counterparty risks (leading to higher revenue risk) and much higher stranding risks than Australian energy and water networks. While the application of economic regulation may modify the impact of commercial/market risks facing regulated entities, including through mechanisms like revenue caps, it cannot change the nature of the underlying commercial/market risks facing these entities (which Synergies considered are fundamentally higher for Aurizon Network than for electricity and urban water networks).⁴¹¹

Synergies also considered that, overall, it is reasonable to conclude that Australian electricity and water networks are not subject to material risk of bypass—service alternatives for electricity networks are low and for water networks negligible. Alternatively, Synergies submitted that Aurizon Network faces bypass risk in relation to its electric network from diesel traction, and the GAPE and Newlands System from an alternate export route offered in the Goonyella System and planned Adani rail line.

Aurizon Network also submitted that the asset bases of regulated utility network businesses are not fragmented, nor are they exposed to risks such as revenue deferrals.⁴¹²

The QCA does not agree that Aurizon Network is subject to significantly higher short-term volume and counterparty risks than that of regulated energy and water businesses. As discussed in Chapter 2, the QCA considers that Aurizon Network's exposure to volatile market conditions and counterparty risk is largely addressed by the regulatory compact. The QCA acknowledges that Aurizon Network is exposed to counterparty and demand risk associated with long-term demand deterioration for coal from the CQCN. However, based on the evidence available to us,

⁴⁰⁹ Incenta Economics 2017: 8.

⁴¹⁰ Aurizon Network, sub. 35: 30–37.

⁴¹¹ Aurizon Network, sub. 35: 37.

⁴¹² Aurizon Network, sub. 1: 294.

the competitiveness of CQCN producers and long-term market outlook for CQCN coal suggest that producers will remain competitive with other coal export markets in the foreseeable future. As such, the QCA considers that the risk of asset stranding is low for CQCN assets.

Mechanisms in Aurizon Network's regulatory framework, such as socialised take-or-pay reference tariffs and the revenue cap, mean that Aurizon Network is only exposed to bypass risk to the extent that it materialises into an asset stranding risk for that asset. Aurizon Network has not submitted any evidence to suggest that the bypass risk for these assets is material for the UT5 regulatory period. Furthermore, the regulatory framework provides sufficient flexibility to address the circumstances before Aurizon Network, on a case-by-case basis. If such a risk does materialise for a specific asset during the regulatory period, the QCA considers that Aurizon Network has the ability to manage this risk within the regulatory framework. In particular, Aurizon Network is able to submit changes to the regulatory compact as part of a DAAU submission or as part of the subsequent regulatory period.

As outlined in Chapter 3, the QCA's draft decision is to approve Aurizon Network's 2017 DAU proposal to not defer WIRP capital relating to the Blackwater System—providing investors with certainty as to when the deferred capital will be recovered.

Table 29 Synergies submission comparing the impact of regulation

Issue	Synergies submission	QCA analysis
Fragmentation of the RAB	Electricity and water networks generally maintain aggregated RABs rather than customer-segmented RABs as is the case for Aurizon Network's fragmented RAB, which causes even greater customer concentration. Aurizon Network's RAB is fragmented into seven discrete RAB components, resulting in greater concentration of market risk factors. There is no mechanism for revenue shortfalls or stranding events affecting one RAB component to be compensated from another RAB component.	It is unclear to which extent Aurizon Network's RAB fragmentation affects the risk of asset stranding and why this justifies a higher beta. In any case, other mechanisms in the regulatory compact address short-term revenue shortfalls in a RAB component, and no evidence has been provided of a structural deterioration in demand in a specific RAB component. ⁴¹³ As such, from the evidence provided, the QCA does not the view that RAB fragmentation is materially increasing Aurizon Network's exposure to a structural deterioration in demand.
Volume risk mitigation	Revenue caps are used for mitigation of volume risk for both Aurizon Network and electricity networks. For electricity networks, noting the outlook for moderate growth in energy demand and the highly diversified nature of this demand, the revenue cap is likely to be effective in managing volume risk in the medium to long term. In contrast, Aurizon Network has concentrated exposure to the coal market. While the revenue cap passes volume risk to customers, where market circumstances result in a significant loss in demand, the capacity of remaining users to pay revenue cap-induced price rises is	The QCA considers that, similar to regulated energy and water businesses, Aurizon Network's regulatory compact mitigates Aurizon Network's exposure to short-term volume and counterparty risk—allocating short-term demand risk to other parties in the industry. The QCA noted that despite the falling coal prices there has been no corresponding reduction in overall coal exports. Furthermore, the competitiveness of CQCN producers and long-term market outlook for CQCN coal does not suggest that a structural change in the coal export market could materially affect the risk of long-term demand deterioration in the foreseeable

⁴¹³ The competitiveness of CQCN producers and long-term market outlook for CQCN coal suggest that producers will remain competitive with other coal export markets in the foreseeable future, based on the evidence provided to us.

Issue	Synergies submission	QCA analysis
	<p>uncertain.</p> <p>While revenue caps are not applied for water networks, volume risk is generally low given the essential nature of the service. Volume risk is typically mitigated through tariff structure and price reviews.</p>	<p>future.</p>
<p>Asset stranding risk</p>	<p>The electricity regulatory framework provides strong protection against asset stranding risk for the electricity networks. Furthermore, asset stranding risk is low given the essential nature of the service; and the very large and highly diversified customer base.</p> <p>Water networks generally do not receive this level of regulatory protection but asset stranding risk is low, given the essential nature of the service; and the very large and highly diversified customer base.</p> <p>This compares to Aurizon Network, which only has the opportunity for socialisation of stranding risk within segmented RAB groups, with no specific stranding protection between RAB groups. Together with a highly concentrated market and customer exposure, this leads to significant stranding risk for some segmented RAB groups.</p>	<p>The QCA considers that, similar to regulated energy and water businesses, the risk of asset stranding facing Aurizon Network is low.</p> <p>The QCA acknowledges that a structural change in the coal export market could materially affect the risk of long-term demand deterioration. However, Aurizon Network has not provided any evidence of a long-term structural decline in demand for coal from central Queensland. As outlined above, the competitiveness of CQCN producers and long-term market outlook for CQCN coal suggest that producers will remain competitive with other coal export markets in the foreseeable future.</p>
<p>Operating and maintenance risk</p>	<p>Risk is generally low across each of the businesses, given their capital-intensive nature. In particular, the risk for electricity networks and Aurizon Network is broadly comparable, given the high degree of regulatory discretion in assessing expenditure proposals at each regulatory reset.</p>	<p>The QCA agrees with Synergies that the operational and maintenance risk is low for Aurizon Network and the Australian electricity and water networks. Additionally, Aurizon Network's regulatory compact provides cost-pass through arrangements and enables Aurizon Network to submit changes to the regulatory arrangements.</p>
<p>Performance risk</p>	<p>Risk is higher for electricity and urban water network providers, given strict obligations created by safety and supply-related legislation and subordinate regulations. In contrast, regulation is unlikely to have a material impact on Aurizon Network's performance risk.</p>	<p>The QCA agrees with Synergies that the regulatory framework is unlikely to have a material impact on Aurizon Network's performance risk. Aurizon Network bears liabilities for performance under contracts.</p>
<p>Financing risk</p>	<p>The application of regulation changes the way in which regulated businesses must manage their financing risk, in order to best match regulatory reset periods. Financing risk is generally higher for Aurizon Network given many financiers are withdrawing from providing finance to businesses that have direct coal exposure. Aurizon Network has a greater financing and refinancing risk as it will have access to a smaller pool of available capital.</p>	<p>The QCA acknowledges that the financing risk of these entities may differ. Aurizon Network adopts a different debt management strategy to that of the electricity and water networks examined by Synergies.</p> <p>Aurizon Network's cost of debt sufficiently compensates Aurizon Network for the debt management strategy it adopts and for the financing and re-financing risk that it encounters. This is discussed in section 5.10.</p>
<p>Regulatory discretion at</p>	<p>Regulatory discretion regarding expenditure assessments and WACC approval is comparable for revenue</p>	<p>The QCA agrees with Synergies that regulatory discretion in relation to expenditure assessments and WACC</p>

Issue	Synergies submission	QCA analysis
reset	and/or price-regulated electricity and urban water networks and Aurizon Network. Aurizon Network is subject to some additional risk, as the regulatory discretion extends to the non-price terms and conditions upon which it negotiates and provides access.	approval is comparable for the regulated electricity and urban water networks assessed by Synergies and Aurizon Network. In relation to regulatory discretion for non-price terms and conditions, the QCA notes that Aurizon Network has a stable regulatory framework. In any case, it is not clear the extent to which the non-price terms and conditions referred to are related to Aurizon Network's exposure to systematic risk.

Source: *Aurizon Network, sub. 35: 30–37.*

5.7.7 Toll roads sample

Aurizon Network and The Brattle Group did not assess the appropriateness of toll roads businesses as comparators for Aurizon Network.

The QRC considered that toll roads would be anticipated to involve higher risk than Aurizon Network, such that they could only be considered an upper bound on the beta estimate.⁴¹⁴

Incenta also considered toll road businesses to have higher systematic risk than Aurizon Network. Incenta said toll roads typically face a degree of competition from alternative routes and transport modes that apply competitive pressure on toll road operators. Noting that there are often alternatives to toll road services, and traffic can be sensitive to GDP shocks, Incenta also expects the demand of toll road customers to display some sensitivity to the economic cycle. Additionally, Incenta reported that toll roads generally bear full demand risk, and are not buffered by regulation in the same manner as Aurizon Network.⁴¹⁵

From the first principles analysis presented by Incenta, the QCA expects toll roads businesses to be exposed to higher systematic risk in comparison to Aurizon Network. Given that toll roads businesses have the next highest asset beta estimate after regulated energy and water, Incenta used the toll roads estimate as an upper bound on the asset beta of Aurizon Network.⁴¹⁶

5.7.8 Empirical evidence for an appropriate comparator

Frontier considered that the 'first principles' analysis employed to determine appropriate comparators involves nothing more than conceptual discussion. Furthermore, Frontier noted that when Aurizon Network considered the same 'first principles', Aurizon Network reached the opposite conclusion. As a result, Frontier considered there is no framework for determining whose conclusion is correct.⁴¹⁷

Incenta disagreed with Frontier's assertion that the first principles analysis employed to determine appropriate comparators involves nothing more than conceptual discussion. While first principles analysis provides qualitative analysis, Incenta supplemented its analysis by examining empirical evidence to consider whether it supported the first principles' findings. Incenta noted that neither The Brattle Group nor Aurizon Network supported its propositions with empirical evidence.⁴¹⁸

⁴¹⁴ QRC, sub. 21: 22.

⁴¹⁵ Incenta Economics 2017: 4, 29, 34.

⁴¹⁶ Incenta Economics 2017: 14.

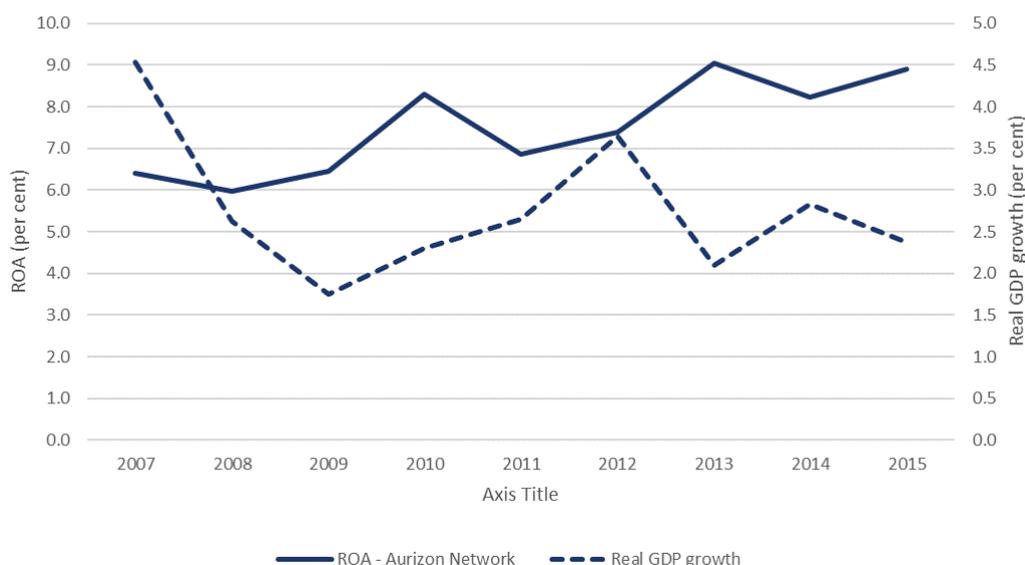
⁴¹⁷ Aurizon Network, sub. 6: 6.

⁴¹⁸ Incenta Economics 2017: 66.

Specifically, Incenta noted that the beta concept is founded on the proposition that it is the responsiveness of returns of the business in question relative to returns in the market that determines systematic risk.⁴¹⁹ To support its first principles assessment, Incenta calculated the average Return on Assets (ROA) for each of the proposed comparator groups from 2007 to 2015 and compared the change in ROA with movements in the economic cycle.⁴²⁰

While Incenta's analysis showed that Aurizon Network's ROA fluctuated over the time series, these movements were largely independent of the state of the Australian economy.⁴²¹

Figure 10 ROA vs GDP growth for Aurizon Network, 2007–2015



Source: Incenta Economics 2017.

Incenta's analysis also demonstrated a relative lack of association between the ROA of regulated energy and water businesses and real GDP growth. On average, the returns of regulated energy and water businesses reacted relatively mildly to the Global Financial Crisis (GFC) and to subsequent changes in the United States' real GDP and 'average' real GDP⁴²². Similarly, the average ROA of the toll road sample was relatively unresponsive to the GFC, but showed slightly more variability than the energy and water businesses over the subsequent period.⁴²³

⁴¹⁹ Incenta Economics 2017: 44.

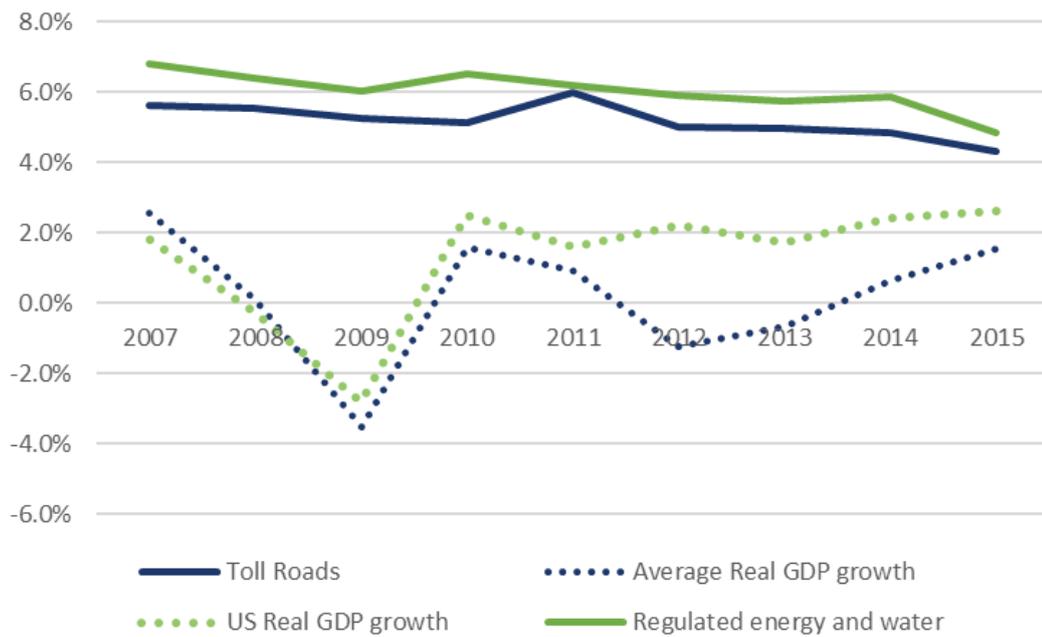
⁴²⁰ Movements in the economic cycle were represented by the real GDP growth rate of the relevant countries.

⁴²¹ Incenta Economics 2017: 45.

⁴²² Incenta calculated a weighted average of real GDP based on the real GDPs of the countries that the component businesses operate within.

⁴²³ Incenta Economics 2017: 45-6. ROA vs GDP growth for regulated energy / water, and toll roads, 2007–2015.

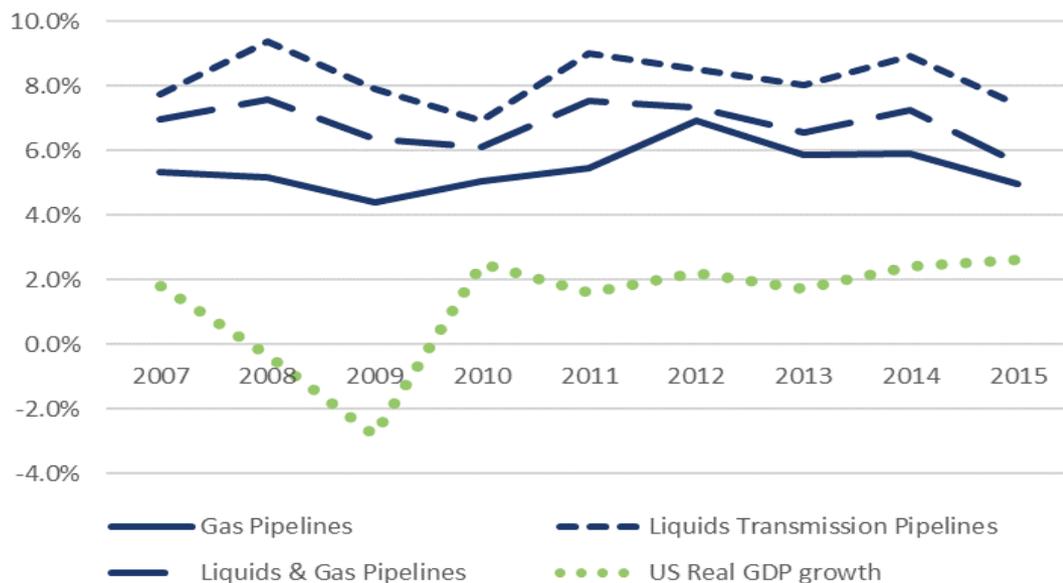
Figure 11 ROA vs GDP growth for regulated energy / water, and toll roads, 2007–2015



Source: Incenta Economics 2017.

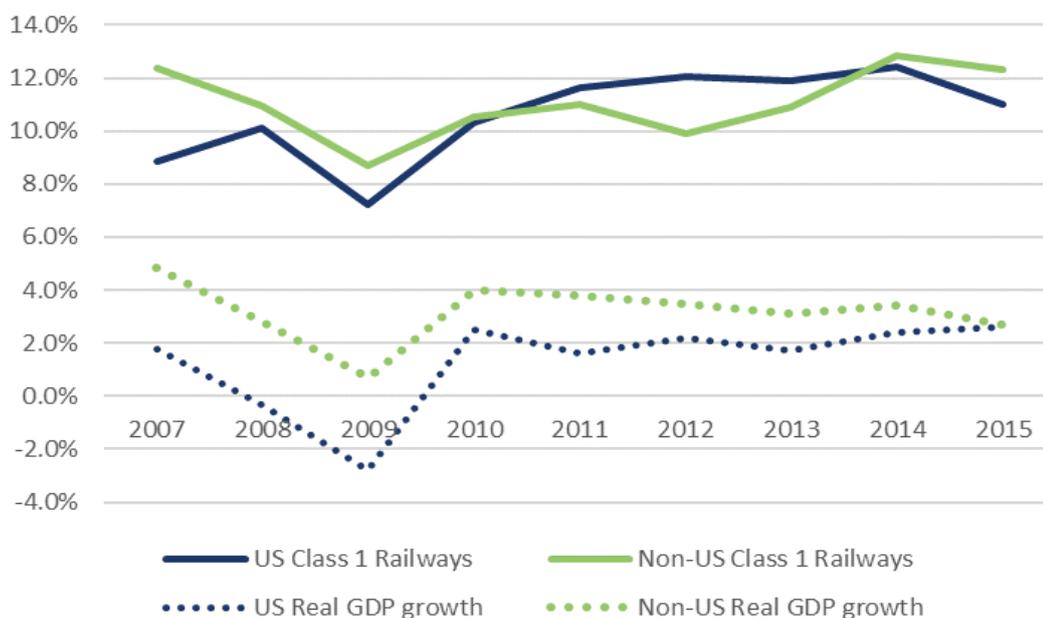
The time series presented by Incenta showed that the cash flows of the North American pipeline businesses appear to be more systematically volatile than those of Aurizon Network. The ROAs of freight rail transportation businesses showed even more pronounced fluctuations than what was observed for North American pipelines businesses. In particular, there was a very pronounced fall in ROA for freight rail transportation businesses during the GFC.⁴²⁴

Figure 12 ROA for North American gas and liquids pipelines, 2007–2015



Source: Incenta Economics 2017.

⁴²⁴ Incenta Economics 2017: 47-8.

Figure 13 ROA for US Class 1 railroads and Non-US Class 1 railroads, 2007–2015

Source: *Incenta Economics 2017*.

The ROA time series presented by Incenta shows no evidence of Aurizon Network being systematically correlated to the economic cycle. The QCA considers that this empirical evidence supports the findings of the first principles analysis, that regulated energy and water businesses are appropriate comparators for Aurizon Network.

By contrast, the empirical evidence suggests that both North American pipelines and rail freight transportation businesses display more pro-cyclical earnings, indicating that the cash flows of North American pipeline businesses and freight rail transportation businesses appear to be more systematically volatile than those of Aurizon Network.

The QCA notes that Aurizon Network and its consultants have not presented any empirical evidence to the contrary.

Following consideration of the first principle analysis and supporting empirical evidence, the QCA considers that:

- North American pipeline businesses and freight rail transportation businesses are not appropriate comparators for Aurizon Network
- the regulated energy and water businesses sample is the most appropriate set of comparators for Aurizon Network.

5.7.9 Other regulatory decisions

Economic Regulation Authority—Western Australian railway businesses

Aurizon Network noted that the ERA, in its final determination on the WACC methodology to apply to regulated railways in Western Australia⁴²⁵, used international rail networks as comparators for the Western Australian railway businesses. In relation to Brookfield Rail, Aurizon Network noted that the ERA:

⁴²⁵ ERA 2015.

- considered that Aurizon is potentially the best comparator company to the Brookfield Rail network
- considered that non-rail operators are a less valid proxy for Brookfield Rail compared to rail operators
- considered that international railroads are useful in informing the beta estimate, although Brookfield Rail will be of lower risk than American and Canadian railway operators who are exposed to higher degrees of competition from alternative forms of transport
- assigned an asset beta of 0.7, which is at the lower end of the asset beta range for the ERA's sample of overseas railroads.⁴²⁶

In response to Aurizon Network, Incenta did not consider its approach, of rejecting Class 1 railways as comparators for Aurizon Network, to be unique or unsubstantiated. Incenta noted that the ERA adopted a much higher asset beta for its freight rail business (Brookfield Rail) than for its urban passenger business (Public Transport Authority). Incenta noted that the ERA did not reference other rail businesses that carry freight, but rather toll roads, when estimating the asset beta for the Public Transport Authority.⁴²⁷ The ERA then exercised its judgment and chose an asset beta below the toll roads operator with the lowest asset beta.

In its consideration of Aurizon Network as a comparator for Brookfield Rail:

- The ERA acknowledged differences in the regulatory frameworks, noting that Brookfield Rail is subject to a negotiate-arbitrate regulatory regime, while Aurizon Network is subject to a revenue cap.
- The ERA also noted differences between Aurizon Network's and Brookfield Rail's customer bases, particularly Brookfield Rail's reliance on the local grain supply each year.^{428,429}

These differences in regulatory framework and customer base suggest that Brookfield Rail would have higher systematic risk than Aurizon Network.

In any case, the ERA (and its consultant, The Allen Consulting Group) considered Brookfield Rail to be less risky than overseas rail freight systems, due to Brookfield Rail's market power⁴³⁰ and customer base.

... the Authority's a-priori expectation is that overseas rail operators will possess a higher level of risk, relative to an Australian railway operator, as American and Canadian railway operators, for example, are expected to face higher degrees of competition from alternative forms of transportation, such as roads.⁴³¹

Beta values [from freight rail systems] in these ranges may, however, overstate beta values for the freight rail system in Western Australia for reasons that the comparator businesses considered for this study would have a greater proportion of revenues derived from intermodal (container) traffic, which would generally be expected to have higher levels of non-diversifiable

⁴²⁶ Aurizon Network, sub. 1: 295.

⁴²⁷ Incenta Economics 2017: 9, 65.

⁴²⁸ ERA 2015: 28, 164.

⁴²⁹ Grain rail transportation faces significant competition from road transport—with grain operators seeking the most cost-effective method of transporting grain to ports following deregulation of grain export marketing arrangements.

⁴³⁰ Similar to Aurizon Network, Brookfield Rail is a monopoly service provider.

⁴³¹ ERA 2015: 29.

risk (and higher beta values) than the freight rail system in Western Australia, which has a greater proportion of revenues from bulk transport of grain and mineral products.⁴³²

The QCA considers that our draft decision to not adopt freight rail transportation businesses as a comparator for Aurizon Network is not inconsistent with the ERA's final determination, given that:

- the ERA considers Brookfield Rail to be less risky than international rail systems
- differences in regulatory framework and customer base suggest that Brookfield Rail would have higher systematic risk to that of Aurizon Network.

For these reasons, the QCA does not consider that the use of railway comparators by the ERA provides a basis to adopt freight rail transportation businesses as comparators for the estimation of Aurizon Network's beta.

Australian Competition and Consumer Commission—Hunter Valley Coal Network

Referring to submissions made by stakeholders as part of the Australian Competition and Consumer Commission's (ACCC's) assessment of Australian Rail Track Corporation's (ARTC's) Hunter Valley access undertakings, Aurizon Network submitted that coal producers have been opportunistic with their submissions:

The coal producers have been opportunistic with their comments between regulated rail entities. The majority of members of the QRC are also users of the HVCN and are members of the Hunter Rail Access Task Force (HRATF). On 6 February 2017, the HRATF responded to the Australian Rail Track Corporation 2017 Draft Access Undertaking for HVCN and has considered a WACC of 6.29% (using June 2016 averaging period) as appropriate while the QRC, made up of similar members, has recommended a WACC that is some 1.20% lower.⁴³³

In particular, Aurizon Network considered that the lower WACC proposed by the QRC for Aurizon Network's UT5 Undertaking is difficult to reconcile with the Hunter Rail Access Task Force's (HRATF) proposed WACC for ARTC.⁴³⁴

The QCA has undertaken a comprehensive first principles assessment, supported by theoretical and empirical evidence, to ensure that Aurizon Network's beta estimate reflects its systematic risk—rather than simply undertaking a benchmarking exercise that references other regulatory decisions. The QCA is committed to undertaking a thorough approach to its investigations.

5.7.10 Methodology used to estimate Aurizon Network's asset beta

Aurizon Network's proposed asset beta estimate is based on statistical analysis undertaken by The Brattle Group. For the identified comparators, The Brattle Group recommended estimating each company's equity beta using data from Bloomberg and applying a methodology with the following features:

- an ordinary least squares regression of the company's historical total stock returns on the historical total returns of the corresponding local market index
- a five-year estimation period
- a weekly sampling interval for returns.⁴³⁵

⁴³² The Allen Consulting Group 2007: 31.

⁴³³ Aurizon Network, sub. 26: 23.

⁴³⁴ Aurizon Network, sub. 26: 23.

⁴³⁵ Aurizon Network, sub. 1: 274; Aurizon Network, sub. 4: 47.

Having estimated the companies' observable equity betas, The Brattle Group applied the Conine formula to de-lever each company's Bloomberg raw equity beta estimate. The Brattle Group used the following parameters to de-lever each company's equity beta estimate:

- a debt beta of 0.12 for all companies
- the average capital structure proportions for the past three of five years using Q2 balance sheet data from Bloomberg and verified by S&P Capital IQ
- the representative statutory tax rate combined with any state or provincial tax rates for each company's country of incorporation.⁴³⁶

In addition to estimating individual equity betas for the firms in each of its comparator samples, The Brattle Group also constructed 'portfolios' of firms by industry and estimated equity betas for these portfolios—'portfolio betas'.^{437,438}

Incenta adopted a similar statistical methodology to The Brattle Group for estimating beta. However, for its proposed comparators, Incenta used the average Bloomberg-calculated effective tax rate over the previous 15-year period for de-gearing purposes.⁴³⁹ Incenta also reviewed whether the proposed five-year estimation period and weekly sampling interval for returns were appropriate for estimating Aurizon Network's beta. The Brattle Group's and Incenta's views on these methodological design issues are discussed below.

Weekly sampling interval for returns

In deciding the frequency with which returns are sampled for beta estimation, The Brattle Group submitted that key considerations are accuracy and statistical precision. In deciding the frequency with which to sample returns, The Brattle Group noted:

- Shorter return sampling frequencies create the potential for a downward bias in the betas if the sample of stocks are infrequently traded—as their returns may not vary much at weekly resolution. However, The Brattle Group considered that low weekly trading volume is unlikely to be a concern for the majority of the companies in its samples.
- Use of weekly data provides more confidence in the precision of the estimate in comparison to monthly data, due to more observations over a given estimation window.
- The weekly beta estimates uniformly reflect a better fit to the returns data than the monthly estimates.
- The weekly regression exhibits residuals that are closer to being normally distributed.

The Brattle Group therefore relied on weekly beta estimates to inform its conclusions regarding the systematic business risk of the comparator companies in its industry samples.⁴⁴⁰

In the past, the QCA has relied on monthly intervals to estimate beta. However, Incenta noted that reliance on both weekly and monthly data has increased among regulators, although recent empirical evidence has questioned whether higher frequency return estimates provide

⁴³⁶ Aurizon Network, sub. 4: 47, 56.

⁴³⁷ Based on the mean and median asset betas for each industry subsample. The Brattle Group considered that the portfolio betas complement the sample averages and medians, which treat each company's beta as an (equally weighted) independent observation of industry-specific systematic business risk.

⁴³⁸ Aurizon Network, sub. 4: 48.

⁴³⁹ Incenta Economics 2017: 73.

⁴⁴⁰ Aurizon Network, sub. 4: 49, 52–54.

the most accurate estimates of systematic risk. For instance, Gilbert et al.⁴⁴¹ reported that, at higher frequencies (days or weeks), the betas of opaque firms will not fully incorporate news, but at lower frequencies (monthly or quarterly), all systematic information will be impounded into the returns of all firms.

Incenta considered that some caution should be exercised when adopting a weekly sampling interval, noting that:

- there may be estimation issues associated with the use of the weekly return interval; and
- the asset beta estimates for regulated energy and water businesses are sensitive to whether weekly or monthly data are applied.

As such, Incenta placed reliance on both weekly and monthly estimates in reaching a preferred estimate of beta.⁴⁴²

Given the possibility of estimation issues associated with the use of the weekly return interval, the QCA accepts that consideration of both monthly and weekly estimates of beta may be prudent for informing an asset beta range for Aurizon Network. The QCA therefore adopts Incenta's approach of taking account of both monthly and weekly estimates of beta.

Five-year estimation period

The Brattle Group considered that statistical precision can be improved with the use of more data points. The Brattle Group noted that a longer estimation period incorporates more observations into the estimate. At the same time, The Brattle Group noted that a longer estimation window may incorporate more information that is non-current and might therefore yield a beta estimate that is not predictive of forward-looking systematic risk. Alternatively, if too short an estimation window is used, the estimate may be too sensitive to temporary capital market conditions, which again might yield a beta estimate that is not predictive of forward-looking systematic risk. Thus, The Brattle Group noted the inherent trade-off between adopting an estimation period that is either too short or too long.⁴⁴³

The Brattle Group considered that a five-year estimation window strikes the right balance for estimation, noting:

- a five-year window allows real and permanent changes in systematic risk to influence the beta estimates without overreacting to temporary shifts in capital markets
- a five-year window does not rely on data from the height of the GFC
- a shorter three-year estimation window is too volatile.⁴⁴⁴

Alternatively, Incenta considered that a 10-year period is likely to provide a better estimate of the forward-looking asset beta, as it is likely to be more reliable given that shorter estimation periods are more likely to be influenced by aberrations. Incenta considered that adopting a five-year estimation period would be likely to introduce unnecessary volatility into the regulatory process.⁴⁴⁵

⁴⁴¹ Gilbert et al. 2014.

⁴⁴² Incenta Economics 2017: 76.

⁴⁴³ Aurizon Network, sub. 4: 54.

⁴⁴⁴ Aurizon Network, sub. 4: 56.

⁴⁴⁵ Incenta Economics 2017: 76.

However, noting that regulatory practice elsewhere has had regard to both 5 and 10 years of data, Incenta also estimated annual, 5-year asset betas to gain a sense of how variable estimates have been over the past decade. Incenta noted that the asset beta estimates for:

- regulated energy and water businesses using five years of monthly data is below the 10-year estimate
- North American pipeline businesses has recently spiked, which appears to be linked to the fracking revolution and its influence on the price of oil and gas.⁴⁴⁶

The significant difference between the beta estimates for the two previous five-year periods, especially for liquids pipelines, reinforced Incenta's preference for 10-year beta estimates. Incenta considered that data over a period of 10 years is less affected by short-term variations in beta. For this reason, Incenta recommended relying on these estimates.⁴⁴⁷

Given the significant difference between the beta estimates obtained for the sample over the two 5-year periods, the QCA has a preference for estimating beta using a 10-year estimation period. The QCA considers that this will provide a better estimate of the forward-looking asset beta. However, noting that a shorter estimation period mitigates the risk of incorporating non-current information, the QCA recognises there may be value in also considering the five-year estimation period.

While our preference is to adopt a 10-year period to estimate Aurizon Network's beta, 5-year beta estimates were also examined and taken into account in establishing a beta range for Aurizon Network.

5.7.11 Reliability of the Sharpe-Lintner (SL) CAPM

Aurizon Network considered that there is extensive evidence that the SL CAPM produces estimates of the return of equity that are systematically lower than actual returns for stocks with beta less than one and higher than the actual returns for stocks with betas above one. This view was also supported by accompanying submissions from both Frontier and The Brattle Group. Pointing to empirical evidence provided by Fama and French⁴⁴⁸; Brealey, Myers and Allen⁴⁴⁹; and Da, Guo and Jagannathan⁴⁵⁰, Frontier considered that the QCA's estimation technique results in returns over a very long period of time falling short of realised returns.⁴⁵¹ Similarly, Aurizon Network suggested that the CAPM is not a reliable model for predicting returns.⁴⁵²

Aurizon Network and Frontier suggested that these results are likely due to the SL CAPM failing to consider other factors, such as book-to-market ratio, that are priced into returns. Frontier stated that the ratio of the book value of equity to the market value of equity has been consistently shown to have a positive relationship with realised returns. From the evidence presented, Frontier concluded that either: the CAPM is a model that is incomplete; and/or the estimation technique leads to poor risk measurement.⁴⁵³

⁴⁴⁶ Incenta Economics 2017: 73-7.

⁴⁴⁷ Incenta Economics 2017: 73.

⁴⁴⁸ Fama and French 2004.

⁴⁴⁹ Brealey, Myers and Allen 2011.

⁴⁵⁰ Da, Guo and Jagannathan 2012.

⁴⁵¹ Aurizon Network, sub. 1: 295; Aurizon Network, sub. 6: 8–10.

⁴⁵² Aurizon Network, sub. 1: 295.

⁴⁵³ Aurizon Network, sub. 6: 12, 16.

Frontier considered that, if the equity return continues to be set on the basis of the limited information, the QCA will have left out material, relevant information in estimating Aurizon Network's allowed return.⁴⁵⁴

The Brattle Group submitted that empirical CAPM estimates should inform the allowed rate of return when the regulated entity has a beta less than one, or at least regulators should recognise this downward bias inherent in standard CAPM estimates when setting the allowed return.⁴⁵⁵

Aurizon Network considered that the SL CAPM will underestimate its cost of equity as it has a high book-to-market ratio. Therefore, Aurizon Network said its proposal to continue using the SL CAPM in estimating cost of equity is a conservative approach.⁴⁵⁶ In any case, Aurizon Network's proposal is based on the application of the SL CAPM approach.

Castalia considered that there is a strong interest from both service providers and users in having a regulatory framework that is stable and predictable and not one that changes in response to the latest, esoteric, WACC 'fad'. Castalia submitted that, in practice, a regulator would know that any decisions about WACC based on the CAPM would be approximations of the real world.⁴⁵⁷

The QCA has considered Aurizon Network's and Frontier's arguments on these matters. We do not agree with the proposed interpretation of evidence on the CAPM. The central theme of these arguments is that the CAPM underestimates the return on equity for firms with equity betas less than one (i.e. the model produces a 'low beta bias'). However, interpretation of Aurizon Network's and Frontier's proffered empirical evidence requires care. The suggested 'low beta bias' does not mean that the beta is biased downward. In particular, it does not mean that the equilibrium expected return from the CAPM is biased downward. Rather, in the current context, the findings indicate that the equilibrium expected return from the CAPM is less than the (subsequent) realised return.

Specifically, the empirical tendency for 'low beta' stocks to outperform (and for 'high beta' stocks to underperform) relative to the CAPM does not necessarily indicate any problem with the CAPM. Rather, one interpretation is that low beta stocks have positive 'alphas', noting that a number of factors can contribute to the performance of a stock.⁴⁵⁸ However, whether any of these factors determine equilibrium expected returns is not resolved in the literature. Therefore, Aurizon Network's implication that the model is deficient—and that another model is better—is not proven.

The QCA also disagrees with the view that, unless we take into account additional information, such as the ratio of firm book to market value, the cost of equity will be underestimated. Estimates of the cost of equity relating to such factors arise from 'factor models', like the Fama-French model.⁴⁵⁹ The model (and related factor models) have not been logically derived from a set of assumptions about markets and investor behaviour (in contrast to the CAPM). The lack of

⁴⁵⁴ Aurizon Network, sub. 6: 14.

⁴⁵⁵ Aurizon Network, sub. 4: 61.

⁴⁵⁶ Aurizon Network, sub. 1: 296.

⁴⁵⁷ QRC, sub. 21, Annexure 1: 2.

⁴⁵⁸ The 'alpha' is the difference between a stock's realised return and its expected return, consistent with the security market line.

⁴⁵⁹ The Fama-French model is a three-factor model of asset returns, which incorporates the following factors: i) the return on the market; ii) firm size (measured by market capitalisation); and iii) the ratio of book value to market value.

a theoretical basis is problematic, as it has contributed to disagreement over the specification of the model, including the choice of potential explanatory factors. Further, it is unclear whether these proposed factors explain *ex ante* expected returns—the empirical work tends to focus on how well such factor models explain *ex post* realised returns. The QCA also notes that the Australian Energy Regulator (AER) has reached similar conclusions and has given the Fama-French model no role in estimating the return on equity for the regulated firms.⁴⁶⁰

The QCA considers Aurizon Network's proposal to apply the CAPM is appropriate to estimate its WACC estimates.

5.8 Overall return on equity

Aurizon Network expressed the view that its rate of return should be commensurate with the return required by investors, consistent with the risks of the business. Aurizon Network also said that delivering an appropriate rate of return involves not only ensuring that the estimation methods for each of the WACC parameters produce the best estimates, but that it is necessary to consider the 'reasonableness' of the overall outcome having regard to market evidence.⁴⁶¹

In this context, Aurizon Network submitted a report by Ernst and Young (EY) that provides an empirical analysis of the application of the CAPM by independent experts in estimating the cost of equity, and a comparison of these estimates to the cost of equity estimates from the QCA's regulatory decisions to date.

The EY report particularly focuses on the impact of low bond yields arising from stimulatory programmes since the GFC, and how this phenomenon has been problematic for regulated businesses, as regulators typically use a variable government bond yield for the risk-free rate, but a fixed value for the MRP in estimating the cost of equity. EY said this regulatory practice has resulted in an inappropriate reduction in the allowed cost of equity, and hence required revenues, of regulated businesses.⁴⁶²

EY investigated 1,608 independent reports issued from 2008 to 2015. For the comparative analysis, EY selected 201 of these reports because they provided enough information on the calculation of the cost of equity, used the CAPM to derive the cost of equity and used a discounted cash flow (DCF) valuation method to value a company or its underlying assets.⁴⁶³

EY acknowledged that the roles of independent experts and regulators are different. EY noted that, while independent experts seek to provide a fair and reasonable valuation of an asset at a point in time, regulators seek to set prices at a point in time for a particular period of time. However, EY said that both seek to estimate a cost of equity at a point in time that reflects the requirements of investors. EY's view is that it is not obvious why there should be a discrepancy between the two.⁴⁶⁴

EY compared the market cost of equity in the independent expert reports to the market cost of equity derived from QCA regulatory decisions, assuming a standardised equity beta of 1.0. EY said the independent experts' implied market cost of equity averaged 11.1 per cent over the 2008–2015 period, varying between 10.1 and 12.05 per cent. EY then re-estimated the implied market cost of equity in each of the 201 reports using the QCA's approach to setting the risk-

⁴⁶⁰ AER 2017d: 203.

⁴⁶¹ Aurizon Network, sub. 1: 245–246.

⁴⁶² Aurizon Network, sub. 8: 4.

⁴⁶³ Aurizon Network, sub. 8: 5, 15.

⁴⁶⁴ Aurizon Network, sub. 8: 8.

free rate and MRP. EY said its analysis resulted in an average market cost of equity of 9.89 per cent, a difference of about 1.2 percentage points.⁴⁶⁵ EY noted that the difference has increased since 2012, ranging from 0.55 per cent in 2008 to 1.87 per cent⁴⁶⁶ in 2015, despite an increase in the QCA's MRP estimate from 6 to 6.5 per cent.⁴⁶⁷ A summary of EY's findings is reproduced in Table 30.

Table 30 Summary of EY's calculated (implied) market cost of equity

<i>Year</i>	<i>Expert implied market cost of equity (%) (A)</i>	<i>QCA implied market cost of equity (%) (B)</i>	<i>Difference (%) (A-B)</i>
2008	12.05	11.49	0.55
2009	11.82	10.76	1.06
2010	11.71	10.97	0.74
2011	11.13	10.27	0.86
2012	10.59	8.83	1.76
2013	10.48	8.99	1.47
2014	10.76	8.93	1.83
2015	10.10	8.24	1.87
2008–2015	11.10	9.89	1.20

For a subset of 24 reports in the infrastructure sector, EY reported that the difference is 1.27 percentage points.⁴⁶⁸ EY said the difference would be even higher if imputation credits are incorporated into the analysis. In isolating the sources of the differences, EY noted that the difference:

- was largely driven by the MRP in 2008–2009 (due to the effects of the GFC) and in 2012 (which was likely attributable to a decline in global equity markets)
- since 2010, has become more influenced by the different assumptions used for the risk-free rate, commencing when the QCA began matching the term of the risk-free rate to the term of the regulatory period.⁴⁶⁹

EY noted that, of the 24 independent expert reports in 2015, the independent experts made adjustments in 23 instances to reflect the perceived unsustainability of low bond rates.⁴⁷⁰ Experts had the view that the low bond rates were unsustainable and should theoretically result in an uplift in the MRP. EY said this uplift could not be quantified so most experts made direct adjustments to the risk-free rate or added an uplift to the overall WACC. Some added an 'alpha' factor to beta to account for risk factors not captured by beta. Some experts also used long-

⁴⁶⁵ Aurizon Network, sub. 8: 19. The QCA notes that EY identified an average implied QCA market cost of equity of 9.99% on page 2 of its report.

⁴⁶⁶ Aurizon Network, sub. 8: 19. It is not clear how these averages are derived. For example, the QCA's analysis of the data provided in Appendix A for 2015 shows an average of 1.56%.

⁴⁶⁷ Aurizon Network, sub.8: 19.

⁴⁶⁸ Aurizon Network, sub. 8: 28.

⁴⁶⁹ Aurizon Network, sub. 8: 20.

⁴⁷⁰ Aurizon Network, sub. 8: 20–25. The QCA notes that Appendix A in the EY report listing the 24 independent reports appears to show that adjustments were made in only six instances.

term averages of the government bond yield as opposed to short-term spot values.⁴⁷¹ However, EY indicated that it excluded these various forms of direct adjustments made to the risk-free rate or the overall WACC when making the comparisons to QCA regulatory decisions.⁴⁷²

On the basis of this comparison to market practice, EY concluded that the QCA's application of the CAPM will result in estimates of the market cost of equity that are below those of independent experts, and in many cases materially so. EY concluded that regulated businesses are being denied the opportunity to recover a reasonable allowance for their return on capital and that this would have a detrimental effect on investment.⁴⁷³

Aurizon Network also submitted a summary report by Deloitte on the findings of a survey of five leading global investment banks involved in large infrastructure transactions over the last two years. The survey focused on the post-tax equity returns required by investors, the relationship between post-tax equity returns and the risk-free rate, and Aurizon Network's risk profile from an investor's perspective.⁴⁷⁴

Deloitte's findings⁴⁷⁵ are that:

- High quality regulated assets and infrastructure assets supported by firm, long-term contracts have attracted post-tax equity returns of 7.0 per cent to 9.5 per cent. High quality transport assets have attracted post-tax equity returns between 8.0 and 11.0 per cent.⁴⁷⁶
- Aurizon Network would be considered higher risk than utilities due to the lack of predictability in its regulatory regime, commodity exposure (and associated asset stranding risk), the environmental impact of coal and the development of renewable energy. Deloitte said that the post-tax equity return required by investors for Aurizon Network would likely sit at the high end of the range for regulated assets or at the lower end of the range for high quality transport assets.⁴⁷⁷
- Equity returns have fallen by a smaller proportion relative to the decline in the yield on Commonwealth Government bonds. Over three years, the Government bond rate has fallen by 81 basis points while post-tax equity returns have fallen by 50 to 75 basis points.⁴⁷⁸

Deloitte's findings suggest that the post-tax return on equity for Aurizon Network should lie between 8.0 per cent and 9.5 per cent. Deloitte concluded that the unique risks faced by Aurizon Network over the long term would place upward pressure on the post-tax equity return required by infrastructure investors.⁴⁷⁹

QCA analysis

The EY analysis focuses on the risk-free rate and MRP components of the cost of equity, standardising for beta, while Deloitte's survey focused on nominal returns on equity (reported in a survey). On the basis of these reports, Aurizon Network's main point is that the QCA has

⁴⁷¹ Aurizon Network, sub. 8: 21.

⁴⁷² Aurizon Network, sub. 8, Appendix A: 32–36.

⁴⁷³ Aurizon Network, sub. 8: 31.

⁴⁷⁴ Aurizon Network, sub. 39: 5.

⁴⁷⁵ Deloitte's survey responses were kept confidential and anonymised pursuant to section 239 of the QCA Act (Aurizon Network, sub. 39: 5).

⁴⁷⁶ Aurizon Network, sub. 39: 6–7.

⁴⁷⁷ Aurizon Network, sub. 39: 6–7, 9.

⁴⁷⁸ Aurizon Network, sub. 39: 8.

⁴⁷⁹ Aurizon Network, sub. 39: 7, 9.

diverged from independent experts' views on how to treat the recent, historically low risk-free rates, resulting in a materially lower allowed cost of equity for regulated entities.

EY's principal focus is on the difference between independent experts' market cost of equity and the QCA's market cost of equity and that this difference has increased in recent years. The implication is that, relative to independent experts, the QCA's treatment of the risk-free rate and MRP does not respond to changing market conditions. A key piece of evidence presented in support of this view is an annual summary of experts' and the QCA's (average) market cost of equity from 2008 to 2015.

We have examined the EY report. While we do not have access to the experts' reports, and therefore were not able to analyse how EY determined the difference in each case, we have assessed the summary information presented, in particular EY's Appendix A. This appendix lists all of the reports analysed by EY for each year in 2008–2015 and gives EY's calculated difference in the market cost of equity for each one. Taking EY's reported differences in implied market costs of equity as 'correct', we are unable to reproduce the summary results in EY's Table 1 (presented above).⁴⁸⁰ A comparison of EY's reported differences and our calculated differences (based on EY's Appendix A data) are in Table 31 below.

Table 31 Comparison of EY and QCA implied market cost of equity differences

<i>Year</i>	<i>Expert implied market cost of equity (%) (A)</i>	<i>QCA implied market cost of equity (%) (B)</i>	<i>EY difference (%) (A–B)</i>	<i>QCA calculated difference using EY data (%)</i>
2008	12.05	11.49	0.55	0.50
2009	11.82	10.76	1.06	1.08
2010	11.71	10.97	0.74	0.70
2011	11.13	10.27	0.86	0.83
2012	10.59	8.83	1.76	1.28
2013	10.48	8.99	1.47	1.37
2014	10.76	8.93	1.83	1.40
2015	10.10	8.24	1.87	1.56
2008–2015	11.10	9.89	1.20 ⁴⁸¹	1.04

The differences reported by EY (A–B in the table above) average 1.2% over the 2008–2015 period. However, Appendix A of the EY report provides estimates of the differences for each independent expert that, based on the QCA's analysis, average 1.04% over the same period. It is possible that the latter lower estimate may be explained by direct adjustments or uplifts to the risk-free rate made by the independent experts but which EY removed for the purposes of comparison with the implied QCA cost of equity in the appendix. However, the reasons for discrepancies for some of the independent reports are not made transparent in Appendix A or explained in the text.

⁴⁸⁰ In other words, without debating the merits of the calculations and simply taking the EY Appendix A data, we calculated different average annual differences.

⁴⁸¹ EY's analysis quotes an average 1.2% (p 3) while EY's Appendix A presents an average of 1.12% over all the independent expert reports. The reasons for this discrepancy are not clear.

Without further information, the QCA is concerned that the differences could be the result of transcription or calculation errors. In any case, as we have sourced the data directly from EY's Appendix A, we would expect to be able to reproduce EY's summary information (since the latter is based on Appendix A data). As we cannot reproduce it, and all of the discrepancies are systematically biased in one direction, we have some concerns with the reliability of this report.⁴⁸²

Notwithstanding this matter, the QCA's view is that independent experts (surveyed by EY) and global investment banks (surveyed by Deloitte) derive a cost of equity for a fundamentally different purpose than does the QCA—EY agrees with this view.⁴⁸³ In particular, independent experts and banking analysts use it as an input to derive a discount rate for valuing assets, typically in takeover situations or for major transactions. We note that 116 of the 201 expert reports (58%) relate to takeovers.⁴⁸⁴

In contrast, the QCA applies the WACC to a specific RAB value to determine efficient revenues and prices for a defined regulatory period (i.e. typically five years). The RAB is not revalued each regulatory period but is rolled forward over successive regulatory periods, accounting for inflation, new capital expenditure and disposals, and depreciation. The RAB is generally not subject to short-term market forces and remains relatively stable over time.⁴⁸⁵

Given the different purposes, it is noted that there is greater variation in independent experts' estimates for the cost of equity. For example, using EY's data for 2015, the independent experts' cost of equity ranged from 8.48 to 12.27 per cent. By comparison, the QCA's 'implied cost of equity' using EY's analysis ranged from 7.83 to 8.71 per cent.⁴⁸⁶ Deloitte's survey showed a range from 7.0 to 11.0 per cent.⁴⁸⁷ EY noted that, rather than apply a mechanistic approach to determining the cost of equity, independent experts made adjustments either to the return on equity or to the overall WACC. Aurizon Network said these adjustments reflect company or project-specific risk premiums using long-term averages of the risk-free rate, as opposed to short-term spot values.⁴⁸⁸

The generally higher and more variable surveyed costs of equity likely reflect short-term, market-driven valuation risks specific to the relevant companies and their investment projects, some of which may not be relevant to the types of risks faced by Aurizon Network. Where appropriate to do so, relevant, project-specific and company risks are addressed in the regulatory model through various other mechanisms. These include, for example, the RAB roll-forward process noted above, revenue cap adjustments, review events, and cost pass-throughs, among other measures, rather than a premium on the cost of equity. Given the different purposes, and the range of risk allocation and mitigation measures built into the regulatory framework, it is not surprising that there is an observed difference in the derived cost of equity component, and that the regulatory cost of equity is generally lower and more stable.

The QCA does not consider that the EY and Deloitte surveys provide evidence that our forward-looking cost of equity is inappropriate. The concept of adjustments to the risk-free rate or to the

⁴⁸² The only year in which the calculated QCA difference is greater than the EY reported difference is 2009 (1.08% vs. 1.06%).

⁴⁸³ Aurizon Network, sub. 8: 8.

⁴⁸⁴ Aurizon Network, sub. 8: 16.

⁴⁸⁵ Further, the RAB is subject to optimisation only in specific, exceptional circumstances in order to minimise asset stranding risk.

⁴⁸⁶ Aurizon Network, sub. 8: 36.

⁴⁸⁷ Aurizon Network, sub. 39: 7.

⁴⁸⁸ Aurizon Network, sub. 1: 261.

is 55–60 basis points above the AER's equity premium and the midpoint of KPMG's equity premium range.⁴⁹⁰

By way of further comparison, the QCA notes that the AER's total return on equity of 7.2 per cent for APA VTS Australia is relatively higher by about 20 basis points, as the AER does not take a term-matching approach to setting the risk-free rate.

By ensuring an appropriate overall return on equity, the QCA's draft decision has specific regard to the object of the Act (s. 138(2)(a)), to promote efficient investment in infrastructure and the pricing principles (s. 138(2)(g)). The draft decision also balances the interests of Aurizon Network (s.138(2)(b)) with those of access seekers (s.138(2)(e)) and access holders (s.138(2)(h)).

5.9 Capital structure and credit rating

Aurizon Network's proposal

For the 2017 DAU, Aurizon Network applied a 55 per cent debt and 45 per cent equity benchmark capital structure and a notional credit rating of BBB+.

QCA analysis and draft decision

Summary of draft decision 5.5

- **The QCA's draft decision is to approve Aurizon Network's proposed 55% debt and 45% equity benchmark capital structure and a notional credit rating of BBB+.**

Aurizon Network noted that a 55 per cent benchmark gearing ratio is consistent with its actual and intended capital management practice and the maintenance of its target BBB+ credit rating. In support of its proposed benchmark credit rating, Aurizon Network noted that it is currently rated BBB+ by Standard & Poor's and Baa1⁴⁹¹ by Moody's. Aurizon Network said, while Moody's placed it on credit watch with a negative outlook in February 2016, Moody's has since confirmed a BBB+ rating, but with a negative outlook.⁴⁹²

The QRC supported Aurizon Network's proposal to calculate the WACC based on a target gearing of 55 per cent and a benchmark credit rating of BBB+. The QRC noted that:

- Aurizon has indicated that is consistent with its actual and intended capital management practice
- the benchmark credit rating is consistent with recent regulatory decisions and Aurizon Network's current and historical, actual credit rating.⁴⁹³

In response, Aurizon Network submitted that no analysis or data has been submitted by the QRC to support the maintenance of a BBB+ credit rating.⁴⁹⁴

⁴⁹⁰ The report was released on 7 March 2017. KPMG's MRP estimate is 6.0 per cent, and the equity beta range is 0.74–0.77 (KPMG 2017a: 169).

⁴⁹¹ The Moody's Baa1 rating is equivalent to the S&P BBB+ rating.

⁴⁹² Aurizon Network, sub. 1: 267.

⁴⁹³ QRC, sub. 21: 17.

⁴⁹⁴ Aurizon Network, sub. 26: 25.

Benchmark capital structure

Incenta noted that Australian regulators have applied a benchmark gearing level of 60 per cent to energy and water businesses, which has been underpinned by several recent investigations by the AER.⁴⁹⁵

Incenta also reviewed the capital structures of potential comparator industries (see Table 32).

Table 32 Capital structure by industry, 2007 to 2016

	<i>5 year average</i>	<i>5 year median</i>	<i>10 year average</i>	<i>10 year median</i>
Class 1 railroads	20%	20%	22%	24%
Gas and liquids pipelines	36%	39%	35%	34%
Toll roads	48%	46%	50%	52%
Regulated energy and water	39%	40%	41%	42%

Source: *Incenta Economics 2017: 81; Bloomberg.*

Incenta expects that Aurizon Network will exhibit greater (non-systematic) cash flow variability than regulated energy and water businesses owing to such factors as weather and the regulatory revenue cap adjustment (which operates with a 2-year lag). Therefore, Aurizon Network's benchmark gearing level may be expected to be lower than that of regulated energy and water businesses—although the empirical literature on the relationship between cash flow volatility and leverage is somewhat inconclusive. Furthermore, Aurizon Network's actual gearing level is currently, reasonably close to the benchmark, and the business has stated an aim of approximating the benchmark level of 55 per cent gearing. Incenta considered that a benchmark gearing level of 55 per cent is appropriate for Aurizon Network.⁴⁹⁶

The QCA agrees with Aurizon Network, QRC and Incenta that a benchmark gearing level of 55 per cent is appropriate for Aurizon Network.

Benchmark credit rating

Incenta agreed with Aurizon Network's proposed benchmark credit rating of BBB+.

Aurizon Network commissioned a report by EY to comment on the appropriateness of Aurizon Network targeting and maintaining a current external credit rating of BBB+.⁴⁹⁷ EY's report outlined that:

- credit ratings play an important role in communicating the capital strategy, financial risk policy and operating profile of the business to external third party investors
- Aurizon Network has consistently and publicly maintained its commitment to target robust capital and financial risk management policies, which has included maintaining a BBB+ credit rating
- the appropriateness of targeting and maintaining a BBB+ credit rating was supported by empirical evidence

⁴⁹⁵ Incenta Economics 2017: 15-6.

⁴⁹⁶ Incenta Economics 2017: 15-6.

⁴⁹⁷ Aurizon Network, sub. 34.

- maintaining a BBB+ credit rating supports continued and cost-effective access to debt capital markets and maximises investor investment appetite through the economic and resources sector cycle.⁴⁹⁸

As such, EY considered that a BBB+ credit rating is appropriate for Aurizon Network and that:

it is important for these credit ratings to be maintained to enable it to be able to perform its business in the most cost effective manner and retain capacity to refinance its debt facilities as and when they become due for renewal.⁴⁹⁹

The QCA adopts a benchmarking approach (not based on actuals) to estimate the regulatory rate of return. Aurizon Network's actual financing arrangements are not necessarily deterministic of an appropriate benchmark credit rating for the purposes of estimating the benchmark WACC for the UT5 regulatory period.

The QCA recognises that maintaining a BBB+ credit rating is important for Aurizon Network. The QCA does not review the appropriateness of Aurizon Network's actual financial management arrangements. Rather, the QCA considers whether the regulatory rate of return is appropriate for Aurizon Network for the UT5 regulatory period given certain benchmarks and having regard to the criteria in the QCA Act. Aurizon Network may implement a financial management strategy that it considers appropriate, regardless of the benchmark parameters in the WACC. Similarly, the benchmark credit rating adopted for the UT5 WACC does not automatically change throughout the regulatory period if Aurizon Network decides to target a different credit rating.

For the purpose of estimating Aurizon Network's WACC for its 2017 DAU, the QCA agrees with stakeholders and Incenta that a credit rating of BBB+ is appropriate for Aurizon Network.

Aurizon Network stated that it is imperative that it satisfies key financeability metrics, as required by the ratings agencies, and maintains its current credit rating. Aurizon Network considered that the QCA should analyse the impact of the regulated revenue parameters, having regard to key credit metrics so that the revenue outcome remains consistent with the maintenance of the benchmark credit rating (i.e. BBB+).⁵⁰⁰

Aurizon Network noted that Moody's has set Aurizon Network's tolerance level at a materially higher threshold than equivalently rated regulated energy network utilities, in recognition of the increased likelihood of cash flow volatility. Aurizon Network said that the QCA must account for this when assessing the benchmark credit rating.⁵⁰¹

Incenta examined whether the credit metrics associated with maintaining a BBB+ credit rating would be satisfied under the regulatory cash flows expected as a result of the QCA's draft decision. Incenta estimated the following benchmark credit metrics:

- $\text{FFO /debt} = \text{funds from operations} / \text{total borrowings}$
- $\text{FFO/interest cover} = (\text{FFO plus interest paid}) / \text{interest paid}$.

For its credit metrics assessment, Incenta considered that Standard & Poor's approach to assessing Aurizon Network credit metrics is appropriate for estimating these benchmark credit metrics. Incenta advised that its simulated credit metrics were marginally below the BBB+ cut-

⁴⁹⁸ Aurizon Network, sub. 34.

⁴⁹⁹ Aurizon Network, sub. 34: 2.

⁵⁰⁰ Aurizon Network, sub. 1: 248, 267.

⁵⁰¹ Aurizon Network, sub. 1: 267. Aurizon Network submitted that it requires a FFO to debt ratio above 18 per cent and FFO interest coverage above 4.5 to retain its BBB+ credit rating from Moody's.

off that has been identified by Standard & Poor's. However, Incenta noted that its assessment of regulatory cash flows did not incorporate revenues associated with the capital deferrals for WIRP Moura and NAPE being proposed by Aurizon Network, which depresses the outcome of this assessment.

As outlined above, the QCA agrees with stakeholders and supports a credit rating of BBB+ for Aurizon Network for determining an efficient benchmark credit rating. The credit metrics assessment undertaken by Incenta is not intended to establish an indicative credit rating for Aurizon Network given its regulated cash flows. In this regard, the QCA is not in a position to undertake a credit ratings assessment for Aurizon Network based on the methodology implemented by the ratings agencies. The way in which the ratings agencies take into consideration Aurizon Network's exposure to business risk and actual financial management strategies, including its relationship with the parent company Aurizon Holdings, is not known to the QCA. This is not the role of the QCA.

The objective of the credit metrics assessment, in this instance, is to determine whether the regulatory rate of return is within a reasonable range of that for the benchmark entity to meet the benchmark credit rating (i.e. a BBB+ rating in this instance).

The credit metrics, as assessed by Incenta, are marginally below a BBB+ threshold. However, this credit metrics assessment does not incorporate the deferred revenue that would otherwise be obtained from Aurizon Network's RAB, thus putting a downward bias on this assessment.

The revenue deferrals are proposed by Aurizon Network as a means to manage the lack of certainty in relation to railings and the associated cost recovery in these systems.⁵⁰²The QCA does not consider that the cash-flow adjustment resulting from Aurizon Network's proposal should have implications for the assessment of the appropriateness of the benchmark credit rating used to estimate the rate of return for its 2017 DAU. Similarly, the benchmark approach to estimating an appropriate rate of return is not intended to limit Aurizon Network's actual management strategies.

Incenta outlined that if the deferred RAB component were to be isolated from the calculation, it is likely that metrics consistent with a BBB+ credit rating would be achieved. Therefore, the QCA considers that the high-level credit metrics assessment undertaken by Incenta is not conclusive that the recommended rate of return for Aurizon Network's 2017 DAU is inappropriate for the BBB+ benchmark entity.

The QCA will reassess the credit metrics as part of its final decision. The QCA welcomes comments from stakeholders in regard to Aurizon Network's benchmark BBB+ credit rating and options for addressing cash flows if necessary.

The QCA considers that the regulatory framework and the associated revenues and free cash flows are at a level that provides an appropriate balance between the interests of Aurizon Network (s.138(2)(b)), the object to promote efficient investment (s.138(2)(a)) and the interests of access holders and access seekers.

5.10 Cost of debt

Aurizon Network's proposal

Aurizon Network's 2017 DAU cost of debt proposal is outlined in Table 33.

⁵⁰² The revenue deferral mechanisms are revenue neutral, with Aurizon Network able to recover the foregone revenue through future access charges.

Table 33 Aurizon Network's cost of debt proposal*

<i>Parameter</i>	<i>Aurizon Network's proposal</i>
Risk-free rate	2.13 %
Debt risk premium	2.47 %
Debt-raising and hedging costs	0.262 %
Cost of debt (total)	4.86 %

Note: * Aurizon Network proposed indicative cost of debt parameters for the 20-day averaging period of the 20 days to 30 June 2016.

Aurizon Network's cost of debt proposal is based on applying an 'on-the-day' benchmark debt management strategy. This strategy assumes an efficient firm would:

- issue debt with a 10-year term to maturity to reduce refinancing risk and incur transaction costs associated with issuing this debt
- use interest rate swap contracts to convert the base interest rate element of its cost of debt from the raw term to a term that matches the length of the regulatory period (i.e. 4 years), and incur the associated transaction costs
- use credit default swap (CDS) contracts to convert the 10-year debt risk premium embedded in the average term of debt into a four-year debt risk premium.

However, in practice, it is difficult to hedge the debt risk premium using credit default swap contracts due to the lack of market liquidity in these instruments. Therefore, the allowed cost of debt includes:

- the four-year risk-free rate
- the 10-year debt risk premium
- the transactions costs of the interest rate swap contracts
- the annualised debt-issuing costs arising from 10-yearly debt issues.

Consistent with the QCA's cost of debt final decision⁵⁰³, Aurizon Network used the PwC simple portfolio econometric estimation methodology (PwC methodology) as the approach for estimating its cost of debt.⁵⁰⁴ Aurizon Network used the indicative averaging period of the 20 business days to 30 June 2016.

Applying the PwC methodology, Aurizon Network proposed a raw debt risk premium (i.e. before transactions costs) of 2.47 per cent, based on a linear regression of a sample of BBB+ bonds. Aurizon Network estimated debt issuing transaction costs of 0.262 per cent to compensate it for the costs of issuing domestic and foreign debt. These transaction costs include cross-currency swap costs, interest rate swap costs and periodic debt issuance costs.⁵⁰⁵

⁵⁰³ QCA 2014d.

⁵⁰⁴ The simple portfolio econometric approach is a cost of debt estimation methodology that involves applying data filtering criteria and testing, formation of an appropriate portfolio of bonds and a regression of the debt risk premium with respect to term to maturity of debt. The 'simple' portfolio refers to a portfolio of domestic bonds only, and the econometric approach applies a linear form, which was found to perform better than more complex forms (e.g. non-linear).

⁵⁰⁵ Aurizon Network, sub. 1: 279.

Aurizon Network's cost of debt proposal was accompanied by a report by Competition Economists Group (CEG)⁵⁰⁶.

For estimating the debt risk premium for the final decision, Aurizon Network proposed that the actual averaging period be confidentially agreed with the QCA.⁵⁰⁷ Aurizon Network nominated this period in advance of that period occurring. The proposed averaging period was for the 20 business days up to 30 June 2017.

QCA analysis and draft decision

Summary of draft decision 5.6

- **The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to apply a cost of debt of 4.13 per cent per annum.**
- **This draft decision is based on a cost of debt for the UT5 Undertaking period based on:**
 - (a) **Approving Aurizon Network's proposed benchmark term of debt issuance (i.e. 10 years).**
 - (b) **Approving Aurizon Network's proposed averaging period of 20 business days up to and including 30 June 2017.**
 - (c) **Approving Aurizon Network's adoption of the PwC methodology to estimate the debt risk premium.**
 - (d) **Refusing to approve Aurizon Network's proposal to incorporate transaction costs associated with foreign bond issuances in the benchmark debt-financing transaction costs.**

The QCA engaged Incenta to provide independent, expert advice on an appropriate debt risk premium value for Aurizon Network and to inform our assessment of Aurizon Network's cost of debt proposal.⁵⁰⁸

The QCA has assessed Aurizon Network's proposal, submissions from stakeholders and their consultants, as well as the advice from Incenta, on an appropriate estimate for Aurizon Network's cost of debt for the UT5 Undertaking.

On 13 February 2017, Aurizon Network proposed the averaging period to be the 20 business days immediately prior to the UT5 period. On 10 March 2017, the QCA noted Aurizon Network's proposal was consistent with established regulatory practice and that the QCA was favourably disposed towards this proposal.⁵⁰⁹

Our proposed cost of debt estimates for the proposed averaging period are in Table 34.

Table 34 QCA's cost of debt estimate for the draft decision

<i>Parameter</i>	<i>QCA's draft decision</i>
Risk-free rate	1.90%
Debt risk premium (raw)	2.00%

⁵⁰⁶ Aurizon Network, sub. 5.

⁵⁰⁷ Aurizon Network, sub. 1: 279.

⁵⁰⁸ Incenta Economics 2017.

⁵⁰⁹ QCA 2017a.

<i>Parameter</i>	<i>QCA's draft decision</i>
Debt-refinancing transaction costs	0.108%
Interest rate swap costs	0.125%
Total	4.13%

The QCA's draft decision is that Aurizon Network's proposed cost of debt parameters are not appropriate to approve.

The reasoning for our draft decision is in our analysis below. Key matters for consideration in assessing Aurizon Network's cost of debt estimates include:

- the risk-free rate estimate (see section 5.10.2)
- the raw debt risk premium estimate (see section 5.10.3)
- the benchmark debt-financing transaction costs (see section 5.10.4)
- reviewing Aurizon Network's cost of debt estimate (see section 5.10.5)
- examining whether a coal risk premium is present (see section 5.10.6).

5.10.2 Risk-free rate

The QCA considers that a four-year risk-free rate of 1.9 per cent is appropriate for the averaging period ending 30 June 2017.⁵¹⁰ The QCA's analysis of the risk-free rate is contained in section 5.5.

5.10.3 Debt risk premium

The QCA considers a raw debt risk premium of 2.0 per cent for the averaging period ending 30 June 2017 is an appropriate debt risk premium for Aurizon Network's 2017 DAU.

The QCA's analysis examining an appropriate debt risk premium for Aurizon Network is outlined below. Our analysis:

- examines an appropriate benchmark term of debt for Aurizon Network
- reviews the simple portfolio approach and the corresponding sample of bonds used to estimate Aurizon Network's debt risk premium
- examines the application of the PwC methodology to calculate the debt risk premium.

Benchmark term of debt

Aurizon Network proposed using a 10-year benchmark term of debt issuance. Aurizon Network considered that estimating the debt risk premium based on a 10-year term to maturity is consistent with the QCA's and commercial practice, having regard to the refinancing risk faced by infrastructure providers that must fund assets with long economic lives.⁵¹¹

⁵¹⁰ Consistent with the QCA's standard practice, the yield is based on interpolating between the yields of the two (nominal) Commonwealth government bonds with maturities closest to the target maturity of four years.

⁵¹¹ Aurizon Network, sub. 1: 274.

CEG considered that there is considerable regulatory precedence in Australia that supports the use of a 10-year debt term when estimating the return on debt and that there is no evidence supporting a deviation from this term.⁵¹²

The QRC considered that the debt risk premium estimate should be based on debt with a five-year term to maturity, as this would more closely align with:

- Aurizon Network's actual debt financing arrangements
- the term of the proposed UT5 regulatory period.

Incenta considered that the weight of available evidence indicates a benchmark 10-year debt term assumption remains appropriate for relatively highly-g geared, regulated infrastructure businesses such as Aurizon Network. Incenta noted:

- PwC's empirical finding⁵¹³ that Australian regulated energy firms issue debt with a 10-year (average) term
- recent decisions/pronouncements made by the AER, ERA, Essential Services Commission of South Australia (ESCOSA) and the Independent Pricing and Regulatory Tribunal (IPART) have reaffirmed the application of a benchmark 10-year debt term.⁵¹⁴

Incenta did not agree with the QRC that a five-year term to maturity for the debt risk premium should be applied, based on the QRC's claim that this reflects Aurizon Network's 'actual debt financing arrangements'. Incenta noted that:

- the regulatory approach is based on benchmarking, which provides Aurizon Network with an incentive to out-perform the benchmark
- Aurizon Network's actual financing practice indicates a weighted average term of debt at issuance that is likely to be closer to 10 years than to 5 years.⁵¹⁵

The QCA's draft decision is that a 10-year benchmark term of debt issuance is appropriate for estimating Aurizon Network's cost of debt at this time. A benchmark 10-year debt term is consistent with Australian regulatory practice and recognises that utility businesses, in general, will issue debt for longer terms than the regulatory period to manage refinancing risk. The QCA considers that refinancing risk is able to be managed through the issuance of longer term debt and staggering this issuance.

The QCA agrees with Incenta that Aurizon Network's actual debt financing arrangements are not deterministic of an appropriate benchmark term of debt. The QCA adopts a benchmarking approach (not based on actuals) to estimate the regulatory rate of return.

Simple portfolio approach and the corresponding sample of bonds

Aurizon Network proposed a debt risk premium estimate based on the 'simple portfolio' approach, which includes only domestic corporate bonds in the sample of bonds and excludes bank debt and international bonds.

The QCA considers that a simple portfolio is an appropriate basis for estimating an appropriate debt risk premium for Aurizon Network 2017 DAU. Our view is that the simple portfolio will provide a good proxy for the debt risk premium estimate, noting that:

⁵¹² Aurizon Network, sub. 5: 18.

⁵¹³ PwC 2013: 20, Table 2.7.

⁵¹⁴ Incenta Economics 2017: 85-6.

⁵¹⁵ Incenta Economics 2017: 120-1.

- the theory of arbitrage in open capital markets should provide for little difference in the debt risk premium estimates, whether or not foreign-denominated bonds are included in the sample
- use of proxies would be required if bank debt is included in the sample due to a lack of transparency on the terms of domestic bank debt deals—as bank debt is not a traded financial instrument.

While the QCA has adopted the simple portfolio as the basis for estimating Aurizon Network's debt risk premium, consideration has also been given to foreign bond data in the context of a 'cross-check' on the estimate resulting from applying the PwC methodology with domestic bonds. This matter is further discussed below.

In constructing a sample of bonds for Aurizon Network, CEG conducted a Bloomberg search and applied the filtering criteria set out in PwC⁵¹⁶ to identify bonds that are:

- issued in Australia by an entity incorporated in Australia
- at least one credit rating between A– and BBB– (inclusive), as published by S&P, Moody's, or Fitch
- denominated in AUD
- senior debt
- not inflation-linked
- fixed rate or floating rate
- issued on or before 30 June 2016
- maturing on or after 30 June 2017.⁵¹⁷

Aurizon Network considered that CEG's sample selection is consistent with the current PwC methodology, in that it does not include foreign bonds and bonds with options.⁵¹⁸ CEG said its analysis indicated that Incenta, in its debt risk premium estimation for DBCT, included bonds for financial institutions and with maturity options.⁵¹⁹ Given this, CEG said it followed Incenta's sample selection criteria for DBCT and therefore did not exclude bonds issued by financial firms and bonds with maturity options from its overarching sample.⁵²⁰

In response, Incenta stated that CEG's report included a number of scenarios that included the bonds of businesses classified as 'Financials' by Bloomberg. Incenta noted this Bloomberg classification includes banks, commercial finance, consumer finance, financial services, trusts, life insurance, property and casualty insurance and real estate. While Incenta said it included 'real estate' bonds⁵²¹, it excluded the other financials, such as 'banks, credit cooperatives and

⁵¹⁶ PwC 2013: 32–35.

⁵¹⁷ Aurizon Network, sub. 5: 18–19.

⁵¹⁸ Aurizon Network, sub. 1: 276.

⁵¹⁹ Aurizon Network, sub. 5: 19.

⁵²⁰ Aurizon Network, sub. 5: 19. However, CEG's subsequent econometric analysis (discussed below) examines scenarios that do exclude bonds issued by financial firms and bonds with maturity options.

⁵²¹ Incenta retained these businesses in the sample as they typically receive rental streams or take on development risk, and therefore differ from 'financial institutions' such as banks, credit cooperatives and insurance companies. Incenta considered that this was in keeping with the PwC report's characterisation of 'finance industry' as meaning 'financial institutions', and not property trusts.

insurance companies', on the basis that they trade differently than corporate bonds of a comparable credit rating.⁵²² Incenta noted that:

PwC (2013) "excluded the bonds of financial institutions on the basis of advice from debt market professionals who told [PwC] that the market interprets these bonds as trading differently to what their credit rating would suggest for corporate bonds." In their seminal study of the determinants of bond yields, Elton et al (2001) noted that the term structure of financial bonds differed from that of industrials, and they chose to report the results for these two groups separately. They noted that this was "not surprising because industrial and financial bonds differ both in their sensitivity to systematic influences and to idiosyncratic shocks that occurred over the time period."⁵²³

Incenta noted that its core bond sample was also based on the PwC selection criteria.⁵²⁴ For the proposed averaging period, of the 20 business days to 30 June 2017, Incenta obtained a 55-bond sample, comprising:

- 32 A– bonds
- 7 BBB+ bonds
- 16 BBB bonds.

Out of the 55 bonds, 47 were fixed rate, and 8 were floating rate bonds. The average remaining term to maturity of the bond sample was four years, with the longest average term (4.37 years) being observed for the A– credit rating band.⁵²⁵

The QCA considers that a bond sample based on the PwC selection criteria is appropriate, noting that Aurizon Network has used the PwC methodology to estimate its debt risk premium.

Application of the PwC methodology

The PwC methodology applies linear regression to estimate the debt risk premium for a BBB+ credit rating, which reflects the benchmark for Aurizon Network. In order to obtain a sufficient sample size, the PwC methodology recommends constituting a pooled sample of BBB, BBB+ and A– rated bonds (to encompass the BBB+ benchmark credit rating and one notch either side of that rating).

Aurizon Network engaged CEG to provide an estimate of the debt risk premium based on the PwC methodology.⁵²⁶ CEG collected the historical yields of the bonds identified in its sample and deducted the interpolated Commonwealth Government bond yields from RBA data to obtain the debt risk premiums.⁵²⁷

CEG produced linear regression estimates for 10-year BBB+ and BBB debt using these three regression methods:

- pooled regression
- pooled regression with dummy variables for each credit rating
- regressions on both a BBB+ and BBB single credit rating.

⁵²² Incenta Economics 2017: 100.

⁵²³ Incenta Economics 2017: 100.

⁵²⁴ See PwC 2013: 33–34.

⁵²⁵ Incenta Economics 2017: 101.

⁵²⁶ Aurizon Network, sub. 1: 276.

⁵²⁷ Aurizon Network, sub. 5: 19.

The pooled regression approaches provide a larger sample of bonds by broadening the sample beyond Aurizon Network's benchmark credit rating.⁵²⁸ CEG's linear regression estimates are presented in Table 35.

Table 35 CEG's estimates of debt risk premium with financial bonds and options excluded

<i>Pooled sample</i>	<i>A-, BBB+, BBB</i>		<i>BBB+, BBB, BBB-</i>		<i>A-, BBB+, BBB, BBB-</i>	
	<i>BBB+</i>	<i>BBB</i>	<i>BBB+</i>	<i>BBB</i>	<i>BBB+</i>	<i>BBB</i>
Pooled	2.29	-	-	2.60	-	-
Dummy variables	2.32	2.47	2.29	2.44	2.23	2.37
<i>Single rating samples</i>	<i>BBB+</i>			<i>BBB</i>		
Single rating	2.47			2.63		

Source: Aurizon Network, sub. 5: 23.

From CEG's analysis, Aurizon Network proposed a debt risk premium of 2.47 per cent, based on the linear regression on the BBB+ single credit rating sample.

For the 20-day averaging period to 30 June 2017, Incenta estimated 10-year BBB+ debt risk premiums by applying the three regression methods:

- regression centred on the BBB+ credit rating using a pooled sample of A-, BBB+ and BBB bonds (i.e. 'pooled BBB+ regression')
- regression using a pooled sample of A-, BBB+ and BBB bonds, with a dummy variable for each credit rating ('dummy variables regression')⁵²⁹
- regression on a sample of bonds from only the BBB+ credit rating band, reflecting the benchmark credit rating for Aurizon Network ('single credit rating (BBB+) regression').

Incenta's linear regression estimates are presented in Table 36.

Table 36 Incenta's estimates of the debt risk premium using the PwC methodology for the proposed averaging period

<i>Regression method</i>	<i>Estimate</i>
Pooled BBB+ regression	1.80%
Dummy variable regression	2.00%
Single credit rating (BBB+) regression	2.50%

Source: Incenta analysis.

⁵²⁸ Typically, the PwC methodology entails a regression of a pooled sample of BBB, BBB+ and A- rated bonds to encompass the BBB+ benchmark credit rating and one notch either side of that rating. However, CEG examined a sample with bond ratings of A-, BBB+, BBB and BBB- bonds, as well as two sub-samples—an A-, BBB+ and BBB bond sub-sample; and a BBB+, BBB and BBB- bond sub-sample.

⁵²⁹ The dummy variables approach assumes that the same term premium per annum applies to each of the credit rating bands, with the credit rating shifting the intercept.

The QCA has assessed the merits of these three regression methods for estimating Aurizon Network's debt risk premium for the proposed averaging period. In examining the appropriate application of the PwC methodology, the QCA's analysis:

- reviews methodological issues raised by stakeholders associated with applying the PwC methodology
- examines the results obtained from the three estimation methods for the averaging period, namely the:
 - single credit rating (BBB+) regression
 - pooled BBB+ regression
 - dummy variable regression
- reviews and compares alternative debt risk premium estimates (including third party estimates) with results obtained from the PwC methodology
- examines the sensitivity of the sample to specific bonds, to consider whether the exclusion of any bonds from the sample is warranted.

From this analysis, the QCA considers that 2.0 per cent, obtained using the dummy variables regression, provides an appropriate estimate of Aurizon Network's raw debt risk premium for the proposed averaging period. The QCA's detailed analysis is presented below.

Methodological issues associated with the PwC methodology

Aurizon Network noted that Incenta has previously applied all three regression methods in estimating the debt risk premium to inform previous QCA decisions. Referring to CEG's analysis, Aurizon Network expressed concern that the PwC methodology is very sensitive to the specific econometric technique and the composition of the sample. Furthermore, Aurizon Network also considered that the PwC methodology is very sensitive to the inclusion/exclusion of particular bonds in/from the sample. As an example, Aurizon Network considered that CEG's report outlines how the inclusion and exclusion of a seven-year bond issued by Jemena has material impacts on the BBB+ debt risk premium (see below).⁵³⁰

Effect of seven-year bond issued by Jemena on the debt risk premium estimates

CEG re-estimated the debt risk premiums, excluding the seven-year bond issued by Jemena (LW474837 Corp) to investigate the impact of the Jemena bond on the estimates. CEG considered that this analysis (see Table 37) illustrates the potential impact of a single bond if the PwC methodology is mechanically applied.⁵³¹

Table 37 CEG's estimates of debt risk premium with Jemena bond excluded

<i>Pooled sample</i>	<i>A-, BBB+, BBB</i>		<i>BBB+, BBB, BBB-</i>		<i>A-, BBB+, BBB, BBB-</i>	
	<i>BBB+</i>	<i>BBB</i>	<i>BBB+</i>	<i>BBB</i>	<i>BBB+</i>	<i>BBB</i>
Pooled	2.31 (2.29)	-	-	2.72 (2.60)	-	-
Dummy variables	2.38 (2.32)	2.49 (2.47)	2.36 (2.29)	3.50 (2.44)	2.27 (2.23)	2.39 (2.37)

⁵³⁰ Aurizon Network, sub. 1: 276.

⁵³¹ Aurizon Network, sub. 5: 30.

<i>Single rating sample</i>	<i>BBB+</i>	<i>BBB</i>
Single rating	3.28 (2.47)	2.63 (2.63)

Source: Aurizon Network, sub. 5: 30. Note: Numbers in brackets represent estimates obtained from including the Jemena bond.

CEG stated that it can be seen that the single credit rating regression using only BBB+ bonds is sensitive to variations in the data (i.e. 2.47% vs. 3.28%). Noting that there are only six BBB+ bonds in this sample, CEG considered that the regression is very sensitive to the location of the specific observations.⁵³²

CEG concluded that a mechanistic application of any one of the variations of the linear regression approach risks giving rise to highly variable/unpredictable results that may end up being inappropriate. CEG is of the view that it would be bad practice to apply these approaches in a mechanistic way without having had the opportunity to assess the dataset first, noting:

- the choice of technique is an empirical matter that is dependent on the observations of the specific dataset
- the debt risk premium estimates derived from the methods could be highly sensitive to the inclusion of certain individual bonds.⁵³³

However, Incenta said that its analysis did not apply the linear regression approaches in a mechanistic manner. Specifically, Incenta considered that, in applying a linear regression approach, it is necessary to examine whether the relevant pre-conditions for applying the underlying methodology are met. When one of these conditions is not met, Incenta's approach is to investigate ways of overcoming the potential for distorted estimates of the debt risk premium, and to obtain the most appropriate estimate based on the available data. Incenta noted that this has, at times, involved the running of sensitivity analysis that excluded 'influential' bonds whose debt risk premiums are:

- materially out of line with the debt risk premium / term relationship for that credit rating band, which becomes more important the smaller the sample size
- influential relative to their numbers among the bonds in the sample.⁵³⁴

The QCA agrees with Aurizon Network, CEG and Incenta that a mechanistic application of any of the linear regression approaches should be avoided. Applying a certain regression approach to the specified sampling period could result in an inappropriate debt risk premium for Aurizon Network.

As such, the QCA has assessed the results obtained from three regression approaches for the proposed averaging period. In determining an appropriate estimate for Aurizon Network's debt risk premium, the QCA has considered the results obtained from the application of: the single credit rating (BBB+) regression; the pooled BBB+ regression; and the dummy variables regression.

The QCA's analysis also compares these results to estimates published by third party data providers as a 'cross-check' and further reference point to inform an assessment of the

⁵³² Aurizon Network, sub. 5: 31.

⁵³³ Aurizon Network, sub. 5: 4, 15–16.

⁵³⁴ Incenta Economics 2017: 102.

estimated debt risk premiums from the methods. The QCA has also considered whether the sample is sensitive to the incorporation of certain bonds, which may affect the debt risk premium estimate obtained from the PwC methodology. Our analysis is presented below.

Aurizon Network considered that the potential for change in the implementation of the PwC methodology through time creates doubt as to the predictability and transparency of this method. Aurizon Network noted that a lack of transparency has been cited as the main motivation to depart from independent third party estimates of the debt risk premium, as these providers, such as Bloomberg, do not publish the details of their methodologies. Therefore, Aurizon Network considered that the PwC methodology needs to be transparent but also predictable in its application.⁵³⁵

Given that a mechanistic application of the regression methods risks estimating an inappropriate debt risk premium for Aurizon Network, Incenta considered that the flexible application of the PwC methodology over time has provided greater regulatory certainty by not applying the method mechanistically.⁵³⁶

The QCA considers that a certain level of flexibility in the application of the PwC methodology is required in order to provide for an appropriate debt risk premium for the relevant averaging period.

Single credit rating (BBB+) regression

Noting sampling issues associated with pooled regression methods, CEG suggested that it may be appropriate to carry out linear regression using only bonds in the single target rating band (BBB+ bonds). However, CEG noted that there are only 11 bonds in the sample with a BBB+ credit rating, and only six bonds if financial firms and callable bonds are excluded.⁵³⁷

CEG obtained an estimate of 2.47 per cent from its sample of six BBB+ bonds, based on its indicative averaging period of June 2016.⁵³⁸ Drawing from CEG's analysis, Aurizon Network noted that this single rating regression estimate is:

- close to the estimate from the pooled regression (2.51%) when the Australia Pacific Airports (Melbourne Airport) bond is excluded⁵³⁹
- closer to (although still materially below) the independent third party estimates produced by Bloomberg, the RBA and Reuters (2.69%, 2.79% and 2.94% respectively)
- based on the same approach (i.e. single credit rating regression) recommended by Incenta in its most recent report for the QCA in relation to the debt risk premium to apply to DBCT.⁵⁴⁰

The QRC noted that the dummy variable regression method and single credit rating regression method were used in the QCA's DBCT final decision due to the application of a BBB, as opposed to BBB+, benchmark credit rating. The QRC considered that this decision has no application in this instance, as a benchmark credit rating of BBB+ is being maintained by Aurizon Network.⁵⁴¹

⁵³⁵ Aurizon Network, sub. 1: 275–276.

⁵³⁶ Incenta Economics 2017: 102.

⁵³⁷ Aurizon Network, sub. 5: 20.

⁵³⁸ Aurizon Network, sub. 5: 1.

⁵³⁹ CEG considered that the pooled regression results (that exclude bonds issued by financial firms and bonds with options) are sensitive to the inclusion of the Melbourne Airport bonds.

⁵⁴⁰ Aurizon Network, sub. 1: 277.

⁵⁴¹ QRC, sub.21: 33.

Incenta noted that, if the single credit rating (BBB+) regression is applied to the updated averaging period (i.e. the 20-day period to 30 June 2017), an estimate of 2.5 per cent is obtained for seven⁵⁴² AUD-denominated BBB+ bonds.⁵⁴³ However, Incenta did not consider this estimate to be reliable, as it is based on only seven bond observations.

Incenta disagreed with CEG's suggestion that a sample of only six BBB+ bonds would result in an improved estimate to that obtained using the pooled regression methods. Incenta considered that this is too small a sample size to deliver a reliable and robust empirical estimate of the BBB+ debt risk premium.⁵⁴⁴

Incenta also disagreed that adopting such an approach was consistent with the QCA's approach in the DBCT investigation. Incenta noted that this situation differs to that of the DBCT assessment, where the target credit rating was BBB and there were 25 BBB AUD-denominated bond observations available for the relevant sample.⁵⁴⁵

The QCA considers that the debt risk premium estimate obtained by application of a regression on bonds in a single credit rating (i.e. BBB+) is unreliable for the proposed averaging period, given that it is based on only seven bond observations. An estimate based on so few observations will be highly sensitive to variations in the data. This point was made by CEG's Jemena bond analysis (see Table 37), showing that a single bond can materially change the results obtained from a regression with so few bonds—the removal of the Jemena bond from the sample increases the single regression BBB+ bond estimate dramatically.

Further, Incenta's estimate of 2.5 per cent obtained from this methodology appears inappropriate in comparison to 'cross-checks', including third party estimates and where the sample has been expanded to incorporate foreign-denominated bonds and bonds with options (see below).

The QCA agrees with Incenta that the previous DBCT decision is not a precedent for adopting the single regression of BBB+ bonds for Aurizon Network's 2017 DAU. As indicated above, the QCA considers that the application of the PwC methodology needs to be flexible in order to provide for an appropriate debt risk premium for the averaging period—catering for changes in bond market conditions over time and making the best use of the available data at a point in time. While the application of the single credit rating regression might have been appropriate given the circumstances in the DBCT investigation (i.e. for the sample of BBB bonds obtained for the relevant averaging period), the QCA does not consider that the single credit rating (BBB+) regression is appropriate for estimating Aurizon Network's debt risk premium for its proposed credit rating and averaging period. This is particularly the case given the very limited number of BBB+ bond observations available.⁵⁴⁶

Pooled BBB+ regression

The pooled regression method can overcome the problem of an insufficient number of bond observations in a single credit rating band in order to provide a more reliable estimate of the debt risk premium.

⁵⁴² The proposed averaging period (June 2017) contains a different sample of bonds to that obtained from the indicative averaging period (June 2016) adopted by Aurizon Network.

⁵⁴³ Incenta Economics 2017: 87.

⁵⁴⁴ Incenta Economics 2017: 88.

⁵⁴⁵ Incenta Economics 2017: 88.

⁵⁴⁶ By comparison, 25 BBB bonds were available for the DBCT analysis (QCA 2016b: 66).

As noted by Aurizon Network, the premise of using a pooled sample is that the higher yields on BBB bonds will be approximately offset by lower yields on A– bonds, thereby providing an unbiased estimate of the yield on bonds rated BBB+.⁵⁴⁷ However, this assumption is violated if there is material asymmetry in the change in the debt risk premium on either side of the benchmark credit rating.⁵⁴⁸ Where this is the case, the pooled regression approach can result in sample bias.

Accordingly, Incenta emphasised that it is necessary practice to examine whether the pre-conditions required to apply this method have been met. These conditions are:

- no material bias in the bond sample—the average implied credit rating of the pooled bond sample used in the regression should approximate the target credit rating
- no material asymmetry in the debt risk premiums of credit rating bands—the average debt risk premium differential between the bonds in the target band and the bonds in the band on either side of the target credit rating band should be approximately equal
- no material debt risk premium ‘aberrations’/‘influential bonds’.

Incenta said that when one of these conditions is not met, its approach is to investigate ways of overcoming the potential for distorted estimates of the debt risk premium and to obtain the most appropriate estimate based on the available data.⁵⁴⁹

Observing the bonds in its pooled BBB+ regression, CEG considered that:

- the margins between adjacent credit notches appear to be asymmetric, which could result in biased estimates from the pooled regression
- the slopes of each credit notch also visually appear to be somewhat unequal, with A– bonds appearing to have flatter slopes than bonds within the other credit rating bands
- two possible BBB– outliers can be observed⁵⁵⁰, although CEG considered there is not a good reason to exclude these bonds from the sample.⁵⁵¹

CEG said that asymmetries in the margins and slopes of adjacent rating notches could result in biased estimates from the pooled regression and pooled regression with dummy variables approaches. As such, CEG concluded that the criteria for departing from the PwC methodology pooled regression estimate are met.⁵⁵²

As noted above, Incenta also applied the pooled BBB+ regression for the 20-day averaging period to 30 June 2017. The 55 bonds in the pooled regression produced a 10-year BBB+ debt risk premium estimate of 1.8 per cent.

However, from this sample of bonds, Incenta observed that:

- the weighting of bonds used to derive the pooled regression estimate is materially weighted towards the A– band, indicating a potentially substantial degree of bias towards the A– credit rating category

⁵⁴⁷ Aurizon Network, sub. 1: 275.

⁵⁴⁸ In other words, there is asymmetry if the average difference between A– and BBB+ premiums is not equal to the average difference between BBB+ and BBB premiums.

⁵⁴⁹ Incenta Economics 2017: 102.

⁵⁵⁰ Bonds issued by Glencore Australia Holdings and Alumina Ltd.

⁵⁵¹ Aurizon Network, sub. 5: 19–20.

⁵⁵² Aurizon Network, sub. 5: 22–23.

- an overwhelming majority of the BBB+ debt risk premium observations lie above the regression line.⁵⁵³

Incenta concluded that these two observations indicate that the relevant pre-conditions for applying the pooled BBB+ regression are not met.⁵⁵⁴ As a result, Incenta considered that, in this instance, the pooled regression method was likely to underestimate a benchmark BBB+ debt risk premium. As a result, Incenta did not place reliance on the pooled regression estimate.

Given that the pre-conditions for applying the pooled regression method are not met, the QCA considers it is not appropriate to estimate Aurizon Network's debt risk premium using the pooled regression method for the proposed averaging period. Given the potential sample bias for the averaging period, adopting a 1.8 per cent debt risk premium would likely result in an estimate that is inappropriate for Aurizon Network's 2017 DAU. This conclusion is also supported by the estimates obtained from other regression methodologies and by referencing the 'cross-checks', including third party estimates and where the sample has been expanded to incorporate foreign-denominated bonds and bonds with options.

Dummy variable regression

The pooled regression with dummy variables approach uses statistical methods to allow for differences in intercepts between credit ratings. That is, it incorporates more information (i.e. inserts dummy variables) rather than assuming the pooled sample exhibits symmetry in the debt risk premiums of credit rating bands.

Incenta noted that in devising the PwC methodology, PwC was open to applying the dummy variables method, but found that it provided unreasonable results at the time of its application.⁵⁵⁵ Specifically, at the time of the PwC report, the BBB+ debt risk premium estimate using the dummy variables regression was higher than the BBB debt risk premium estimate and also inconsistent with other evidence⁵⁵⁶. It was hypothesised that this might have been caused by a small, and possibly unrepresentative, set of BBB+ bonds in the sample at that time.

From observations of the bonds in its pooled sample, CEG considered that the slopes of each credit notch visually appear to be somewhat unequal—the A– bonds appear to have flatter slopes than bonds with the other credit ratings. CEG submitted that Incenta has previously noted that such asymmetry could also result in biased estimates for the pooled regression with dummy variables, as the dummy variables only accommodate differences in levels but not differences in slopes.⁵⁵⁷ As such, CEG considered that these asymmetries could result in biased estimates for the dummy variables regression.⁵⁵⁸

Incenta obtained an estimate of 2.0 per cent applying the dummy variables regression to the 20-day averaging period to 30 June 2017. In applying this methodology, Incenta observed that:

- the 16 BBB bond observations were 1.6 basis points above the BBB+ function
- the 32 A– bond observations were 21.2 basis points below the BBB+ function.

⁵⁵³ Incenta Economics 2017: 102-6.

⁵⁵⁴ Incenta Economics 2017: 106.

⁵⁵⁵ PwC 2013: 55.

⁵⁵⁶ For example, the estimated debt risk premium for A– bonds and the output of the Bloomberg fair value curve.

⁵⁵⁷ Incenta 2016b.

⁵⁵⁸ Aurizon Network, sub. 5: 19–20, 23.

While the very small differential between the BBB and BBB+ bonds is not expected given the higher risk of BBB rated bonds, Incenta reported that this may be due to the relatively small numbers of BBB and BBB+ bonds, as well as the model specification, which constrains all three functions to a single slope. In any case, Incenta considered that the primary concern is to estimate the BBB+ function.⁵⁵⁹

Importantly, Incenta noted that the concern that PwC had with the dummy variables approach is no longer present, with the predicted BBB+ debt risk premium using the dummy variables approach sitting between the A– and BBB curves.⁵⁶⁰

For the proposed averaging period, Incenta considered the dummy variables regression provides the most robust estimate, in comparison to the other regression methods discussed above. Furthermore, Incenta noted that its cross-checks with other data sources (discussed below) also reinforce its conclusion that a BBB+ debt risk premium of 2.0 per cent is appropriate. As such, Incenta's preference is to retain all bonds in the sample and use statistical methods to allow for differences in yields between credit ratings in order to maximise the use of the data available.⁵⁶¹

The QCA considers that the dummy variables regression provides the most appropriate estimate of Aurizon Network's debt risk premium for the proposed averaging period. This regression method overcomes deficiencies identified in applying the single credit rating (BBB+) regression and the pooled BBB+ regression for the proposed averaging period, including:

- the unreliability of the single BBB+ rating regression due to it being based on only seven bond observations
- the imbalance in the relative number of A– bond observations in the pooled regression sample.

Additionally, a debt risk premium estimate of 2.0 per cent is also supported by the cross-checks undertaken by Incenta, including where the sample has been expanded to incorporate foreign-denominated bonds and bonds with options, and third party estimates. This analysis is presented below.

As such, the QCA considers that the dummy variables regression provides an appropriate estimate of Aurizon Network's debt risk premium for the proposed averaging period.

[Other debt risk premium estimates](#)

To provide for a check on the estimate of 2.0 per cent for Aurizon Network's debt risk premium, this section compares the results obtained from the PwC methodology against debt risk premium estimates obtained from other sources. These include:

- estimates published by third party data providers
- alternative functional forms
- estimates obtained using an expanded sample, which includes foreign bonds and bonds with optionality.

⁵⁵⁹ Incenta Economics 2017: 107.

⁵⁶⁰ Incenta Economics 2017: 108.

⁵⁶¹ Incenta Economics 2017: 88.

Third party estimates

To enable a comparison of estimation results, CEG considered the following third party sources of 10-year⁵⁶² debt risk premium estimates as part of its analysis:

- Bloomberg AUD Australia Corporate BBB+ BBB BBB– BVAL Yield Curve
- Reuters BBB rating AUD credit curve
- RBA estimates of average BBB debt risk premiums for non-financial Australian corporates.

The debt risk premium estimates obtained by CEG from these third parties were all above its proposed estimate of 2.47 per cent using the single credit rating (BBB+) regression (see Table 38). CEG submitted that the debt risk premium estimates obtained using the PwC methodology have typically been lower—and seldom materially above—the third party estimates.⁵⁶³

Table 38 CEG's third party estimates for a BBB+ debt risk premium (as at 30 June 2016)

<i>Source</i>	<i>Estimate</i>
Bloomberg BVAL	2.69%
RBA (BBB)	2.79%
Reuters (BBB)	2.94%

Source: Aurizon Network, sub. 1: 276.

However, Incenta did not agree that the estimates obtained using the PwC methodology have typically resulted in lower estimates than estimates from third party providers. Incenta reported that CEG's analysis has assumed that the broad BBB curve (comprising the BBB–, BBB and BBB+ bands) proxies a BBB+ estimate, when the average credit rating of the sample used by the respective curves is typically BBB.⁵⁶⁴

Incenta submitted that the only practical way to cross-reference its estimates to the third party fair value curves produced by the RBA and Bloomberg is to interpolate the broad BBB and broad A fair value curves that they publish in order to obtain a BBB+ yield (as these providers do not publish a BBB+ yield curve). Given that there are two credit rating notches between the BBB and A credit rating bands, Incenta applied a weighting of 0.67:0.33 to the observed, third party BBB and A debt risk premiums (respectively) at 10 years to obtain an interpolated BBB+ debt risk premium. This approach for interpolating the third party estimates assumes there is no inherent bias in the RBA or Bloomberg estimates.⁵⁶⁵

On the assumption that the samples are unbiased (relative to the central BBB and A credit rating bands), Incenta obtained an interpolated (average) debt risk premium of 2.02 per cent. The interpolated Bloomberg estimate of 2.06 per cent defined the upper end of the BBB+ range and the interpolated RBA estimate of 1.99 per cent defined the lower end of the range.⁵⁶⁶

The QCA considers that the third party debt risk premium estimates calculated by Incenta support a debt risk premium of 2.0 per cent. In particular, the debt risk premium estimate

⁵⁶² CEG extrapolates each third party series to 10 years (where necessary) using the AER's extrapolation methodology (Aurizon Network, sub. 5: 24).

⁵⁶³ Aurizon Network, sub. 5: 23–24.

⁵⁶⁴ Incenta Economics 2017: 21.

⁵⁶⁵ Incenta Economics 2017: 109.

⁵⁶⁶ Averaging the BBB estimates produces an estimate of 2.26%, while the respective A rating estimate is 1.55%.

obtained from the dummy variables regression sits in the estimated range of 1.99 per cent (Bloomberg) to 2.06 per cent (RBA) of third party estimates.

Foreign bonds and bonds with optionality

Aurizon Network submitted that, if the PwC methodology is adopted, the sample of bonds should be broadened to include foreign bonds issued by Australian entities, as well as bonds with optionality (applying the adjustments for optionality consistent with the ERA). Aurizon Network considered that the inclusion of bonds issued by Australian entities offshore:

- broadens the sample size and reduces the risk of estimation error
- is consistent with Aurizon Network's actual circumstances, where it needs to issue debt in domestic and global markets in order to efficiently meet its capital needs.⁵⁶⁷

CEG considered that the application of the PwC methodology to a broader sample could result in debt risk premiums that are less sensitive to issues pertaining to small sample sizes.⁵⁶⁸

Incenta considered that there is merit in considering the results obtained with an expanded sample, in the context of providing another cross-check of the results obtained using the PwC methodology (i.e. in addition to the cross-check from referring to estimates published by Bloomberg and the RBA).⁵⁶⁹

In this context, Incenta noted that the tasks of deriving option-adjusted yields and AUD-equivalent yields for foreign-denominated bonds are relatively low-cost and straightforward compared with the period of PwC's original report. More importantly, Incenta found that, in most cases, the actual adjustment required to the yield of bonds with such features is relatively minor. Accordingly, Incenta is therefore less concerned than PwC about the potential for analyst-induced error. Incenta also noted that several Australian regulators currently either have regard to the RBA's third party fair value yields (which are based, in part, on foreign-issued bonds), or directly employ yield data that incorporate Australian bonds issued in foreign currencies.⁵⁷⁰

Incenta considered that, while there is currently a sufficient number of Australian-denominated bonds without embedded options to undertake a rigorous empirical estimate of the BBB+ credit rating band, expanding the sample to include both foreign currency-denominated bonds issued by Australian firms and AUD-denominated bonds with options serves as a useful cross-check.⁵⁷¹

To incorporate an expanded sample, Incenta adopted the ERA's method of bond yield adjustment, which incorporates Bloomberg's option-adjusted spread (OAS) facility. Incorporating these additional bonds into the sample increased the pooled sample size by a further 64 bonds, to 146 bonds. Applying values of 1, 2 and 3 to bonds with credit ratings of A-, BBB+ and BBB respectively, the weighted average credit rating for the expanded sample suggests a slight bias towards A- (i.e. 1.93).

Using this expanded sample, Incenta undertook a single credit rating (BBB+) regression and a dummy variables regression. The results of these regressions for the proposed averaging period are in Table 39. Incenta did not undertake a pooled BBB+ regression for the expanded sample, since the dummy variable approach provides plausible estimates based on a large sample of

⁵⁶⁷ Aurizon Network, sub. 1: 277, 279.

⁵⁶⁸ Aurizon Network, sub. 5: 34.

⁵⁶⁹ Incenta Economics 2017: 89–91.

⁵⁷⁰ Incenta Economics 2017: 89–91.

⁵⁷¹ Incenta Economics 2017: 89–91.

bonds, and there are 38 BBB+ bond observations with which to undertake a single credit rating regression.⁵⁷²

Table 39 Incenta's estimates of the debt risk premium for the expanded sample

<i>Method</i>	<i>Number of bonds in sample</i>	<i>Estimate</i>
Single credit rating (BBB+) regression	38	2.05%
Dummy variable regression	146	1.99%

Source: *Incenta Economics 2017*.

Incenta's key finding is that the estimate obtained from the expanded sample is very similar to the estimate of 2.0 per cent—regardless of the estimation method, the estimates lie within ± 5 basis points of 2.0 per cent.⁵⁷³

Incorporating foreign bonds and bonds with optionality into the sample broadens the sample size. While this does not necessarily reduce the risk of estimation error (as this will depend on the nature of the data), including foreign currency-denominated bonds issued by Australian firms and AUD-denominated bonds with options attached provides a useful cross-check for Aurizon Network's debt risk premium estimate.

In response to Aurizon Network's assertion that this arrangement is consistent with its actual circumstances, the QCA does not consider that Aurizon Network's actual debt-financing arrangements are directly deterministic of an appropriate sample for estimating the debt risk premium—the debt risk premium is estimated based on an efficient benchmark firm that sources debt consistent with a 'simple' bond portfolio (discussed further in the section on transactions costs).

The QCA considers that the estimates obtained from the expanded sample support a debt risk premium of 2.0 per cent—the dummy variables regression estimate was one basis point lower, and the single credit rating (BBB+) estimate was five basis points higher, than this estimate. The fact that there was little difference in the debt risk premium estimates whether or not foreign-denominated bonds are included in the sample is consistent with the theory of arbitrage in open capital markets. Therefore, we consider that these findings provide further support for 2.0 per cent as an appropriate debt risk premium for Aurizon Network for the proposed averaging period.

Alternative functional forms

Incenta also tested different functional forms for the debt risk premium, specifically the Nelson-Siegel (NS) and the Nelson-Siegel-Svensson (NSS) functional forms.⁵⁷⁴ These functional forms have been applied by the ERA (NS and NSS) and the New Zealand Commerce Commission (NSS only). Incenta's analysis found:

⁵⁷² Incenta Economics 2017: 109–110.

⁵⁷³ Incenta Economics 2017: 113.

⁵⁷⁴ The Nelson-Siegel (NS) and Nelson-Siegel-Svensson (NSS) models are used by central banks to estimate and forecast the term structure of interest rates. The Nelson-Siegel model is a three-factor model that has sufficient flexibility to capture a range of monotonic, humped and S-type shapes typically observed in yield data. The Nelson-Siegel-Svensson model increases the flexibility of the Nelson-Siegel model by modelling an additional (fourth) factor, which is a second hump-type shape. For further discussion, see Nelson and Siegel (1987) and Svensson (1994).

- Applying alternative functional forms to the domestic bond sample using the pooled BBB+ regression approach produced estimates of 1.57 per cent and 1.64 per cent respectively for the NSS and NS forms.
- Applying alternative functional forms to the expanded sample using the dummy variables regression approach produced estimates of 1.97 per cent and 1.98 per cent respectively for each of the NSS and NS forms.
- Applying alternative functional forms to the expanded sample using the single credit rating (BBB+) regression approach obtained estimates of 2.0 per cent for both the NSS and NS forms.⁵⁷⁵

The QCA considers that the estimates obtained from the alternative functional forms also support 2.0 per cent as an appropriate debt risk premium for Aurizon Network for the proposed averaging period. The results obtained from alternative functional forms applied to the expanded sample are all within three basis points of the debt risk premium estimate.

Sensitivity of the sample to specific bonds

From its analysis, CEG considered that the pooled regression results that exclude bonds issued by financial firms and bonds with options are sensitive to the inclusion of two Australia Pacific Airports (Melbourne Airport) bonds. CEG noted that the Melbourne Airport bonds:

- are the A– bonds with the lowest yield in the sample (excluding bonds issued by financial firms and bonds with maturity options)
- include a bond with a maturity greater than seven years—as there are only two bonds in the entire sample with a maturity greater than seven years, the Melbourne Airports bonds therefore have a lot of weight in the pooled regression.⁵⁷⁶

CEG considered that excluding the Melbourne Airport bonds increases the pooled estimate from 2.29 per cent to 2.51 per cent, which is above CEG's single credit rating (BBB+) regression estimate of 2.47 per cent (see Table 40).⁵⁷⁷

Table 40 CEG's estimates of the debt risk premium with financial bonds and options excluded and Melbourne Airport bonds excluded

<i>Pooled sample</i>	<i>A–, BBB+, BBB</i>		<i>BBB+, BBB, BBB–</i>		<i>A–, BBB+, BBB, BBB–</i>	
	<i>BBB+</i>	<i>BBB</i>	<i>BBB+</i>	<i>BBB</i>	<i>BBB+</i>	<i>BBB</i>
Pooled	2.51	-	-	2.60	-	-
Dummy variables	2.44	2.61	2.29	2.44	2.32	2.47
<i>Single rating sample</i>	<i>BBB+</i>			<i>BBB</i>		
Single rating	2.47			2.63		

Source: Aurizon Network, sub. 5: 23.

⁵⁷⁵ Incenta Economics 2017: 104, 113.

⁵⁷⁶ Aurizon Network, sub. 5: 23.

⁵⁷⁷ Aurizon Network, sub. 5: 23.

Incenta considered that, at the time of CEG's estimation (June 2016), these two long-dated Melbourne Airport bonds had the potential to bias the estimate downwards. As such, Incenta was minded to exclude them.

However, since this period, two additional, long-dated A– bonds with yields and terms to maturity that are not far from the two long-dated Melbourne Airport bonds have been issued. Incenta considered that the presence of these additional bonds now makes it difficult to argue for the exclusion of any of them from the sample—and there is now no basis for treating any of them as outliers. Thus, Incenta retained all of these bonds in its sample.⁵⁷⁸

Incenta noted that excluding the two long-dated Melbourne Airport bonds increases its dummy variable regression estimate by 10 basis points to 2.1 per cent—although the NSS and NS estimates are still below 2.0 per cent. Additionally, Incenta reported that removing the two long-dated Melbourne Airport bonds has no perceptible influence on the BBB+ estimate obtained from the expanded sample.⁵⁷⁹

Given that a number of longer term A– bonds have been issued since CEG's proposal to remove the Melbourne Airport bonds, the QCA does not consider that the Melbourne Airport bonds should be removed from the sample, as they are no longer outliers for the purpose of estimating Aurizon Network's debt risk premium. Furthermore, the exclusion of the Melbourne Airport bonds has no influence on the results obtained from the cross-check using the expanded sample. While the estimate obtained from the domestic sample increases to 2.1 per cent if the Melbourne Airport bonds are excluded, other evidence suggests that this is not an appropriate estimate for a BBB+ debt risk premium for the proposed averaging period.

Therefore, based on this analysis, the QCA considers that it is not appropriate to exclude the Melbourne Airport bonds from the bond sample for the June 2017 averaging period used to estimate Aurizon Network's debt risk premium.

5.10.4 Benchmark debt financing transaction costs

Aurizon Network considered that an efficient allowance for debt-issuing and hedging costs should account for costs associated with domestic and foreign bond issues, given that Aurizon Network needs to access global markets to meet its capital requirements. Aurizon Network submitted that it has around 50 per cent of its debt outstanding in foreign currencies, which is likely to increase as the Australian debt market does not provide enough liquidity for longer-dated issues.⁵⁸⁰

Aurizon Network proposed to derive its efficient debt-issuing and hedging transaction cost allowances based on a one-third domestic debt and two-thirds foreign debt split. Aurizon Network considered this reflects its current view on the most efficient composition of its debt portfolio over the 2017 DAU regulatory period, having regard to its benchmark gearing level and domestic bond market constraints.⁵⁸¹

Aurizon Network proposed three types of transaction cost allowances, including:

- debt-issuing costs
- cross-currency swap costs

⁵⁷⁸ Incenta Economics 2017: 88-9.

⁵⁷⁹ Incenta Economics 2017: 88-9.

⁵⁸⁰ Aurizon Network, sub. 1: 278.

⁵⁸¹ Aurizon Network, sub. 1: 278.

- interest rate swap costs.

For its debt-issuing transaction cost allowance, Aurizon Network proposed a weighted average based on both domestic debt issues and foreign debt issues. Aurizon Network stated that the QCA's benchmark allowance for debt-raising costs of 0.108 per cent is derived with reference to domestic bond issues only. Aurizon Network noted that PwC, in its report to the QCA, reported that foreign bond issues attract 2.3 to 3.1 bps higher transaction costs. Therefore, Aurizon Network considered that an allowance of 0.108 per cent understates its efficient debt-raising costs.⁵⁸²

For the foreign debt issues, Aurizon Network stated that it uses cross-currency swaps to manage the exchange rate risk associated with foreign debt issues. Aurizon Network considered that an allowance should be provided for the efficient costs of cross-currency swaps, given that this is standard and efficient commercial practice.⁵⁸³

Additionally, Aurizon Network submitted that it will need to enter into interest rate swaps to convert the floating base rate to a 10-year fixed rate, to hedge the interest rate risk on the floating rate debt. Aurizon Network noted that Incenta has previously recommended to the QCA that the transaction cost to implement a four-year interest rate swap is around 4.3 bps per annum.⁵⁸⁴

Accounting for debt-raising costs, cross-currency swap costs and interest rate swap costs, Aurizon Network proposed total debt transactions costs of 0.262 per cent.

The QRC noted that it is unable to provide detailed comments on the appropriateness of the debt-raising and hedging costs given the breakdown of these costs has been redacted. The QRC considered that no specific allowance should be made for cross-currency swaps. The QRC considered that it seems highly unlikely that it would be appropriate to materially increase the debt-raising cost allowance from UT4, given that this decision was accepted as appropriate only a few months ago.⁵⁸⁵

In response, Aurizon Network submitted that the QCA's UT4 allowance for debt issuance costs is not a sufficient allowance for the efficient costs incurred on foreign bond issuances. Aurizon Network submitted that debt issuance costs and cross-currency swap costs are two distinct and unrelated costs:

- debt issuance costs refer to the fees incurred in the debt issuance process, such as legal counsel fee, credit rating fee and investment bank charge
- cross-currency swap costs are incurred in managing the exchange rate risk associated with foreign debt issues, and is a standard and efficient commercial practice.⁵⁸⁶

The QRC noted that PwC proposed a range of 9.9 to 10.8 basis points for debt-issuing costs, with the high end of that range adopted. The QRC, therefore, considered that arguably the higher cost of foreign corporate bonds are accounted for in this estimate. The QRC noted that the DBCT final decision determined it appropriate to apply a methodology for estimating DBCTM's debt allowances, which also sources international debt, which is consistent with the method applied in Aurizon Network's UT4 decision. The QRC submitted that there is no reason

⁵⁸² Aurizon Network, sub. 1: 278.

⁵⁸³ Aurizon Network, sub. 1: 278.

⁵⁸⁴ Aurizon Network, sub. 1: 278.

⁵⁸⁵ QRC, sub. 21: 33–34.

⁵⁸⁶ Aurizon Network, sub. 26: 27.

to consider that picking a single point estimate for all regulated firms to provide regulatory certainty is no longer appropriate.⁵⁸⁷

To the extent that the QCA is considering departing from that approach, the QRC considered that it should obtain an updated market quotation for interest rate swap costs to support such a departure.⁵⁸⁸

Noting that Aurizon Network's rate of return is estimated using a benchmarking approach, the QCA considers that Aurizon Network's actual debt financing arrangements are not deterministic of an appropriate estimate for benchmark debt-financing transaction costs.

Moreover, Aurizon Network has proposed an estimate of its benchmark debt risk premium based on the simple portfolio approach, rather than on the complex portfolio approach. A debt risk premium based on the complex portfolio approach assumes that debt is issued in different markets and with different forms of debt—domestic corporate bonds, international bonds and bank debt. With this approach, benchmark assumptions are required for the proportions of debt that are issued in these different markets, as well as the term of that debt.⁵⁸⁹

In developing its cost of debt methodology for the QCA, PwC previously derived the expected term of debt for bond issues in each market by observing the term across all issues by Australian firms in those markets, and weightings for the different forms of debt by observing the practice of utilities. Based on its empirical analysis, PwC considered plausible weightings for a complex portfolio approach to be:

- a 50 per cent weighting to domestic corporate bonds, which had an average term to maturity at issuance of 12.1 years
- a 25 per cent weighting to international bonds, which had an average term to maturity at issuance of 10.7 years
- a 25 per cent weighting to bank debt, which had an average term of issuance of 4.9 years.⁵⁹⁰

However, the QCA notes that Aurizon Network has not proposed to estimate its debt risk premium using the complex portfolio approach, including considering appropriate weightings or a yield estimate for bank debt.

As indicated above, the QCA considers that the simple portfolio approach proposed by Aurizon Network to estimate debt risk premium is appropriate. The simple portfolio approach requires only an estimate of the debt risk premium of the benchmark term of debt for the benchmark credit rating for issues in the Australian corporate bond market. This approach is consistent with the methodology used to estimate Aurizon Network's debt risk premium for its 2016 Undertaking.

Given that the simple portfolio approach is based on the Australian corporate bond market, benchmark debt-financing transaction costs should only be derived with reference to domestic bond issues. It is not appropriate that benchmark debt-financing transaction costs incorporate transaction costs associated with foreign bond issues. As such, the debt-issuing costs should be derived with reference to domestic bond issues, and the QCA does not consider it appropriate to provide an allowance for cross-currency swap costs.

⁵⁸⁷ QRC, sub. 21: 34.

⁵⁸⁸ QRC, sub. 21: 34.

⁵⁸⁹ Consistency between the simple portfolio and complex portfolio approaches requires that the weighted average term of debt at issuance be the same under each approach.

⁵⁹⁰ QCA 2014d.

For these reasons, the QCA's draft decision is that a debt-issuing cost allowance of 10.8 basis points per annum for Aurizon Network's UT5 Undertaking is appropriate.

Given the regulatory period is shorter than the benchmark term of debt, it is assumed that an efficient regulated firm would have the incentive to align its debt with the term of the regulatory period, in order to match the regulatory benchmark. The interest rate swap contracts manage interest rate risk by converting the base rate of the 10-year cost of debt such that the term matches that of the regulatory period (e.g. four years).

Incenta therefore estimated the transaction costs of implementing interest rate swap contracts for the proposed averaging period by calculating the interest rate swap margins. For the principal profile, Incenta derived the swap from 10-year fixed to floating, and then the swap from floating into four-year fixed, and the spread breakdowns:

- the execution spread—an estimate of the buffer that a bank levies for fluctuations in the market while the back-to-back transactions are placed
- the risk spread (credit and capital costs)—an estimate of the charge that a bank makes for the risk of the counterparty defaulting.⁵⁹¹

Based on Reuters data and key regulatory benchmark characteristics, as at 30 June 2017, Incenta estimated the benchmark cost of interest swap contracts associated with financing to be 12.5 basis points.⁵⁹²

The QCA's draft decision is that an interest rate swap cost allowance of 12.5 basis points per annum for Aurizon Network's UT5 Undertaking is appropriate.

5.10.5 Reviewing the cost of debt estimate

Given the sensitivity of the different regression methods for estimating the debt risk premium and the variability in the outcomes observed through time, Aurizon Network considered that it is only possible to test whether the PwC methodology provides an appropriate estimate of the debt risk premium by analysing the outcome from its application for a specific time period. Therefore, Aurizon Network considered that the choice of method for setting the debt risk premium for the averaging period should be reviewed following that period to determine whether the PwC methodology provides an appropriate estimate of the debt risk premium.⁵⁹³

Aurizon Network considered that the performance of each technique should be evaluated, having regard to which technique produces the most robust and reliable estimate of the return on debt over the relevant period, as well as having regard to the independent, third party estimates.⁵⁹⁴

CEG considered that the most appropriate approach to be applied to the dataset cannot be determined without first carrying out analysis on the actual dataset.⁵⁹⁵ CEG considered that it would be prudent for Aurizon Network to first carry out analysis of the actual bond sample after its averaging period is over before proposing its debt risk premium estimate.⁵⁹⁶

⁵⁹¹ Incenta Economics 2017: 115.

⁵⁹² Incenta Economics 2017: 115-6.

⁵⁹³ Aurizon Network, sub. 1: 275.

⁵⁹⁴ Aurizon Network, sub. 1: 277.

⁵⁹⁵ Aurizon Network, sub. 5: 20.

⁵⁹⁶ Aurizon Network, sub. 5: 4.

Aurizon Network submitted that consideration could be given to reverting to the use of independent third party data sources to avoid the situation where the results are sensitive to the model form and sample used. Aurizon Network noted that, with the exception of the QCA and ERA, all other Australian regulators currently rely on independent third party estimates.⁵⁹⁷

The QRC submitted that providing Aurizon Network with the opportunity to reconsider whether it wants to apply that methodology once the averaging period has passed defeats the very point of having an averaging period set independently of knowing the outcome. The QRC stated that the QCA should not allow such reconsideration to occur so that Aurizon Network cannot game the outcome. The QRC considered that the Bloomberg methodology should either be utilised instead of, or in combination with, the PwC approach in seeking to derive an appropriate estimate for the debt risk premium.⁵⁹⁸

The QCA notes that this draft decision has examined an appropriate debt risk premium for Aurizon Network based on the proposed averaging period. As part of this draft decision, the QCA has had regard to the estimation method that provides the most robust and reliable estimate of the debt risk premium for the proposed averaging period, including with reference to independent third party estimates.

As such, the choice of method for estimating the debt risk premium for the averaging period is being reviewed following the proposed averaging period to determine whether the PwC methodology provides an appropriate estimate of the debt risk premium.

In any case, the QCA does not consider that it is necessary, or desirable, to revert to the sole use of independent, third party data sources. As indicated by Incenta, third party estimates have been volatile in the past, with unexplained spikes in their reported debt risk premiums at various times.⁵⁹⁹ Furthermore, as acknowledged by Aurizon Network⁶⁰⁰, these third party estimates are also variable across time. The QCA does not consider that the adoption of third party estimates will necessarily address the risk of estimation error in calculating the debt risk premium.

As indicated previously, the QCA considers that Aurizon Network's proposal to use the PwC methodology to estimate its debt risk premium for the 2017 DAU is appropriate.

5.10.6 Evidence from debt markets

CEG considered that debt risk premiums on Aurizon Network's bonds are materially higher than the debt risk premiums on other BBB+ rated bonds. CEG considered that this likely reflects a 'coal premium' being priced in by debt investors who are concerned about Aurizon Network's ability to recover its fixed and sunk investments serving the expanded coal sector.⁶⁰¹ CEG made two observations from comparing the historical debt risk premium of Aurizon Network's EJ889313 Corp bond against that of Bloomberg's BVAL broad-BBB benchmark curve:

- the debt risk premium of the Aurizon bond is broadly similar in level compared to the BVAL broad-BBB benchmark
- while the debt risk premium of the Aurizon bond is similar in level with the BVAL benchmark, it can be seen that there are periods in which the former Aurizon's debt is perceived to be

⁵⁹⁷ Aurizon Network, sub. 1: 277.

⁵⁹⁸ QRC, sub. 21: 33.

⁵⁹⁹ Incenta Economics 2017: 91.

⁶⁰⁰ Aurizon Network, sub. 1: 277.

⁶⁰¹ Aurizon Network, sub. 5: 38.

higher risk, as evidenced by the elevated debt risk premium of the Aurizon bond after the spike on 9 February 2016, which is consistent with the experiences of other coal carriers in the same timeframe.⁶⁰²

Incenta agreed that the debt risk premium of the AUD-denominated Aurizon bond spiked in February 2016 relative to the BBB+ benchmark, which occurred in the weeks following the release of Moody's 1 February 2016 review of Aurizon Network for a possible downgrade. However, Incenta noted that, while in January 2016, the seaborne metallurgical coal contract price had fallen to its lowest point of USD 81 per metric ton, this market outlook changed substantially in subsequent months. Incenta reported that the contract price for metallurgical coal increased to USD 84 at the end of April 2016, then to USD 200 in October, and to USD 285 by January 2017.⁶⁰³

Incenta constructed an interpolated Bloomberg BBB+ benchmark from Bloomberg's published yields for the broad BBB and A credit rating bands, and compared the daily interpolated debt risk premium of this synthetic BBB+ benchmark against Aurizon Network's debt risk premium for the period from 15 September 2014 to 30 June 2017. Incenta reported that, in comparison to the BBB+ benchmark, at different times Aurizon Network's debt risk premium has been:

- 40 basis points to 50 basis points below (July 2014 to March 2015)
- approximately equal to (April 2015 to February 2016)
- 100 basis points or more above (February 2016 to January 2017).⁶⁰⁴

Incenta noted that more recently (February to March 2017), the AUD-denominated Aurizon Network bond once again began to trade at a discount to the BBB+ benchmark. Incenta considered that it is apparent the differential is linked to the price of metallurgical coal—while the coal price remained above USD 100, the Aurizon bond oscillated near the BBB+ benchmark. Incenta expects that the recent closing of the gap has been due to positive export coal market news, particularly the fact that coal prices have rebounded strongly.⁶⁰⁵ In conclusion, Incenta found no evidence of a permanent 'coal premium' in the market's pricing of Aurizon Network's bonds.

CEG also considered that other railway operators internationally with significant coal operations have suffered significant increases in debt risk premiums in recent periods. CEG noted that out of the four railways in North America with the highest percentage of coal-related revenues, the following three companies have a BBB+ credit rating:

- CSX Corp
- Canadian Pacific Railway
- Norfolk Southern Corp.

CEG submitted that the average debt risk premium on the bond closest to a 10-year residual maturity, as issued by each of these businesses, increased on average by 27.6 per cent between January 2015 and January 2016.⁶⁰⁶

⁶⁰² Aurizon Network, sub. 5: 42.

⁶⁰³ Incenta Economics 2017: 95.

⁶⁰⁴ Incenta Economics 2017: 95.

⁶⁰⁵ Incenta Economics 2017: 95.

⁶⁰⁶ Aurizon Network, sub. 5: 39.

CEG also noted that Transnet in South Africa and Aurizon in Australia are the other railway owners with high reliance on coal traffic. CEG calculated an increase in debt risk premiums of 76.4 per cent and 28.3 per cent for these businesses respectively, from January 2015 to January 2016. CEG considered that it is reasonable to conclude that the increase in Aurizon Network's observed debt risk premium is consistent with a generalised debt market view that infrastructure providers serving the coal market attract a material risk premium compared to other similarly rated businesses. CEG considered that the increases in debt risk premiums cannot be sufficiently explained by movements in the general market.⁶⁰⁷

CEG considered that a coal premium could possibly be implemented by estimating the benchmark debt risk premium for a BBB rating, which is one notch higher than its actual credit rating.⁶⁰⁸

Incenta did not agree with CEG's coal premium analysis. For the three North American BBB+ rated Class 1 railway businesses listed, Incenta reported that coal revenues amounted to only 10 per cent (Canadian Pacific Railway Ltd), 17 per cent (Norfolk Southern Corp) and 19 per cent (CSX Corp) of their total revenues. Incenta considered that these companies are general freight businesses that include some highly volatile traffic, such as motor vehicles.⁶⁰⁹ Incenta also said that, with respect to coal traffic, export coal (particularly metallurgical coal) is a negligible component of Norfolk Southern Corp and CSX Corp revenues, observing:

... the majority of the coal transported by these US Class 1 railroads is thermal coal for use in domestic power stations. This component of North American railway traffic has been falling in recent years owing to the substitution of gas and renewable energy sources.⁶¹⁰

In any case, Incenta considered it more instructive to compare the movements in the debt risk premiums of the comparator businesses against those of an appropriate underlying benchmark. For US Class 1 railways, Incenta considered the relevant benchmark to be the US BBB+ (Industrials) fair value debt risk premium. Incenta's analysis showed that the relative debt risk premiums of North American Class 1 railways have recently risen against the relevant BBB+ benchmark, which does not appear to be coal-related, since coal railings have increased with the international coal price. Incenta considered that, if the North American railways have consistently higher debt risk premiums, it is more likely to reflect the fact that they have high operating leverage and transport goods with higher cyclical demand. The relative performance of US Class 1 railway company bonds is therefore not likely to provide any evidence that is directly relevant to Aurizon Network.⁶¹¹

In relation to Transnet, Incenta's analysis showed that the fall in coal prices caused a spike in its bond's debt risk premium in January 2016, which occurred when coal prices reached their lowest point. However, Incenta noted that this effect was short-lived, since the higher debt risk premium dissipated once coal prices began to move upwards in June 2016. The premium throughout 2017 has been at approximately the level it was prior to the temporary spike. Hence, Incenta considered that there is no evidence of a permanent 'coal premium'.⁶¹²

The QCA agrees with Incenta that there is no evidence of a permanent 'coal premium.' In any case, while raised by CEG, Aurizon Network's submission did not emphasise the 'coal premium'

⁶⁰⁷ Aurizon Network, sub. 5: 39, 45.

⁶⁰⁸ Aurizon Network, sub. 5: 18.

⁶⁰⁹ Incenta Economics 2017: 97.

⁶¹⁰ Incenta Economics 2017: 97.

⁶¹¹ Incenta Economics 2017: 98.

⁶¹² Incenta Economics 2017: 129.

issue. Further, it did not incorporate an estimate of its value when proposing a debt risk premium. The QCA does not consider it appropriate to incorporate a 'coal premium' as part of Aurizon Network's debt risk premium estimate for the proposed averaging period.

5.11 Gamma

Aurizon Network's proposal

Aurizon Network proposed a gamma of 0.25, calculated using an estimated distribution rate of 0.7 and an estimated utilisation rate of 0.35.⁶¹³

Aurizon Network proposed 0.7 for the distribution rate on the basis of Australian Tax Office (ATO) data (i.e. total credits distributed and total credits created). Aurizon Network said 0.7 is commonly applied by regulators, practitioners, academics and previously supported by the QRC. Aurizon Network considered our concern with the reliability of the ATO data to be unfounded and our approach of relying on the average distribution rate of the top 20 listed firms to be inappropriate.⁶¹⁴

Aurizon Network proposed an estimate of 0.35 for the utilisation rate. Aurizon said the utilisation rate must be assessed from the perspective of investors based on market values, consistent with every other WACC parameter. Aurizon Network said this view is consistent with the Tribunal's findings in recent merits review cases (noting that the Tribunal arrived at a different decision in the SA Power Networks (SAPN) case).⁶¹⁵ Given a market value basis of estimation, Aurizon Network submitted that SFG Consulting's estimate of 0.35, based on dividend drop-off analysis, is the best estimate available.⁶¹⁶

In rejecting our approach to estimating gamma, Aurizon Network's consultant, Frontier, said the Federal Court's recent decision supports interpreting and estimating the utilisation rate consistent with the role of gamma in the regulatory framework. Frontier said the Federal Court's construction of the regulatory task can only lead to a market value estimate of gamma that does take into account evidence that investors value imputation credits (that they redeem) less than the full face value amount.⁶¹⁷

QCA's analysis and draft decision

Summary of draft decision 5.7

- **The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to apply a gamma of 0.46, comprising a distribution rate of 0.83 and a utilisation rate of 0.55.**

The Australian tax system allows companies to provide their shareholders with credits (i.e. dividend imputation credits) to reflect company taxes paid on profits that are distributed as dividends. Shareholders then use these credits to reduce their own tax liabilities. Therefore, imputation credits effectively reduce a company's cost of capital.

⁶¹³ Aurizon Network, sub. 1: 281.

⁶¹⁴ Aurizon Network, sub. 1: 280.

⁶¹⁵ Australian Competition Tribunal 2016a, *Application by SA Power Networks [2016] AComp T 11*, 28 October [182].

⁶¹⁶ Aurizon Network, sub. 1: 280–281.

⁶¹⁷ Aurizon Network, sub. 32: 12.

Under the Officer model, the value of dividend imputation credits is captured by a parameter known as 'gamma', which is the product of the:

- distribution rate—the ratio of distributed imputation credits to company tax paid
- utilisation rate (theta)—the value-weighted average over the utilisation rates of imputation credits of all investors in the market.

Consistent with Aurizon Network's proposal, the QCA has used a post-tax, nominal form for the cost of capital and takes account of the tax deductibility of debt and the tax credits available under the dividend imputation system in the cash flows of the firm.

Utilisation rate

The QCA considers that an appropriate estimate of the utilisation rate is 0.55, based primarily on the equity ownership of Australian listed companies. This estimate reflects a slight increase in the estimate of the proportion of foreign ownership in Australian listed equities since 2013, which generated an estimate of 0.56.⁶¹⁸

Among the approaches to estimating the utilisation rate (e.g. equity ownership approach, redemption approach, dividend drop-off studies, Lally's conceptual test, and practitioner behaviour), we consider that the equity ownership of Australian listed companies most closely aligns with the aforementioned definition of the utilisation rate in the Officer model.⁶¹⁹

Aurizon Network argued that the interpretation and valuation for the utilisation rate should be based on market values.⁶²⁰ Aurizon Network said that it is not the role of the regulator to determine what it considers the market should have priced according to a theoretical model. Rather, it is more appropriate for the regulator to infer what is required by the market from traded market prices and to provide a return that aligns with the market's expectations.⁶²¹ Frontier stated that the utilisation rate must be a market value, consistent with all of the other parameters of the cost of equity and cost of debt.⁶²²

Frontier cited the Federal Court's recent decision on the PIAC-Ausgrid appeal to support its views.⁶²³ Specifically, Frontier said the Federal Court held that the approach to interpreting and estimating gamma must be consistent with the role of gamma in the regulatory framework. Frontier considered that this exercise can only lead to a market value estimate of gamma that accounts for the evidence that investors value the credits that they redeem less than the full face value amount. Frontier said that applying this 'regulatory context' approach set out by the Federal Court affirms that gamma must be estimated in terms of the market value of credits relative to the allowed return on equity they are replacing.⁶²⁴

⁶¹⁸ We note that a recent estimate of the utilisation rate by the AER primarily reflects the equity ownership approach, with tax statistics considered relatively unreliable, and market value studies even more unreliable (AER 2017e). This is consistent with our findings that we should give considerably lower weight to redemption and dividend drop-off studies. Similarly, we placed only limited reliance on the other methods considered in our estimate of the utilisation rate (Lally's conceptual test and other supporting evidence) due to conceptual and measurement difficulties with these methods.

⁶¹⁹ The assessment involves a weighting of the estimates from these various methods. For discussion of these matters, refer to the QCA's Market Parameters decision (QCA 2014c: 24–29).

⁶²⁰ Aurizon Network, sub. 1: 299–301.

⁶²¹ Aurizon Network, sub. 1: 301.

⁶²² Aurizon Network, sub. 32: 23–25.

⁶²³ *Australian Energy Regulator v Australian Competition Tribunal (No 2)* [2017] FCAFC 79.

⁶²⁴ Aurizon Network, sub. 32: 12, 18–19.

We do not agree with Aurizon Network and Frontier. While Frontier refers to a 'regulatory context' approach set out by the Federal Court, Frontier fails to mention that a principal point made by the Federal Court is that the relevant context relates to a value in a statutory model (rather than a market value):

[752]...We also note that the nature of gamma is an estimate to be used in a model.

[753] The present context relates to a statutory model rather than the value of something which exists. In our opinion the Tribunal was distracted by the apparent simplicity of the concept of market studies and data into mistaking what was to be estimated as real in a market rather than as estimates within a model.

[754] This is what led the Tribunal into error at [1081]–[1082] in concluding that the value of gamma is (only) what is claimed or utilised as demonstrated by the behaviour of the shareholder recipients of the imputation credits.⁶²⁵

Given this context, it is clear that the Federal Court's view is more closely aligned with the view of Lally in relation to the proper interpretation of 'value' (of imputation credits) in the context of gamma in the Officer model.

The QCA does not accept the contention that the utilisation rate should be defined as a market-value concept. Rigorous derivations of the Officer CAPM unambiguously demonstrate that the utilisation rate (i.e. theta) is a complex weighted average of the utilisation rates of individual investors in the market (i.e. the extent to which imputation credits could be redeemed with the ATO).⁶²⁶ As our approach is based on the Officer model, we therefore adopt a definition of the utilisation rate that arises from a rigorous derivation of that model. We note that Aurizon Network supports the Officer model. We consider that applying the Officer model in totality reflects common practice, is consistent with the NPV=0 principle and therefore is appropriate.

The QCA's definition of the utilisation rate, and therefore its approach, is supported by expert opinion. As observed by Lally, under certain conditions the utilisation rate will equal the market value of the credits.⁶²⁷ However, Lally noted that this does not change the definition of the utilisation rate being the weighted average over individual investors' utilisation rates.⁶²⁸ As the utilisation rate is defined in this way, it follows logically that estimates from market value studies are only one type of estimator of the utilisation rate.⁶²⁹

Also, we do not agree with Frontier's consistency argument that the utilisation rate must be a market value to be consistent with other components of the cost of equity (and cost of debt). Simply because some parameters in the cost of equity are market values does not mean all of them are such values. For example, the cost of equity includes an estimate of the value of imputation credits. This value is, in part, determined by the distribution rate. The distribution rate is clearly not a 'market' value, but a numerical value.

⁶²⁵ *Australian Energy Regulator v Australian Competition Tribunal (No 2)* [2017] FCAFC 79: 216 at [752–754].

⁶²⁶ Lally and van Zijl 2003; Monkhouse 1993.

⁶²⁷ Lally 2017a: 7.

⁶²⁸ Furthermore, Lally said these conditions are generally not met, which causes the market value of imputation credits to diverge from the utilisation rate.

⁶²⁹ Frontier suggests that the market value of imputation credits can be estimated as a weighted average of investors' utilisation rates only under certain restrictive conditions. As these are conditions are unrealistic, Frontier concludes that the weighted average of investors' utilisation rates is not a useful estimator (Aurizon Network, sub. 7: 21–25). We consider that Frontier's error here is to imply that the weighted average of utilisation rates is the estimator while the market value of the credits is the parameter subject to estimation. However, the reverse is the case—the market value of the credits is an estimator, and the weighted average utilisation rate is the parameter subject to estimation.

Further, the cost of equity is not observable and therefore must be estimated by reference to a model. That model is the CAPM (in particular the Officer version), and the basis of the model is a set of assumptions. Again, rigorous derivations of the model demonstrate that the definition of the utilisation rate involves a weighted average over individual investors' utilisation rates. Accordingly, one cannot impose a definition of the utilisation rate (e.g. define it as a market value) without changing the model. To do so would be inconsistent with the model's underlying assumptions and therefore inappropriate.

Table 41 provides our consideration of further, detailed arguments relating to the utilisation rate.

Table 41 QCA consideration of issues relating to the utilisation rate

<i>Issue</i>	<i>QCA analysis</i>
<p>Frontier said the QCA, in using an estimate of 0.56 for the utilisation rate, assumes a one-to-one correspondence between the proportion of shares held by Australian investors and the market value associated with imputation (e.g. if 80% of shares are held by Australian residents then the QCA assumes a distributed credit would be worth \$0.80).⁶³⁰</p>	<p>We consider this is an inaccurate characterisation of our approach—no such assumption has been made.</p> <p>Our approach is based on the Officer model. Accordingly, we apply a definition consistent with that model. As explained, the correct definition of the utilisation rate is the weighted average of the utilisation rates of individual investors in the market.</p> <p>If the Officer model is valid, there will be a one-to-one correspondence between theta (i.e. the weighted average utilisation rate) and the market value of the credits. However, this is not an assumption.</p> <p>Further, any phenomenon that undermines the validity of the model will cause these two values to diverge from each other. A principal example is the differential taxation of dividends and capital gains in Australia.</p>
<p>Frontier said that our approach to estimating the utilisation rate makes theoretical assumptions about investor characteristics in order to make an empirical estimate. In contrast, our approach to estimating every other WACC parameter references traded market prices.⁶³¹ By implication, our approach to estimating the utilisation rate is inconsistent.</p>	<p>While it is appropriate to use market prices in estimating some parameters within the Officer model, this does not imply that it is appropriate to do so for all parameters.</p> <p>Further, Lally observes that, under the Officer model, not every term (e.g. the utilisation rate) is defined as a market value—it is the application of the discount rate (which is a market rate) that converts these estimates into market values.⁶³²</p>
<p>Frontier also said that a market value estimate of theta (from dividend drop-off studies) is consistent with Lally's theoretical framework. Frontier presents a formula and rearranges it to show that what is relevant is the extent to which imputation credits are capitalised into the stock price and that dividend drop-off studies seek to estimate this effect.⁶³³ Thus, Frontier said that an estimate of the market value of credits would also reflect an estimate of the complex weighted average.</p>	<p>We do not agree with this point. As explained by Lally, the formula presented by Frontier is problematic for several reasons:</p> <ul style="list-style-type: none"> • The assumptions underlying the model preclude the tax arbitrage activity that is likely to affect estimates of the utilisation rate from dividend drop-off studies. • Cash dividends are not valued at 'face value', and the coefficient on the imputation credit term in the formula has not been adjusted to reflect the

⁶³⁰ Aurizon Network, sub. 7: 11.

⁶³¹ Aurizon Network, sub. 7: 11.

⁶³² Lally 2017a: 6.

⁶³³ Aurizon Network, sub. 7: 26.

<i>Issue</i>	<i>QCA analysis</i>
	most likely cause—the differential taxation of dividends and capital gains. ⁶³⁴
<p>Frontier said that, under the QCA's theoretical approach, three additional assumptions are made:</p> <ul style="list-style-type: none"> • Every credit that is redeemed has a value (to the investor who redeems it) equal to the full face amount. • All investors are equally risk-averse. • All investors (domestic and foreign) have no wealth other than that which they invest in Australia.⁶³⁵ <p>Frontier said these assumptions are required because the data on investor wealth and risk-aversion is unavailable.⁶³⁶ However, Frontier said these assumptions are implausible and relaxing them would result in a lower estimate of the complex weighted average.</p>	<p>We do not agree with Frontier's claims. A proper analysis of these assumptions (and the effects of relaxing them) leads to different conclusions. Relaxing the first assumption leads to a new model, and relaxing the third assumption leads to a higher (not lower) estimate of the utilisation rate (i.e. one). Specifically, we note that:</p> <ul style="list-style-type: none"> • The first assumption seems to relate to transaction costs. Recognition of these costs would not change the definition of the utilisation rate but require replacement of the Officer model by a more complex variant. This issue arises regardless of how the utilisation rate is estimated. Furthermore, Lally noted this assumption is particularly innocuous because transaction costs are very small. • The effect of the second assumption is to induce an overestimate of the utilisation rate, and Lally estimated this effect at about 0.06. Therefore, relaxing it would lower the utilisation rate. However, when compared to the difficulties of using other methods to estimate the utilisation rate, such as dividend drop-off studies, the problems with the latter are much greater. • The third assumption is wrong, but the problem is the result of regulators using a model that embodies an empirically false assumption. This problem is not avoided by estimating the utilisation rate from dividend drop-off studies. In particular, the resulting estimate of the utilisation rate is likely to be reduced by the presence of foreign investors, and therefore a parameter estimate reflecting the presence of foreign investors is inserted into a model that assumes there are no such investors.⁶³⁷
<p>Frontier said that the best available market value estimate of theta is the 0.35 estimate of SFG Consulting, as this estimate has been assessed by the Australian Competition Tribunal for its fitness for use in the regulatory setting.⁶³⁸</p>	<p>We do not consider that dividend drop-off estimation should be the primary method for estimating the utilisation rate. As we have previous discussed, estimates of the utilisation rate from these types of studies are likely to be highly unsatisfactory—they are likely to be biased in an unknown direction and highly variable, depending on the type of empirical model, the criteria applied for sample selection and the treatment of outliers.⁶³⁹</p>
<p>Frontier added that the dispersion in estimates of the utilisation rate from empirical studies has been</p>	<p>We do not agree with Frontier's argument. As stated previously, rigorous derivations of the Officer CAPM</p>

⁶³⁴ Lally 2017a: 10–11.

⁶³⁵ Aurizon Network, sub. 7: 23.

⁶³⁶ Aurizon Network, sub. 7: 23.

⁶³⁷ Lally 2017a: 8–9.

⁶³⁸ Aurizon Network, sub. 7: 11–12.

⁶³⁹ Lally 2017a: 14.

<i>Issue</i>	<i>QCA analysis</i>
erroneously used to support the conclusion that the QCA should measure something else other than value. ⁶⁴⁰	unambiguously define the utilisation rate as the weighted average of the utilisation rates of individual investors. Under certain conditions, the utilisation rate will equal the market value of the credits; however these conditions are not met in general.
For the redemption approach, Frontier stated that gamma can be estimated directly from the ATO data—which does not involve using the unreliable distribution rate data—and that doing so produces an estimate of (and upper bound on) gamma of 0.34. ⁶⁴¹	<p>We do not think this approach is appropriate. An estimate of the utilisation rate component of gamma is still required for estimating the MRP. Under this proposed approach, the estimate of the utilisation rate is: credits utilised divided by credits distributed. Therefore, applying this approach consistently across the model does not avoid the unreliable distribution rate data.</p> <p>Further, this approach means using the same set of companies for estimating both the utilisation rate and the distribution rate. However, it is not appropriate to include unlisted firms in estimating the distribution rate, and the ATO data reflects both listed and unlisted firms (discussed further in the next section).</p>

For the reasons above, we remain of the view that the appropriate estimate of the utilisation rate should be based on the equity ownership of Australian listed companies. The QCA considers that an appropriate estimate of the utilisation rate at this time is 0.55.

Distribution rate

After considering stakeholders' submissions, we have estimated a distribution rate based on the average distribution rate of the 20 largest ASX companies, with the data sourced directly from their financial statements—the estimate is 0.83. This estimation approach is consistent with past practice.⁶⁴² This section explains the reasons for our decision and provides our responses to matters raised by stakeholders.

Aurizon Network did not agree with our approach to estimating the distribution rate. In particular, Aurizon Network's concerns relate primarily to the following two key issues, namely that we have⁶⁴³:

- misunderstood the issues raised in relation to the ATO data—Aurizon Network claimed that the estimate based on the franking account balance (FAB) data is reliable and appropriate
- estimated the 'wrong thing', specifically a distribution rate for a group of multinational firms with substantial foreign income, rather than a distribution rate for the benchmark efficient firm.

Aurizon Network noted that we have previously rejected using the ATO data due to discrepancies between distribution rate estimates arising from two different approaches, which

⁶⁴⁰ Aurizon Network, sub. 7: 28.

⁶⁴¹ Under this approach: $\gamma = F \times \theta = [\text{credits distributed} / \text{credits created}] \times [\text{credits utilised} / \text{credits distributed}]$ (Aurizon Network, sub. 32: 41–42).

⁶⁴² Our approach is consistent with that used during the approval of Aurizon Network's 2016 Undertaking and as set out in our Market Parameters decision (QCA 2014c: 26–27).

⁶⁴³ Aurizon Network, sub. 7: 36–37.

should produce the same estimate. The two approaches are the 'dividend method' and the 'FAB method' (also known as the 'tax method'), and they rely on different ATO datasets.⁶⁴⁴

In particular, Frontier cited distribution rate estimates of approximately 0.7 from the FAB method and 0.5 from the dividend method, based on research by Hathaway.^{645,646} Frontier said that we appear to have misunderstood the ATO data, and it is not appropriate for us to reject estimates from both methods simply because one produces an unreliable estimate:

...two approaches have been considered for using the ATO data to estimate the distribution rate — the FAB approach and the dividend approach. One produces a direct estimate that is based on reliable data that has never been questioned and the other approach produces a lower estimate using different data and the application of some assumptions. The fact that the two estimates differ is not a reason to reject them both.⁶⁴⁷

However, following his original analysis, Hathaway subsequently produced a second report, which updates his previous analysis.⁶⁴⁸ In this second report, Hathaway includes tax data for the 2011–12 financial year, which the ATO published in 2014. Hathaway identifies a \$100 billion discrepancy between the ATO's FAB data and the dividend data and states that either there is "not enough dividend data to match the tax/FAB data or the increase in the FAB is too low".⁶⁴⁹ He also considers a number of plausible explanations for this discrepancy but is unable to reach a firm conclusion on the reason for it. However, in contrast to his 2013 report, Hathaway reaches the opposite conclusion about the reliability of the estimates from the FAB method:

...Hence the FAB data indicate a net \$337.4 billion of credits have been distributed and a gross \$428 billion was distributed.

The gross distribution seems highly improbable and is quite inconsistent with the recorded franking credit income. It represents a gross payout ratio of 88% of all company tax as franking credits for the period 2004–12. This is in stark contrast to the gross 66% distribution recorded by the payment of franked dividends. We conclude that the FAB data are a concern.⁶⁵⁰

Further, in his conclusion in relation to the two materially different estimates of the distribution rate arising from these two datasets and methods, Hathaway states:

The difference between these two estimates is caused by the unexplained \$100 billion difference between tax and dividend data. We lean to accepting the dividend-based data over the FAB-based data at present.⁶⁵¹

⁶⁴⁴ The ATO data includes the net company taxes paid to the ATO for each year, the net dividend imputation credits attached to dividends for each year, and the aggregate franking account balances of companies at each year end (the company taxes paid to the ATO less the imputation credits attached to dividends, since the commencement of dividend imputation). The dividend estimate of the distribution rate is the net imputation credits attached to dividends as a proportion of company taxes paid to the ATO. The FAB (or tax) estimate is net company taxes paid to the ATO (i.e. each dollar of company tax paid creates a dollar of imputation credits) net of the increase in the Franking Account Balance, as a proportion of net company taxes paid to the ATO.

⁶⁴⁵ Aurizon Network, sub. 7: 35.

⁶⁴⁶ As far we are aware, Hathaway 2013 is the first researcher to estimate and report the distribution rates from these two methods based on detailed analysis of the ATO data.

⁶⁴⁷ Aurizon Network, sub. 7: 37.

⁶⁴⁸ Hathaway 2014.

⁶⁴⁹ Hathaway 2014: 26.

⁶⁵⁰ Hathaway 2014: 30.

⁶⁵¹ Hathaway 2014: 45.

Therefore, a highly qualified researcher, who is the first source of these estimates, has examined both sets of ATO data in detail at different points in time, but has reached opposite conclusions about which set of data is more reliable.

NERA also identifies a number of possible problems (and potential biases resulting from them) with the ATO data, and some of these problems relate to the data used for the FAB method. For example, these include the potential for the distribution rate to be overestimated due to undistributed imputation credits of bankrupt companies being deleted (and therefore, treated as distributed) and for the rate to be either overestimated or underestimated due to companies failing to report their franking account balances. Further, and like Hathaway, NERA also obtains two different estimates (70% and 53%) from the FAB and dividend methods respectively, but they should yield the same estimate.⁶⁵²

As a result, we consider it reasonable for us to form the view that there are valid reasons for questioning the reliability of both sets of the ATO data and the estimates that arise from them.

In summary, the QCA's position is that the preferred method for estimating the distribution rate should be based on market-wide data and reflect listed equity only. While the distribution rate is a firm-specific parameter, pragmatic considerations support using market-wide data to obtain the best estimate.⁶⁵³ Further, that data should be from listed firms only, as privately-owned, regulated firms in Australia are typically listed firms, or subsidiaries of listed firms, and there are likely to be impediments to efficient investment in unlisted companies.⁶⁵⁴ This preference for an estimate based on listed equity (only) is supported by Dr Lally and the AER's advisor, Associate Professor John Handley.⁶⁵⁵

For the reasons given previously, we do not consider the ATO data to be reliable. However, an alternative data source is available, which is firms' audited financial statements, and this data is highly reliable.⁶⁵⁶ Given a market-wide estimate is desirable, the relevant issue then becomes how to constitute the sample in order to obtain as reliable an estimate as possible.

As our objective is to determine a market-wide distribution rate, then we are seeking estimates of the distributed imputation credits and the company tax paid to the ATO, both on a market-level basis for listed firms. To obtain as reliable an estimate of these parameters as possible, we require as large a sample (in market value terms) as is practical (i.e. given time and cost limitations). Therefore, the logical starting point for constituting such a sample is identifying the largest firms—in terms of market capitalisation—listed on the Australian Stock Exchange (ASX), as they will be the most influential firms in determining these two parameters.⁶⁵⁷ In contrast, it would be a substantially inferior approach to assess the distribution rates of a different subset of firms listed on the ASX if that subset only comprises a small sample size (e.g. 5% of the ASX's total value).

⁶⁵² NERA 2013: 5–6, 9.

⁶⁵³ For a detailed discussion, see Lally 2016: 33–34.

⁶⁵⁴ These impediments include high transactions costs, lack of relevant information, and limited divisibility and marketability of unlisted assets.

⁶⁵⁵ Lally 2016: 34; Handley 2014: 28–29, 52.

⁶⁵⁶ The financial statement data has three features that virtually guarantee protection against the problems in the ATO data: 1) the financial statement data is audited; ii) the researcher is able to personally identify the source data (the figures of interest for specific companies) rather than having to rely on the aggregation procedures undertaken by the ATO; and iii) the financial statement data is internally consistent (i.e. there are no unexplained discrepancies) (Lally 2014: 29).

⁶⁵⁷ The market capitalisation of the top 20 firms on the ASX was about 56 per cent as at 1 June 2017; therefore, the sample size is large. Data downloaded from <http://www.asx200list.com/> on 29 June 2017.

However, Aurizon Network and Frontier have criticised this alternative approach, stating that the financial statements approach is flawed and estimates 'the wrong thing'.⁶⁵⁸ As summarised by Frontier:

The 20 companies in the Lally sample are predominantly very large multinationals with a material amount of foreign-sourced income. This foreign income can be used to distribute imputation credits, so that the distribution rate is higher than it could be for a firm that did not have access to foreign income to assist in the distribution of imputation credits. Since the firms that are regulated by the QCA are (by definition) purely domestic firms, they have no access to foreign income. Consequently, estimating the distribution rate for a firm with no foreign income by using a sample of 20 firms with substantial foreign income is inappropriate.⁶⁵⁹

In summary, Aurizon Network and Frontier stated that it is inappropriate to base an estimate on a sample of firms with access to foreign income because the firms regulated by the QCA are purely domestic firms without access to such income. However, we do not consider the definition of the benchmark firm to be determinative on this point. This is because, even if it is deemed appropriate to exclude foreign income, Aurizon Network's proposed approach (which relies on the ATO data) does not avoid this 'problem'—the ATO data obviously contains a number of Australian firms with income from foreign operations.

Further, the only way to completely avoid the issue is to select a sample of firms that is sufficiently large but without any foreign operations. Doing so would require recourse to examining firms' financial statements rather than the ATO data, but examining the financial statements of all firms would be time and cost-prohibitive. Given this limitation, the better approach is to sample a subset of high-value firms—as these firms will maximise the sample size (i.e. they will have the greatest impact on measures of distributed credits and tax paid to the ATO)—and then test whether or not these firms have distribution rates that are likely to materially bias the distribution rate in one direction or the other. This is the approach of Lally.⁶⁶⁰

This conclusion relates to Aurizon Network's and Frontier's second concern, which is that the top listed firms have high proportions of foreign operations that they claim inappropriately increase the distribution rates of these firms. In support of this claim, Frontier presents a numerical example showing that, for any dividend payout rate, a firm with foreign income is able to distribute a higher proportion of credits that it creates than a purely domestic firm. The second piece of information Frontier presents is a table sourced from NERA that contains distribution rates estimated for different sets of companies:

- top 20, ASX-listed 0.84
- public, not top 20 0.693
- all public 0.755
- private 0.505
- all companies 0.676.

On the basis of its numerical example and the information in this table, Frontier stated:

In our view, the evidence clearly supports the proposition that large multinationals are able to distribute a higher proportion of the imputation credits that they create, relative to the average

⁶⁵⁸ Aurizon Network, sub. 7: 36.

⁶⁵⁹ Aurizon Network, sub. 7: 32–33.

⁶⁶⁰ Lally 2016: 35–37.

Australian firm. Since large multinationals have access to foreign profits and the benchmark efficient firm does not, it is not appropriate to use them to estimate the distribution rate.⁶⁶¹

We first note that Frontier's preferred estimate of 0.7 appears drawn from its Table 3, specifically the estimate for public companies but not top-20 companies. However, in excluding the top 20 firms from its estimate, Frontier has assumed that all firms in the top 20 have substantial foreign operations but has not presented any empirical evidence on this point. In addition, in proposing an estimate that is purportedly 'untainted' by foreign operations, Frontier has also assumed that the public firms (excluding those in the top 20) have no foreign operations, but provided no evidence.

We do not agree with this analysis and the conclusions drawn. Based on this data, it is prima facie evident that firms in the top 20 distribute a higher proportion of credits on average in comparison to public firms not in the top 20 (for example).⁶⁶² However, the important point is whether the (average) higher distribution rate is a direct result of top 20 firms having access to foreign income—to the extent that they do—relative to other listed companies (i.e. not top 20). Frontier's second statement (quoted above) simply assumes that the reason the distribution rates of the top-20, listed firms are higher is due to their foreign operations.

We do not consider it appropriate to rely on an untested assumption to draw the conclusion that these firms should be excluded from the analysis. We note that, in its final determination on Powerlink's allowed revenues, the AER recently reached the same conclusion on this point:

Ultimately, the service providers have not shown the imputation payout ratio is higher due to foreign income or if any increase due to this is material. They have simply asserted that because these firms have foreign source income, and because this may allow these firms to pay a higher imputation payout ratio (without using things like dividend reinvestment plans), these firms should be excluded from the calculation of the dividend payout ratio.⁶⁶³

The AER's position is also supported by the SAPN Tribunal:

SAPN asserts that by having regard to the distribution rate of listed companies the AER was in error. The principal reason advanced is that the BEE [Benchmark Efficient Entity] is assumed to have only domestic earnings, whereas many large listed companies have foreign earnings which do not generate imputation credits. Then, if the dividend payout ratio (dividends/earnings) is the same as for the BEE, the distribution rate of imputation credits (credits distributed/credits generated) will be higher. That argument, does not, however, allow for the possibility that such companies with foreign earnings have a lower dividend payout ratio.⁶⁶⁴

So the relevant question is whether their foreign operations increase (if at all) these companies' distribution rates—Frontier has not empirically assessed this question.

In contrast, Lally has considered this question and subsequently assessed how foreign operations could affect the distribution rate. Lally examined the data of the seven largest tax-paying firms (of the top-20, listed on the ASX) and found that the proportion of their profit from foreign operations is negatively correlated with their distribution rate; that is, as the proportion of profit from foreign operations increases, their distribution rates decrease, rather than increase—this effect is opposite than that claimed by Frontier.

⁶⁶¹ Aurizon Network, sub. 7: 34.

⁶⁶² We note that the table figures are based on ATO data—as discussed previously, we have serious concerns with that data.

⁶⁶³ AER 2017a: 144.

⁶⁶⁴ Australian Competition Tribunal 2016a, *Application by SA Power Networks [2016] AComp T 11*, 28 October [182].

Further, Lally provided a plausible explanation for this relationship. Specifically, firms with a material proportion of profit from foreign operations retain a larger proportion of their cash flow in order to finance these foreign operations. The effect is to reduce their dividends, and therefore their distribution rates, by more than the incremental profits from these operations increase dividends in the same year.⁶⁶⁵

Lally's conclusion is consistent with the conclusion of the SAPN Tribunal, which said that the AER was not unreasonable, or incorrectly exercised its discretion, in considering estimates of distribution rates for listed firms:

More generally, dividend payout ratios and distribution rates can be expected to vary between companies based on ownership characteristics and need/preferences for internally generated capital. Unlisted companies vary markedly. At one extreme there are small companies owned by individuals on high marginal tax rates who may prefer earnings retention to generate concessional tax on long-term capital gains or to defer the additional tax which would need to be paid on franked dividends. At the other extreme, large foreign-owned Australian registered companies may also prefer retention and reinvestment of earnings rather than distribution of dividends and attached franking credits which would be wasted.⁶⁶⁶

Frontier subsequently challenged Lally's analysis by noting that it focuses only on a subset of large firms with foreign operations and that a correct comparison should be between firms with foreign operations and firms without them.⁶⁶⁷ However, Lally considered that a superior approach is to examine the distribution of firms, as his previous analysis does. This analysis shows that a significant sub-sample of firms have proportions of foreign income ranging from 6 per cent to 60 per cent.⁶⁶⁸ Accordingly, the extent of extrapolation required to estimate the distribution rate in the absence of any foreign income is relatively minor.

We agree with Lally's analysis. The most important requirement in the present context is to obtain the best estimate of the distribution rate for the market in aggregate, subject to the restriction that the sample involves listed equity only. This objective is achieved by examining the distribution rates of listed companies with the largest tax payments to the ATO. While all of these companies have foreign income, some have low proportions of foreign income, which is sufficient.

We do not agree with Frontier's alternative approach, which is to assume that foreign operations increase the distribution rates of these firms and, on the basis of that untested assumption, remove them from the sample that is most likely to produce the best estimate. Further, we note that, despite criticising Lally's approach for relying on firms with foreign operations, Frontier's approach does not attempt to control for this factor.

Conclusion on the distribution rate

For the reasons above, we remain of the view that our approach to estimating the distribution rate is appropriate.

As with the utilisation rate, there is no consensus among experts on an appropriate value for the distribution rate. In its recent decisions on energy transmission and distribution, the AER summarised the different views among experts on this matter. The range of estimates, taken over different time periods, is 0.68–0.84 as provided in Table 42.

⁶⁶⁵ Lally 2016: 35–36.

⁶⁶⁶ Australian Competition Tribunal 2016: [183]–[184].

⁶⁶⁷ Aurizon Network, sub. 7: 34.

⁶⁶⁸ Lally 2016: 36.

The table shows two methods for estimating the distribution rate. The cumulative payout ratio approach takes the cumulative change in the total value of imputation credits in firms' franking account balances over a particular period of time and subtracts this from total company tax paid over the same period of time. The resulting estimate of the imputation credits that have been distributed in total is divided by the value of company tax paid over the same time period to produce an estimate of the distribution rate over this time. The financial statements approach used by Lally uses audited financial statement data for the top-20, listed firms to determine an estimate of the distribution rate.

Table 42 Experts' proposed estimates of the distribution rate

<i>Estimate</i>	<i>Expert</i>	<i>Method</i>	<i>Sample composition</i>
0.676	NERA ^a	Cumulative payout approach (ATO FAB data)	All equity
0.7	CEG ^b SFG Consulting ^c Frontier ^{d,e} McKenzie and Partington ^f	Cumulative payout approach (ATO FAB data)	All equity
0.7	Frontier ^{d,e}	Cumulative payout approach (ATO FAB data)	Listed equity excluding the top 20 firms
0.755	NERA ^a	Cumulative payout approach (ATO FAB data)	Listed equity
0.8	Handley ^{g,h} SACES ⁱ	Cumulative payout approach (ATO FAB data)	Listed equity
0.83	Lally ^{j,k}	Financial statements approach	Listed equity (top 20)
0.84	Lally ^l	Financial statements approach	Listed equity (top 20)

a NERA 2015: 23; *b* CEG 2014: 50; *c* SFG Consulting 2015: 46–47; *d* Frontier Economics 2015a: 29–30; *e* Frontier Economics 2016a: 6; *f* McKenzie and Partington 2013: 34; *g* Handley 2014: 29, 52; *h* Handley 2015: 10; *i* South Australian Centre for Economic Studies 2015: 15; *j* Lally 2015b: 19; *k* Lally 2017a: 14–15; *l* Lally 2014: 40.

The estimate of 0.7 is the preferred estimate of CEG, SFG Consulting, Frontier, and McKenzie and Partington. This estimate is obtainable in one of only two ways, by applying the cumulative payout approach (using the ATO data) to either: i) all equity (listed and unlisted); or to ii) listed equity only, but excluding the top 20 firms from the sample.

We consider there is a strong rationale for relying on listed equity only. In particular, privately-owned, regulated firms in Australia are typically listed companies or subsidiaries of listed companies. As indicated earlier, we do not consider it appropriate to rely on all equity (i.e. listed and unlisted) in this context, and this view is supported by both Dr Lally and Dr Handley. The only other way to estimate 0.7 for the distribution rate is to use listed equity but to exclude the top 20 firms from the sample. As Lally has shown, both conceptually and empirically, Frontier's rationale for excluding them—that foreign operations increase the distribution rate—is not proven.

Therefore, using the ATO data and listed equity (including the top 20 firms), the distribution rate should be at least 0.755 or higher, at Handley's preferred estimate of 0.8. In addition, the ERA has considered estimates by Handley, Lally and other experts and concluded that a

reasonable estimate of the distribution rate for listed equity is 0.8.⁶⁶⁹ The estimate of 0.8 is closer to Lally's estimate of 0.83 than it is to the lower estimate of 0.7, preferred by Aurizon Network and Frontier.

However, given our concerns with the ATO data described previously, we consider Lally's estimate of 0.83, based on the financial statements approach, to be preferred to 0.8 for listed equity. That said, we remain open to placing weight on the estimates from the ATO data, but only when the discrepancies with that data are adequately explained.

Finally, we note Aurizon Network's characterisation of our approach to estimating the distribution rate as being an 'outlier' with respect to Australian regulatory practice. As we have indicated in previous decisions, we do not consider the practice of other regulators to be determinative in, and of, itself. Ultimately, we must assess the arguments for and against different estimation approaches on their inherent merits and with respect to the criteria in the QCA Act.

The QCA does not consider our approach to be inconsistent with recent regulatory practice. In its recent decisions on energy transmission and distribution, the AER appears to weight the Lally estimates (i.e. the estimates from firms' financial statements) the same as the standard estimates from the ATO data—the Lally estimates appear in the summary table of estimates, and the AER applies them to calculate the final gamma estimates in that table. As acknowledged by Frontier, this treatment is a change in emphasis from the AER's set of 2015 decisions, in which the AER simply noted that Lally's estimates from financial statements supported the conclusion that estimates of the distribution rate from listed equity are higher.⁶⁷⁰

Recent litigation: further commentary

We disagree with the contention by Aurizon Network and Frontier that we should follow the decision of the Tribunal in the PIAC-Ausgrid case on an appropriate estimate for gamma. The reasons for our views on this matter were discussed in detail in our final decision on DBCTM's 2015 draft access undertaking.⁶⁷¹

We also note that a recent decision by the Federal Court, on judicial review of the Tribunal's determinations in the PIAC-Ausgrid case, found that the Tribunal had misconstrued and misunderstood the meaning of the statutory expression 'the value of imputation credits' in rule 6.5.3 of the National Electricity Rules (NER).⁶⁷²

The Federal Court found that the expression 'the value of imputation credits' is '... to be construed as a whole, in its context and having regard to the subject matter of the exercise'. In this case, the NER required consistency in the way the relevant building blocks interacted in the context of the determination of a regulated return using a post-tax revenue model based on a nominal vanilla WACC. The context related to a statutory model, and the Tribunal mistook '... what was to be estimated as real in a market rather than as estimates within a model'.

The Federal Court found that it was not a reviewable error for the AER to prefer one theoretical approach to considering the determination of gamma over another. It was not an error of construction for the AER to focus on utilisation rather than on implied market value.

⁶⁶⁹ ERA 2016b: 44.

⁶⁷⁰ Frontier Economics 2016b: 7.

⁶⁷¹ QCA 2016b.

⁶⁷² Australian Energy Regulator v Australian Competition Tribunal (No 2) [2017] FCAFC 79; Australian Energy Regulator v Australian Competition Tribunal (No 3) [2017] FCAFC 80.

Although this case concerns a statutory provision of the NER, and is therefore not binding on the QCA's considerations of Aurizon Network's draft access undertaking, we believe it nevertheless provides strong, persuasive support for our approach to the definition and estimation of gamma given the similarity of context.

Conclusion

In conclusion, we acknowledge there are alternative views and interpretations for estimating gamma and its components. Although we have made minor updates to the estimates of the distribution and utilisation rates, we are not persuaded that the considerations put forward in submissions provide sufficient grounds for changing our fundamental approach to the determination of gamma.

Based on our detailed analysis above, our draft decision is to refuse to approve Aurizon Network's proposed gamma of 0.25 and to require a gamma of 0.46, comprising a distribution rate of 0.83 and a utilisation rate of 0.55, to be applied in the draft access undertaking.

We consider it appropriate to make this decision for the reasons set out above and having regard to each of the matters set out in section 138(2) of the QCA Act.

6 VOLUME FORECASTS

6.1 Aurizon Network's 2017 DAU proposal

Aurizon Network proposed annual volume forecasts for each coal system, based on a mine-level forecast. Aurizon Network's proposed volume forecasts are presented in Table 43.

Table 43 Aurizon Network's 2017 DAU—volume forecasts by system (million tonnes)

<i>System</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>
Blackwater	69.9	71.3	71.3	71.3
Goonyella	120.3	120.3	120.3	120.3
Moura	10.2	10.2	10.2	10.2
Newlands (excluding GAPE)	9.2	9.2	9.2	9.2
GAPE	16.2	17.5	17.5	17.5
Total	225.7	228.4	228.4	228.4

Source: Aurizon Network, sub. 1: 123.

Note: Minor differences in Aurizon Network's volume forecasts were identified in its modelling.

6.2 Key issues identified during the QCA's investigation

The QCA has considered all elements of Aurizon Network's proposed volume forecasts for the 2017 DAU regulatory period in making its draft decision. The following issues attracted comment from stakeholders, or were identified for further consideration:

- recent market conditions for seaborne coal exports (see section 6.3.1)
- the market outlook (see section 6.3.2)
- primary reasons for the difference between Aurizon Network's forecast and the forecast by the QCA's independent consultant, RMI⁶⁷³ (see section 6.3.3).

6.3 QCA analysis and draft decision

Summary of draft decision 6.1

- **The QCA considers the appropriate way for Aurizon Network to amend its 2017 DAU is to revise its proposed volume forecasts for the central Queensland coal network based on the forecasts provided in Table 44.**

The QCA considers the volume forecasts provided by RMI represent a balanced view of the most likely volumes over the regulatory period. The QCA's draft decision is that Aurizon Network's 2017 DAU should be amended to reflect the volume forecasts presented in Table 44.

⁶⁷³ The QCA engaged Resource Management International (RMI) to advise the QCA on the reasonableness of Aurizon Network's coal volume forecasts for the UT5 regulatory period. The report by RMI is available on the QCA website (see Resource Management International 2017).

Table 44 QCA draft decision—volume forecasts by system (million tonnes)

<i>System</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>
Blackwater	59.38	60.58	61.58	61.58
Goonyella	124.75	128.45	130.25	130.25
Moura	14.30	17.50	18.50	18.50
Newlands (excluding GAPE)	11.70	14.20	14.20	14.20
GAPE	16.15	19.15	24.15	29.15
WIRP	10.10	10.30	10.60	10.60
Total	236.4	250.2	259.3	264.3

The QCA notes the positive market outlook for CQCN coal producers over the UT5 regulatory period, as outlined by both RMI and Aurizon Network. The forecast growth in global demand for metallurgical and thermal coal, as well as the strong position of CQCN producers in the seaborne coal markets, supports RMI's volume forecast.

Aurizon Network submitted its proposed volume forecasts based on its demand outlook for domestic and export coal in the CQCN; volumes contracted; customer information; historical railings; and expected production growth.⁶⁷⁴ As part of its 2017 DAU submission, Aurizon Network also considered recent market conditions and the market outlook for coal producers in the CQCN.

The QRC said that the accuracy of the forecast volume figures should be carefully considered by the QCA, with a view to minimising the timing differences caused by differences between forecast and actual volumes.⁶⁷⁵ Anglo American considered that past volume forecasts submitted by Aurizon Network have generally been inappropriate and unreliable, materially ignoring the individual producer's saleable/railing forecast.⁶⁷⁶

The QCA acknowledges the recent volatility in seaborne coal market prices. As outlined by both RMI and Aurizon Network, fluctuations in China's domestic production have been a key contributor to price volatility. However, RMI forecasts that China's domestic production will stabilise over the forthcoming regulatory period—at levels that will continue being profitable for coal producers in the CQCN. Indeed, RMI considered that the improved market conditions provide an incentive for the reopening of a number of mines that had been placed on care and maintenance, and for the development of a small number of greenfield projects. The evidence and analysis provided to the QCA does not suggest that the volume forecasts provided by RMI need to be revised to account for potential market volatility in the UT5 regulatory period.

In March 2017, there was uncertainty as to whether Cook Colliery would continue to operate due to an underground flooding event. This uncertainty continued, with the mine owner Caledon entering into voluntary administration.⁶⁷⁷ Following the announcement by Caledon, Aurizon Network proposed no changes or amendments to its pricing proposal in subsequent

⁶⁷⁴ Aurizon Network, sub. 1: 122.

⁶⁷⁵ QRC, sub. 21: 52.

⁶⁷⁶ Anglo American, sub. 18: 7.

⁶⁷⁷ PPB Advisory 2017.

correspondence with the QCA. Aurizon Network stated that any volume adjustment should be addressed through the QCA's review of volumes.⁶⁷⁸

The QCA subsequently sought advice from RMI in September 2017 on whether to exclude railings from Cook Colliery from its forecast, due to the continued uncertainty associated with mine operations. Based on the information available at the time of this decision, the QCA considers it reasonable to not include Cook Colliery in volume forecasts for the UT5 regulatory period.⁶⁷⁹

The QCA has also reviewed Aurizon Network's proposed proportion of forecast railings undertaken by electric traction services for the UT5 regulatory period. Overall, the QCA considers Aurizon Network's proposed proportion of electric traction services to be a reasonable basis for forecasting electric traction services.

6.3.1 Recent market conditions for CQCN coal producers

Aurizon Network submitted that since 2010 the global coal market has been subject to a sustained decline in coal prices and significant volatility. Coal producers responded by driving productivity gains and increasing volumes to maintain lower unit costs. In recent years, record coal railings were achieved in the CQCN against a declining coal price.⁶⁸⁰

Despite the drive to lower unit costs, a number of mines were put into care and maintenance, others were divested and some entered voluntary administration.⁶⁸¹ Aurizon Network submitted that in this volatile market, demand uncertainty is an emerging trend for Aurizon Network's customers. This is seen in requests for shorter-term access agreements and short-term extensions to below-rail access rights.⁶⁸²

Underlining the market volatility, Aurizon Network noted that the global coal market experienced a rally in September 2016:

- The metallurgical coal spot price reached US\$311.50 per tonne in November 2016, increasing 317 per cent from a low in November 2015.
- The thermal coal spot price reached US\$114.80 per tonne in November 2016, increasing 130 per cent from a low in January 2016.⁶⁸³

Aurizon Network considered that the primary driver for this price surge was a reduction in China's domestic supply, due to the implementation of the 276-day working policy (from the previous limit of 330 days).⁶⁸⁴ RMI also reported the significant increases in coal prices, noting the impact of the Chinese Government placing most mines on a five-day rather than a seven-day roster and closure of a number of unviable mines. RMI agreed with Aurizon Network that fluctuations in China's domestic production have had the biggest impact on seaborne coal price volatility during this period.^{685, 686}

⁶⁷⁸ Aurizon Network 2017, response to QCA request for information, 31 May 2017.

⁶⁷⁹ The CQCN volume forecasts outlined in Table 44 do not include any railings from Cook Colliery.

⁶⁸⁰ Aurizon Network, sub. 1: 16–18.

⁶⁸¹ Aurizon Network, sub. 1: 18.

⁶⁸² Aurizon Network, sub. 1: 19–20.

⁶⁸³ Aurizon Network, sub. 1: 20.

⁶⁸⁴ Aurizon Network, sub. 1: 20.

⁶⁸⁵ Resource Management International 2017: 5, 12.

Additionally, Aurizon Network submitted that a colder winter forecast for China resulted in early restocking—with China steel mills and thermal power plants turning to the seaborne market to meet coal shortages, thus putting upward pressure on the spot price. Aurizon Network considered that the speed and scale of the metallurgical coal price escalation in 2016 has outpaced other rallies seen over the past 10 years.⁶⁸⁷

RMI reported that China appears to be supporting domestic coal producers by adjusting the operating regime, and closing high cost mines, to maintain domestic prices and minimum levels of profitability for a majority of its domestic coal producers. RMI considered that this will effectively provide a floor for the seaborne market and should reduce both price and seaborne demand volatility. RMI stated that such conditions will be very attractive to Queensland exporters who have lower cost of production and higher quality coals.⁶⁸⁸

6.3.2 Market outlook for CQCN coal producers

Aurizon Network's submission and RMI's analysis portrayed a positive market outlook for both:

- forecast growth in global demand for metallurgical and thermal coal
- the strong position of CQCN producers in the seaborne coal markets.

Aurizon Network submitted that it expects there will be an ongoing long-term demand for the output of the central Queensland coal market due to the quality of coal reserves, cost competitiveness, proximity to end markets and access to reliable world-class infrastructure.⁶⁸⁹

Metallurgical coal accounted for approximately 76 per cent of coal hauled across the CQCN in 2015–16. Aurizon Network noted that metallurgical coal has no viable alternative in the 'Basic Oxygen Furnace' (BOF) method of steelmaking, which represents 70 per cent of global steel production. As such, it is expected that metallurgical coal will be required for the majority of steel production for the longer term. Aurizon Network considered that a high level of steel consumption is expected to be driven by more consumer-intensive manufacturing and export. Many steel producing countries, including Japan and South Korea, will continue to rely on imports to meet their coal needs due to a lack of domestic reserves.⁶⁹⁰

Aurizon Network submitted that low cost and reliable export infrastructure and capacity to service increased demand continues to underpin Australia's position in the global seaborne metallurgical coal market. Australia has the lowest average transportation and port costs in comparison to other significant metallurgical coal exporting nations.^{691, 692}

Aurizon Network submitted that long-term demand is also expected for thermal coal, noting key export destinations of Japan, South Korea, India and China plan to continue using coal for power generation through the adoption of more efficient power generation technologies. Noting climate change as a key issue for thermal coal demand, Aurizon Network said that, on average,

⁶⁸⁶ Aurizon Network and RMI also noted that the Chinese Government subsequently made announcements relaxing some of the operating constraints on domestic coal production, which has resulted in changes to coal prices (Resource Management International 2017: 5; Aurizon Network, sub. 1: 20).

⁶⁸⁷ Aurizon Network, sub. 1: 20.

⁶⁸⁸ Resource Management International 2017: 12.

⁶⁸⁹ Aurizon Network, sub. 1: 20.

⁶⁹⁰ Aurizon Network, sub. 1: 20–21.

⁶⁹¹ Underpinned by Australia's established heavy-haul coal networks interconnected with a small number of large port terminals, which are in close proximity to the largest importers of metallurgical coal, India and China.

⁶⁹² Aurizon Network, sub. 1: 21.

Australia's thermal coal exports have a high energy content and relatively low ash content, which should underpin demand for thermal coal produced in the CQCN.⁶⁹³

RMI forecasts that seaborne coal demand is likely to grow steadily over the forecast period, with major customers in China, India, Vietnam, South East Asia and the Middle East looking for high quality coal to supply their power stations, cement factories and steel mills. RMI considered that the key drivers for the seaborne coal market are the developing economies of China, India and South East Asia, which are experiencing growth in the range of 5–7.5 per cent per annum.⁶⁹⁴

RMI reported that there are several new markets in these regions driving global growth in seaborne demand for coking coal, with these economies experiencing industrialisation and urbanisation at a pace and scale that are a key determinant for global coking coal demand. Furthermore, these markets have very little domestic coking coal supply and will have to rely on imported coal to meet their growing steel mill needs.⁶⁹⁵

RMI considered that thermal coal demand will be driven by construction of High Efficiency Low Emissions (HELE) thermal coal power stations. It is also expected that a further 45 million tonnes of seaborne supply will be required to replace falling exports from Indonesia as its domestic generation demand grows.⁶⁹⁶

RMI stated that China's diminishing oversupply and short-term strength in imports is providing an improving market and pricing environment for all seaborne coal exporters. In particular, this will provide a floor on seaborne coal prices as the Chinese Government adjusts its production base to maintain minimum levels of profitability for their domestic coal producers.⁶⁹⁷

In addition to forecasting seaborne coal demand to grow, RMI considered that CQCN producers are in a strong position to accept this demand. RMI noted that coal producers in the CQCN have competitive costs and high quality coal that is in demand in the seaborne coking and thermal coal markets. Furthermore, very little capital is required for central Queensland producers to meet growing demand over the regulatory period, as coal will be supplied mostly from existing mines and will utilise existing infrastructure capacity. This leaves the CQCN producers in a strong competitive position with regard to other countries over the forecast period.⁶⁹⁸

6.3.3 Primary reasons for differences between the QCA's and Aurizon Network's forecasts

As outlined above, RMI forecasts seaborne coal demand to grow steadily over the forecast period, with central Queensland coal producers in a strong position to meet this demand due to their lower cost and, importantly, higher quality coals they produce.

RMI considered Aurizon Network's volume forecasts to be overly conservative in the current coal price environment. In particular, Aurizon Network's forecasts underestimate the production from a number of mines that are either in the final stages of commissioning or are old mines that have been on care and maintenance but that will return to full production with new owners.⁶⁹⁹

⁶⁹³ Aurizon Network, sub. 1: 21–22.

⁶⁹⁴ Resource Management International 2017: 5, 9.

⁶⁹⁵ Resource Management International 2017: 14.

⁶⁹⁶ Resource Management International 2017: 15.

⁶⁹⁷ Resource Management International 2017: 6, 16.

⁶⁹⁸ Resource Management International 2017: 6, 20.

⁶⁹⁹ Resource Management International 2017: 6, 21.

The major differences between RMI's forecast and that of Aurizon Network is that RMI included mines that are likely to be coming back into production from care and maintenance, or are expanding operations, often with new owners.⁷⁰⁰ RMI provided the following examples:

- Blair Athol—recently sold to Terracom, is expected to come back into operation.
- Baralaba—traded out of Administration, is expected to come back into operation with new owners.
- Callide—recently sold to Batchfire Resources, is expected to increase production.
- Glencore—announced the restarting of Collinsville from care and maintenance.
- Carborough Downs—recently purchased by Fitzroy Resources, will remain in production.
- Foxleigh—now owned by Realm Resources, will remain in production.
- Jax—owned by QCoal, is expected to be restarted from care and maintenance.
- Grosvenor—operated by Anglo American, will continue production expansion.

RMI considered that the reopenings are well supported by operational restructuring, competitive production costs and growing demand for high quality Queensland coal over the forecast period. Furthermore, there is little risk for delays in the re-opening of a number of mines, given the current coal price environment. RMI considered that very little capital is required for these mines to reopen, and ramp-up will only depend on the ability to secure or renew markets for the product coal.

Additionally, RMI forecasts that a small number of greenfield projects will be developed during the forecast period, including the Byerwen Project, Meteor Downs and Dysart East. The largest of these will be the Byerwen Project operated by QCoal, which has approval for the initial stage 1 development and will continue to ramp up to full capacity around FY2022. RMI expects the two smaller projects, Meteor Downs and Dysart East, to commence production during the forecast period.⁷⁰¹

Relevantly, the QCA notes RMI's view that there is adequate capacity within existing mine, rail and port infrastructure to accommodate the railings forecast to FY2021.⁷⁰²

⁷⁰⁰ These mines include Baralaba Coal, Blair Athol, Callide, Collinsville Coal, Carborough Downs, Foxleigh, Grosvenor and Jax.

⁷⁰¹ Resource Management International 2017: 6, 21–22.

⁷⁰² Resource Management International 2017: 21.

7 OPERATING COST ALLOWANCE

7.1 Aurizon Network's 2017 DAU proposal

Aurizon Network's proposed allowable revenues and reference tariffs are based on an operating expenditure allowance for the 2017 DAU period of \$855 million (in nominal terms). Table 45 presents Aurizon Network's proposed operating expenditure allowance for the UT5 period.

Table 45 Aurizon Network's 2017 DAU proposed operating expenditure (\$m)

<i>Category (\$m)</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
System-wide and regional costs	69.37	71.33	73.95	75.27	289.91
Corporate overheads	49.08	50.46	51.58	52.65	203.77
Risk and insurance	9.04	9.23	9.41	9.61	37.29
Transmission and connection costs	78.69	80.31	81.87	83.45	324.32
Total	206.18	211.34	216.81	220.98	855.31

Source: Aurizon Network, sub. 1: 198–99.

Totals may not add due to rounding.

In addition, Aurizon Network's 2017 DAU includes reference tariffs for the Blackwater and Goonyella Systems to recover electric traction energy charges (EC reference tariff component). These costs are subject to an *ex post* reconciliation under Schedule F of the 2017 DAU which adjusts reference tariffs for any difference between forecast and actual electric energy costs. Aurizon Network's proposed electric traction energy charges are set out in Table 46.

Table 46 Aurizon Network proposed electric traction energy costs (\$m)

	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Electric traction energy costs (\$m)	52.77	54.89	55.56	56.24	219.46

Source: Aurizon Network sub. 1: 243.

7.2 Key issues identified during the QCA's investigation

The QCA has considered all elements of Aurizon Network's 2017 DAU proposed operating expenditure allowance in making this draft decision. The following issues attracted comment from stakeholders, or were identified for further consideration:

- determining the appropriate base year to assess operating expenditure allowances for system-wide and regional costs (section 7.5.2) and corporate overheads (section 7.6.2)
- allocation of efficient Aurizon Group shared costs (corporate overheads) to Aurizon Network (section 7.6.3)
- allocation of efficient costs to below-rail services, as well as between coal-carrying and non-coal-carrying train services, for system-wide and regional costs (section 7.5.3) and corporate overheads (section 7.6.3)
- escalation of allowances (section 7.10) and prudent step changes to base year allowances for system-wide and regional costs (section 7.5.4) and corporate overheads (section 7.6.4)

- efficient allowances for insurance costs and retained risks (section 7.7)
- reasonableness of proposed electricity transmission and connection costs (section 7.8) and electric traction energy costs (section 7.9).

7.3 Overview of the QCA's draft decision

Summary of draft decision 7.1

- **The QCA considers the appropriate way for Aurizon Network to amend its 2017 DAU is to revise its proposed allowable revenues and reference tariffs to reflect the operating expenditure allowances set out in Table 47, Table 48 and Table 49.**

The QCA has assessed each element of Aurizon Network's proposed operating expenditure allowance in making this draft decision.

We consider Aurizon Network's proposed operating expenditure allowance is higher than reasonably required to provide below-rail services to coal-carrying trains during the UT5 undertaking period. In our view, this does not appropriately balance Aurizon Network's legitimate business interests, the public interest, and the interests of relevant stakeholders. In addition, such an outcome would not promote the economically efficient operation, use of and investment in infrastructure underpinning the service.

Table 47 sets out the QCA's draft decision allowances for each category of operating expenditure; Table 48 sets out the QCA's draft decision on electric traction energy costs; and Table 49 sets out our draft decision allowances after allocation to each coal system (excluding electric traction energy costs).

Table 47 QCA draft decision on Aurizon Network's UT5 operating expenditure (\$m)

<i>Operating costs</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
System-wide and regional costs	58.49	60.34	62.67	65.05	246.57
Corporate overheads	40.32	41.21	42.29	43.45	167.28
Risk and insurance	8.00	8.22	8.42	8.59	33.22
Transmission and connection	72.47	73.83	74.84	74.84	295.98
Total	179.28	183.61	188.22	191.93	743.04

Totals may not add due to rounding.

Table 48 QCA draft decision on Aurizon Network's electric traction energy costs and reference tariff components

	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Electric traction energy costs (\$m)	70.13	71.79	73.50	75.24	290.66
QCA forecast egtk ('000's)	68,284,683	68,863,759	69,189,894	69,206,062	275,544,398
Indicative EC component	\$1.027	\$1.043	\$1.062	\$1.087	-

Table 49 QCA draft decision on total UT5 operating expenditure by system (\$)

<i>System</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Blackwater					
Non-electric	42,226,098	42,321,182	43,457,416	44,270,807	172,275,503
Electric	36,761,554	37,372,172	37,948,446	37,953,099	150,035,270
Goonyella					
Non-electric	46,932,727	47,532,540	47,939,065	48,728,597	191,132,929
Electric	36,140,658	36,909,043	37,347,564	37,353,762	147,751,027
Moura	4,040,897	4,827,419	5,068,673	5,154,847	19,091,835
Newlands	2,739,376	3,198,134	3,219,092	3,273,820	12,430,422
GAPE	10,441,065	11,436,829	13,210,484	15,162,667	50,251,045
WIRP NCL	0	12,601	31,461	31,996	76,059
Total	179,282,374	183,609,919	188,222,201	191,929,595	743,044,090

Totals may not add due to rounding.

The QCA's draft decision reflects the net result of various adjustments to Aurizon Network's proposed operating expenditure, including:

- adopting 2015–16 as the forecasting base year, rather than 2014–15 (section 7.5.2)
- decreasing the below-rail allocation of Network Finance costs (section 7.5.3)
- increasing the allocation of costs to non-coal-carrying train services for 'Network Train Operations' (section 7.5.3)
- reducing proposed corporate overheads for corporate accommodation and shared IT services (section 7.6.3)
- using updated electricity transmission and connection cost forecasts (section 7.8) as well as electric traction energy forecasts (section 7.9)
- reducing proposed commercial insurance and self-insurance costs (section 7.7)
- substituting Aurizon Network's wage price index (WPI) and consumer price index (CPI) inflation forecasts with alternative estimates (section 7.10).

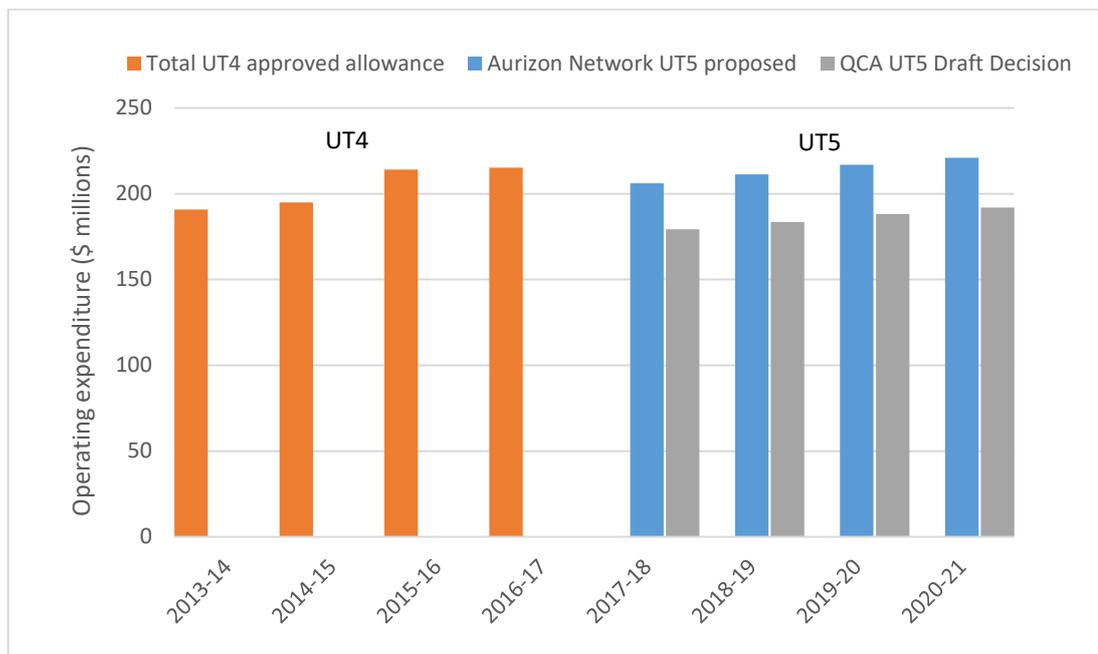
The QCA's draft decision results in a total operating cost allowance of \$743 million (excluding electric traction energy costs) for the UT5 period, which is 13 per cent less than Aurizon Network's proposal of \$855 million. In aggregate, the QCA considers this is a material difference and therefore concludes that Aurizon Network's proposal allowance is not appropriate to approve.

The QCA's draft decision appropriately balances Aurizon Network's interests, the public interest, and the interests of relevant stakeholders. In addition, this advances the objective of Part 5 of the Act and provides incentives for Aurizon Network and relevant stakeholders to reduce costs or otherwise improve productivity. We consider it appropriate to make this draft decision

having regard to the matters set out in s. 138(2) of the QCA Act and for the reasons contained in our analysis.

Figure 15 sets out the QCA's draft decision on Aurizon Network's operating expenditure allowance for the UT5 period, compared with Aurizon Network's 2017 DAU proposal, and allowances approved in the 2016 Undertaking.

Figure 15 Aurizon Network's approved UT4 operating expenditure compared with UT5 proposal and QCA draft decision (\$m)



The remaining sections of this chapter discuss Aurizon Network's operating expenditure proposal and present the QCA's analysis and assessments.

7.4 Overview of Aurizon Network's approach

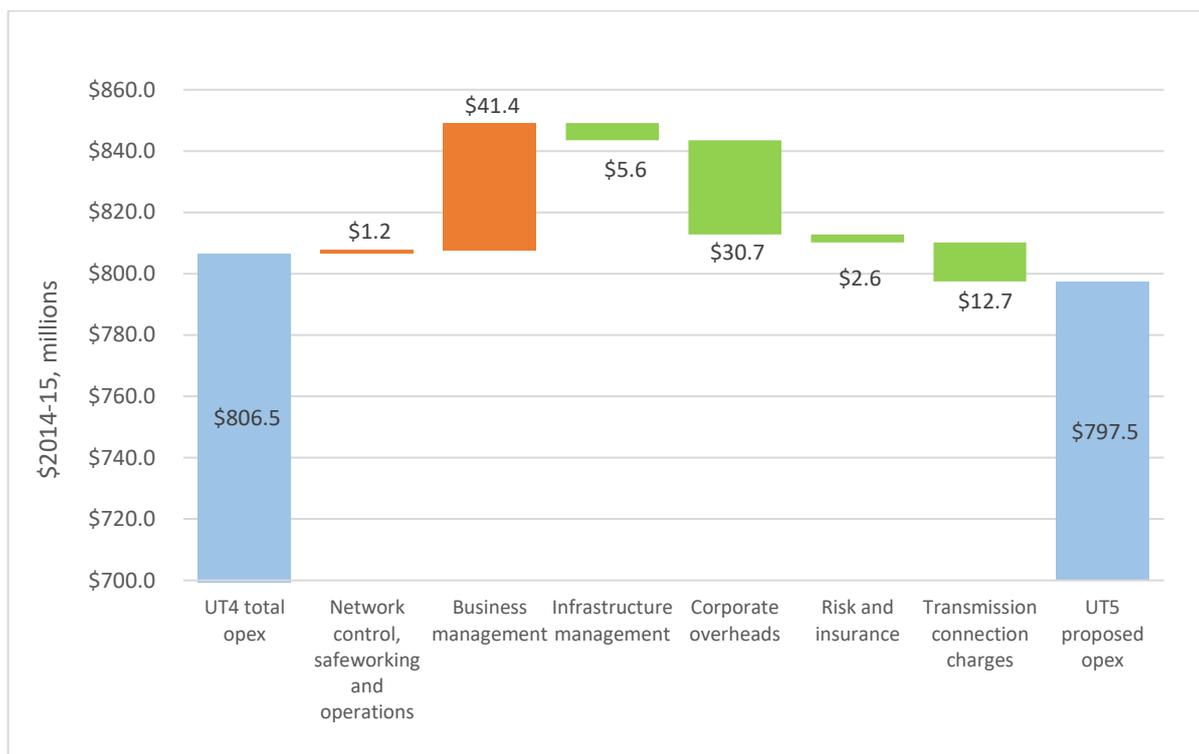
Aurizon Network said that its operating expenditure proposal for the UT5 period was consistent with the methodologies and cost base approved by the QCA in the 2016 Undertaking as approved in October 2016.⁷⁰³ Aurizon Network said that due to the timing of the submission, it has developed its operating cost proposal using actual costs incurred in 2014–15, as the starting point.⁷⁰⁴

Figure 16 illustrates the drivers of change between Aurizon Network's approved UT4 allowance and its proposed UT5 allowance.

⁷⁰³ Aurizon Network, sub. 1: 196.

⁷⁰⁴ The QCA sought information from Aurizon Network on its 2015–16 operating costs, which has been considered. However, unless otherwise stated, references to Aurizon Network's proposed operating expenditure refer to those costs initially submitted with the 2017 DAU in November 2016, which are derived using 2014–15 as the cost base year.

Figure 16 Aurizon Network's proposed UT5 operating expenditure—real change in costs (\$2014–15 million)



Source: Aurizon Network, sub. 1: 197.

Aurizon Network attributed the change in forecast operating expenditure to the overall impact of the following:

- an increase in direct costs—due to reallocation of Network Finance and Network Legal costs from corporate overheads to direct Business Management costs
- a decrease in corporate overheads—due to reallocation of Network Finance and Network Legal functions to direct costs
- a decrease in external costs—due to optimisation of the number of connection points within the electrified network
- inflation—escalation of real costs in line with the QCA approved application to the relevant categories of operating expenditure.

Aurizon Network stated that it has also realised productivity improvements and cost efficiencies which have been included in its operating expenditure proposal, including:

- reductions in labour costs
- consolidation of management positions
- implementation of network control systems for more efficient traffic management
- minimising professional consultancy and external services expenditures.⁷⁰⁵

Aurizon Network said that these initiatives have enabled an annual cost reduction of \$2.2 million in real terms relative to the proposed efficient base year (2014–15).

⁷⁰⁵ Aurizon Network, sub. 1: 194.

Stakeholder submissions

Stakeholders raised a number of issues regarding Aurizon Network's proposed operating expenditure, which the QCA has considered in its draft decision. Broadly, stakeholders expressed general concerns with:

- proposed increases in costs compared with UT4⁷⁰⁶
- the efficiency of proposed costs and the need for benchmarking⁷⁰⁷
- the allocation of costs⁷⁰⁸
- a perceived lack of detail provided in Aurizon Network's submission.⁷⁰⁹

The QCA's approach to assessment

The QCA's role is to assess the operating expenditure allowance proposed by Aurizon Network in providing below-rail services to coal-carrying trains when considering the reference tariffs and allowable revenues in the 2017 DAU, having regard to the factors in s. 138(2) of the QCA Act.

In reaching its draft decision, the QCA has considered the legislative framework, the efficient level of expenditure (including the allocation of costs to reference tariffs for coal-carrying train services) and the efficient allocation of shared costs to the Aurizon Network business, among other matters.

Aurizon Network has submitted that its operating expenditure proposal for the UT5 period is consistent with the methodologies and cost base approved by the QCA in the 2016 Undertaking, as approved in October 2016. While we note that the proposal is largely consistent with the approved UT4 arrangements, we have reviewed all aspects of Aurizon Network's UT5 operating expenditure proposal afresh, based on the information available to us at this time.

The QCA has not developed detailed bottom-up estimates of efficient operating costs on a category- or program-specific basis. While we have undertaken a detailed review of certain aspects of Aurizon Network's proposed operating costs to test their reasonableness, we are ultimately guided by whether the overall level of expenditure is reasonable. In making this assessment, we have considered whether the proposed expenditure allowance is sufficient for Aurizon Network to recover at least its efficient costs of providing the declared service, while balancing the legitimate business interests of Aurizon Network, and the interests of its customers and the general public. In doing so, our approach (illustrated in Figure 17) involves:

- (1) Review Aurizon Network's proposed expenditure, considering forecasting methods, base year efficiency, cost allocation, step changes and rates of escalation.
- (2) Develop alternative estimates of reasonable expenditure, based on the findings of the review.
- (3) Assess Aurizon Network's proposed expenditure against the QCA alternative estimate, in aggregate:
 - (a) If the difference is not material, approve the proposed allowance.

⁷⁰⁶ Anglo American, sub. 18: 11–13; Fitzroy, sub. 22: 2; QRC, sub. 21: 46, 48–49.

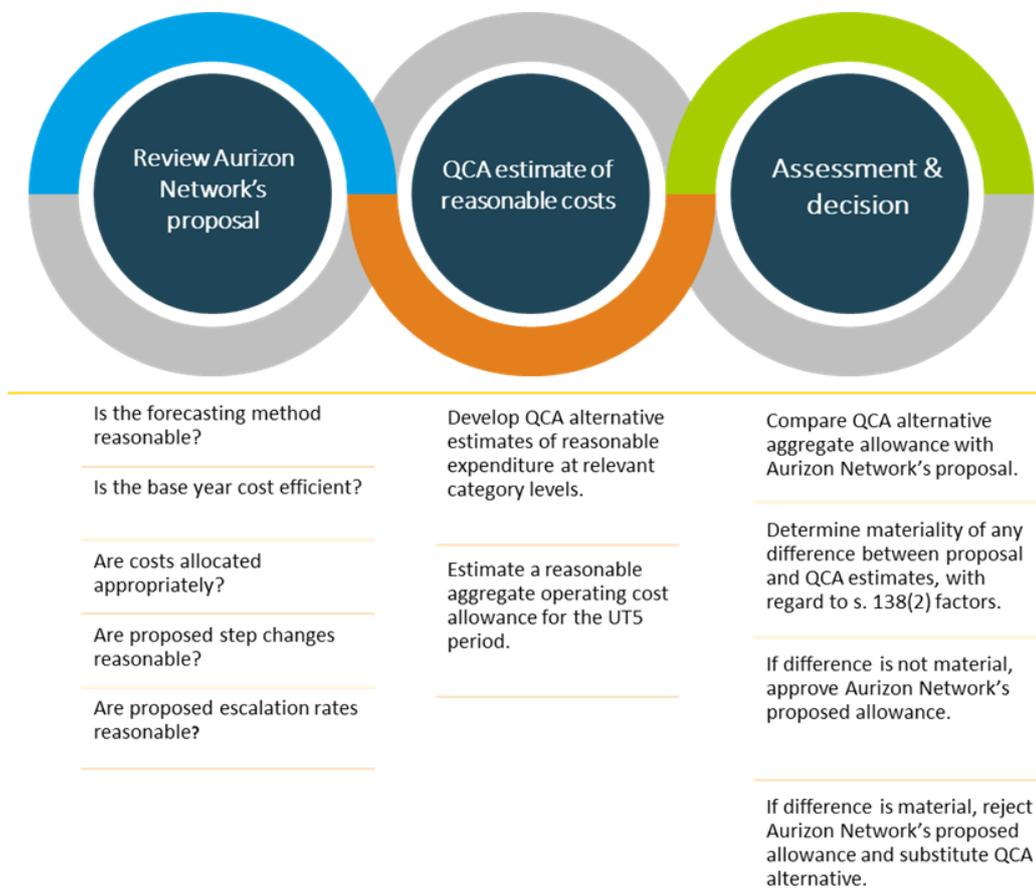
⁷⁰⁷ Anglo American, sub. 18: 11–12; QRC, sub. 21: 46–50.

⁷⁰⁸ Anglo American, sub. 18: 11–13; Pacific National, sub. 19: 6; QRC, sub. 21: 47, 48.

⁷⁰⁹ Anglo American, sub. 18: 11–12; QCoal, sub. 16: 8; QRC, sub. 21: 46.

- (b) If the difference is material, reject the proposed allowance and substitute it with the QCA's alternative estimate.

Figure 17 QCA's operating expenditure assessment approach



Aurizon Network has used a base-step-trend approach to develop the key components of its UT5 operating cost forecast. In the QCA's view, this method should be used to establish a reasonable operating expenditure allowance within which Aurizon Network can prudently and efficiently operate its business for the duration of a regulatory period. The approach involves determining a reasonable base year level of costs, applying escalations, incorporating material step changes in efficient costs, and recognising expected productivity improvements.

In the QCA's view, forecasting expenditures using the base-step-trend approach should not be an exercise in identification and recovery of actual incremental business-as-usual costs and savings, or a supplementary cost pass-through mechanism.

That said, while we have considered the need for Aurizon Network's proposed step changes, we have not applied a rigid materiality test in this review. This recognises that Aurizon Network's base-step-trend method is only recently established, and efficient costs are continuing to be revealed.

In future assessments, the QCA will place greater emphasis on the drivers of proposed step changes and the materiality of associated incremental costs. Specifically, we are minded to limit our consideration of step changes to material changes in:

- costs that are driven by circumstances beyond the control of Aurizon Network, such as new or incremental binding regulatory obligations, and

- costs that could not be reasonably funded by an efficient and prudent business operating within business-as-usual budget constraints, through prudent prioritisation of expenditure.

Allocation of costs

When considering the allocation of costs, in addition to having regard to s. 138(2)(b) of the QCA Act, we have also had regard to ss. 137(1A)(b) and 168A(c). Section 137(1A)(b) applies to Aurizon Network as a 'related access provider', namely an access provider that not only owns or operates the declared service, but also provides, or proposes to provide, access to the service to itself or a related body corporate. Section 137(1A)(b) requires that Aurizon Network's access undertaking must include provisions for preventing Aurizon Network from recovering, through the price of access to the service, costs that are not reasonably attributable to the provision of the service.

This is important for two reasons. Firstly, Aurizon Network provides some services, and undertakes some activities, that are not reasonably attributable to providing access to below-rail services. As a general principle, costs associated with these activities should not be recovered through below-rail access charges.

Secondly, Aurizon Network provides access to the CQCN for non-coal-carrying train services. Access for non-coal traffic is still provided subject to Aurizon Network's access undertaking. Some of the efficient costs of providing access to the CQCN should be allocated to non-coal-carrying train services, and therefore should not be recovered through access charges for coal-carrying train services.

Figure 18 illustrates the separation of Aurizon Network's costs for the purposes of establishing reference tariffs and allowable revenues for coal-carrying trains.

Figure 18 Allocation of operating costs to Aurizon Network's allowable revenues



In taking this approach to allocating costs, reference tariffs and allowable revenues should include the efficient costs of providing access to below-rail services for coal-carrying trains.

Efficient costs

Sections 69E and 138(2)(a) of the QCA Act require that we have regard to the object of Part 5 of the QCA Act, namely to promote the economically efficient operation, use of and investment in the CQCN, as the significant infrastructure by which the declared service is provided.

Sections 138(2)(g) and 168A(a) require that we have regard to certain pricing principles, including that the price for access to the declared service should generate expected revenue for the service that is at least enough to meet the efficient cost of providing access to the service and include a return on investment commensurate with regulatory and commercial risks involved.

In broad terms, we consider, pursuant to s. 138(2)(b) of the QCA Act, that the legitimate business interests of Aurizon Network in relation to operating expenditure allowances will be advanced if it is permitted to recover at least the efficient costs of operating and managing the CQCN.

We also consider that the public interest, and the interests of access seekers and access holders, are advanced by ensuring that Aurizon Network is allowed to earn sufficient revenue to provide the services demanded by customers, to the standard and quality required by customers, and to charge prices that reflect the efficient costs of doing so.

Aurizon's Network's transformation program

Aurizon Group has embarked on a program of transformation that has delivered operating cost savings to the Aurizon Group, including the Aurizon Network business. Aurizon Network said that the focus of the transformation program has been to improve workforce productivity and reduce discretionary spending.⁷¹⁰

Aurizon Network said that savings of \$57 million in Aurizon Group corporate costs from transformational activities were achieved during the FY2014 and FY2015 years, driven by reduced labour and professional service costs, rationalisation of property, and improved procurement practices.⁷¹¹

Aurizon Network noted that it expects further savings of \$60–\$80 million in corporate areas between FY2016 and FY2018, driven by restructures within shared support functions, as well as consolidation and rationalisation of real estate.⁷¹² However, not all savings realised at the Aurizon Group level will directly flow to the Aurizon Network business.

The QCA understands that further cost saving measures and structural changes are to be implemented during the UT5 undertaking period, including:

- transitioning to a new organisational structure, effective from 1 July 2017⁷¹³
- exiting from the intermodal business, to be completed by June 2018.⁷¹⁴

⁷¹⁰ Aurizon Network, sub. 1: 207.

⁷¹¹ Aurizon Network, sub. 1: 220.

⁷¹² Aurizon Network, sub. 1: 221.

⁷¹³ Aurizon Network 2017d: 3.

⁷¹⁴ Aurizon Network 2017a.

These changes will likely have an impact on overall costs and staff numbers for the Aurizon Group, resulting in changes to allocated corporate overheads and the efficient level of operating expenditure. However, the impact of these changes is unknown at this point and the QCA has undertaken its review assuming the structure of the business at the time of Aurizon Network's 2017 DAU submission. Nonetheless, the QCA has considered expected transformation savings in our assessment of an efficient operating expenditure allowance, where this has been possible (section 7.6.4).

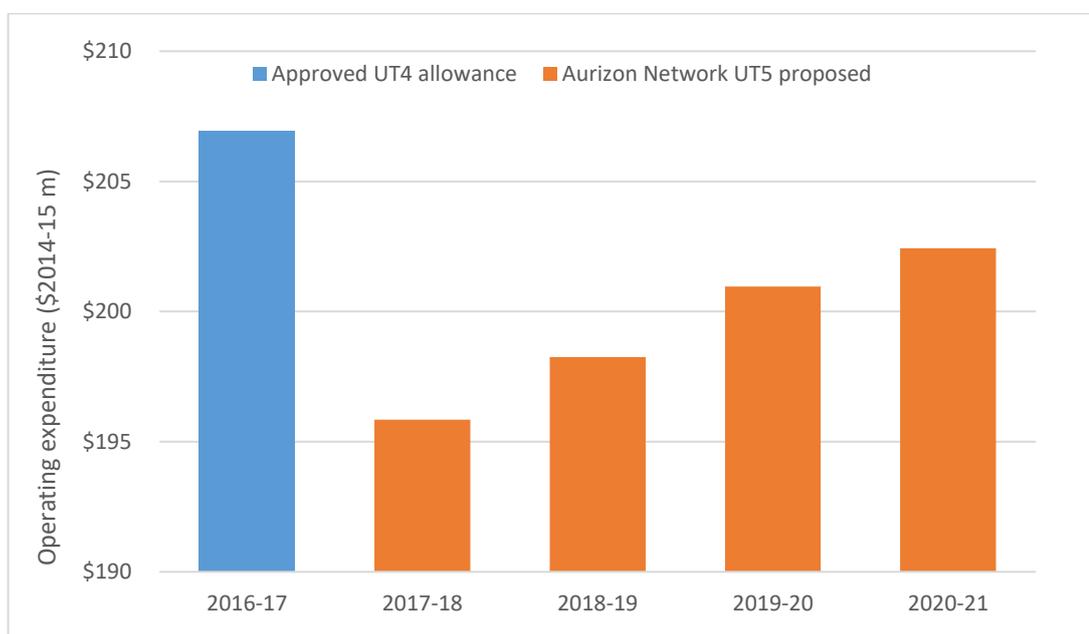
Benchmarking

Some stakeholders called for the QCA to consider benchmarking when assessing Aurizon Network's proposed operating costs.⁷¹⁵

The QCA has considered relevant comparator benchmarks, where relevant, to inform its assessment of some elements of Aurizon Network's operating expenditure proposal. However, benchmarking of operating costs for an entity like Aurizon Network has limitations. In any case, the QCA considers that the efficiencies realised by the Aurizon Group and Aurizon Network in recent years—and the ongoing program of transformation—demonstrate that the business is actively seeking to improve efficiency and productivity.

As illustrated in Figure 19, the proposed operating costs in each year of the UT5 period are lower (in both real and nominal terms) than the approved allowances in the final year of the UT4 period. Aurizon Network's total proposed operating cost allowance⁷¹⁶ for the UT5 period is also lower in real terms than the approved total UT4 allowance.

Figure 19 Aurizon Network's proposed UT5 operating expenditure and its UT4 allowed operating expenditure (\$2014–15 m)



Consultant review

To assist in its assessment, the QCA engaged AECOM Australia Pty Ltd (AECOM) to review Aurizon Network's proposed system-wide and regional costs and corporate overhead

⁷¹⁵ Anglo American, sub. 18: 11–12; QRC, sub. 21: 47, 49.

⁷¹⁶ Total operating expenditure excluding electric traction energy costs, which are passed through at cost.

expenditure forecasts and models.⁷¹⁷ AECOM's review was informed by extensive information requests issued to Aurizon Network, as well as in-person interviews with key Aurizon staff. The QCA has had regard to AECOM's analysis and recommendations in making its draft decision. AECOM's report is available on the QCA's website.⁷¹⁸

The QCA notes that some stakeholders considered that Aurizon Network's submission did not contain enough information for them to form views on the proposed expenditure.

During the course of the investigation, further information was requested from, and supplied by, Aurizon Network. This significant additional information has informed our assessment.⁷¹⁹ While this information is not in all cases directly referred to in our analysis, we have considered it in making our draft decision.⁷²⁰

7.5 System-wide and regional costs

Aurizon Network's proposal

System-wide and regional costs account for around 55 per cent of Aurizon Network's proposed total operating expenditure over the UT5 period.⁷²¹ Aurizon Network said that these costs relate to three primary functions:

- Network Control, Safe Working and Operations—controlling the movement of trains, light engines and track machines, and the safe working of these vehicles as they traverse the rail infrastructure
- Infrastructure Management—managing the performance of assets required to deliver the declared service, including the safety, reliability and availability of the rail infrastructure
- Business Management—performing the commercial, regulatory, financial and legal tasks required to operate a regulated below-rail business.⁷²²

Aurizon Network has proposed system-wide and regional operating costs (excluding corporate overheads and external costs) of \$69.4 million in 2017–18, increasing to \$75.3 million in 2020–21. The total proposed allowance over the UT5 period is \$289.9 million, which Aurizon Network said is 23 per cent higher than the UT4 allowance, in nominal terms.

Table 50 presents a breakdown of Aurizon Network's proposed system-wide and regional operating costs by category for the UT5 period.

⁷¹⁷ Costs associated with risk and insurance, and transmission costs have been assessed internally by the QCA.

⁷¹⁸ Values and recommended adjustments identified in AECOM's report are expressed in real 2015–16 dollar terms. The QCA's conclusions in this chapter are expressed in nominal terms using our draft decision estimates of CPI and WPI inflation, unless otherwise stated.

⁷¹⁹ A list of requests for information issued to Aurizon Network is included in AECOM 2017b, Appendix A.

⁷²⁰ Aurizon Network has claimed confidentiality over much of this material.

⁷²¹ Excluding electricity transmission connection costs and electric traction energy costs.

⁷²² For more information on the roles and responsibilities of these functional areas, see Aurizon Network sub. 1: 339–344.

Table 50 Aurizon Network proposed system-wide and regional costs (\$m)

<i>Category</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>UT5 total</i>
Network Control, Safe Working and Operations	29.70	30.63	31.54	32.42	124.28
Infrastructure Management	18.29	18.74	19.19	19.66	75.88
Business Management	21.38	21.96	23.22	23.19	89.75
Total	69.37	71.33	73.95	75.27	289.91

Source: Aurizon Network, sub. 1: 218; Aurizon Network operating cost models.

Totals may not add due to rounding.

Each of the three primary expenditure categories comprise of one or more activities or 'cost centres'. For example, the Business Management category includes five commercial-related cost centres, as well as the Network Finance and Network Legal cost centres. In total, 28 cost centres are represented in the system-wide and regional operating cost forecast.

For some cost centres, Aurizon Network allocated less than 100 per cent of the identified costs to allowable revenues. This allocation reflects that some cost centres capture functions that either do not relate to the provision of below-rail services, or relate to below-rail services provided to non-coal-carrying train traffic.⁷²³

Aurizon Network has proposed some changes in the area of system-wide and regional costs that depart from the approaches approved by the QCA for the UT4 period. Specifically:

- Network Finance and Network Legal costs have been categorised as direct costs within the Business Management category, rather than corporate overheads (allocated to below-rail services at 100 per cent and 90 per cent respectively).
- Two per cent of costs relating to the Network Train Operations cost centre are deducted to reflect non-coal traffic (and are not included in reference tariffs and allowable revenues for coal-carrying train services), relative to a 9 per cent deduction applying in UT4.
- Step increases in expenditures are proposed for 'Network Train Operations' cost centre, for network control training and the implementation of the new 'Advanced Planning and Execution' (APEX) system.
- Fifty per cent of costs relating to the 'Major Projects' function have been included in the forecast allowance. These costs were not included in the UT4 expenditure forecasts.
- One hundred per cent of costs relating to the 'Network Regulation' cost centre have been allocated to the below-rail services, compared with a 90 per cent allocation applying in UT4.

QCA analysis and assessment

When assessing Aurizon Network's proposed system-wide and regional operating costs, we have had regard to the factors set out in s. 138(2) of the QCA Act and have given them appropriate weight in making our assessment.

While the QCA accepts the majority of Aurizon Network's proposed system-wide and regional operating costs for the UT5 period, we do not consider all elements of its proposal to be reasonable, having regard to the factors in s. 138(2) of the QCA Act.

⁷²³ In Aurizon Network's forecast model, these allocation rates were applied to the base year expenditure prior to base year adjustments, step changes and real cost escalation.

Our analysis and assessment of these matters are discussed further below.

7.5.1 Forecasting method

Aurizon Network's proposal

Aurizon Network has used a base-step-trend forecasting approach to estimate both its system-wide and regional operating costs, and corporate overheads. Aurizon Network's forecasting approach involves the following general process:

- Select a base year actual cost (Aurizon Network proposed to use 2014–15).
- Identify the actual costs incurred in the base year and remove costs not attributable to the declared service.
- Remove one-off and non-recurrent items from the base year actual costs.
- Further assess the base year expenditure to ensure it reflects efficient costs.
- Apply real cost escalations (e.g. wage and price inflation) and step changes to estimate expenditure for each year of the UT5 undertaking period.
- Apply step changes in costs where necessary.

This approach is applied to each of the identified cost centres.

QCA analysis and assessment

The base-step-trend forecasting approach relies on establishing an efficient level of baseline annual expenditure, which is then adjusted for known step changes in efficient costs over the regulatory period and changes in the general level of costs over time (trends).

Base-step-trend forecasting is generally less complex than other forecasting methods. However, to produce reliable forecasts of efficient costs, it relies on an efficient and representative base year cost, as any inefficiencies or inaccuracies in the base year cost will be carried through to regulatory allowances for the term of the forecast regulatory period.

A common alternative to base-step-trend forecasting is a 'bottom-up' method. This involves deriving the estimated cost of providing the regulated service using forecasts of outputs produced, inputs required and the costs of those inputs. Hybrid forecasting approaches may also be used, which take on characteristics of both bottom-up and base-step-trend methods.

The QCA considers Aurizon Network's base-step-trend forecasting method is a reasonable basis for developing operating expenditure forecasts and is supported by regulatory precedent. We consider Aurizon Network's application of this approach below.

7.5.2 Choice of base year

Using a base-step-trend forecasting methodology requires an efficient base level of expenditure to be established. The starting point for this exercise is to select a recent year of expenditure that represents a reasonable estimate of future efficient expenditure. The base year costs may be derived from an entity's actual historical costs, an efficient bottom-up estimate, an approved regulatory allowance or other cost benchmark, or some combination of these.

Once a representative year of costs is selected, the costs should be examined to ensure they are a reasonable reflection of efficient recurrent costs. One-off and non-recurrent costs should be removed from the base cost and adjustments made for identified efficiencies.

Aurizon Network's proposal

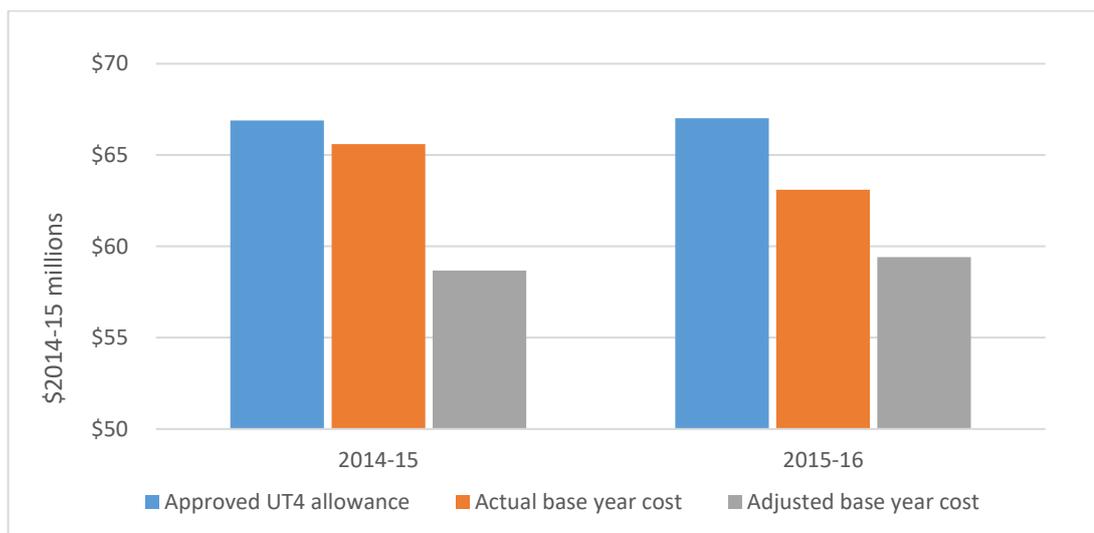
Aurizon Network proposed to use 2014–15 actual costs as baseline expenditures for its UT5 system-wide and regional operating expenditure forecast. The QCA understands 2014–15 was selected, as full-year cost data for the most recent complete year (2015–16) was not available when Aurizon Network was preparing its 2017 DAU submission.

Aurizon Network applied a number of adjustments to its 2014–15 actual costs to reflect efficiencies and non-recurrent costs. These adjustments primarily relate to labour cost savings due to restructures, non-recurrent non-labour costs and transfers of costs to other categories (corporate overheads and maintenance costs).

During the QCA's investigation, full-year actual cost information for 2015–16 became available. The QCA subsequently requested updated operating expenditure forecasts from Aurizon Network, using actual 2015–16 costs as the base year.

Figure 20 sets out Aurizon Network's 2014–15 and 2015–16 actual costs, and adjusted base year costs, compared with the corresponding approved UT4 allowances. To allow a like-for-like comparison, the UT4 approved allowances have been restated to include costs of the Network Finance and Network Legal functions, which were captured in the corporate overhead allowance in UT4 and are within the system-wide and regional cost forecast for UT5.

Figure 20 Aurizon Network's actual and adjusted base year system-wide and regional costs (\$2014–15 m)



Based on Aurizon Network's proposed allocation rates.

Source: Aurizon Network operating cost models; QCA analysis.

Aurizon Network's 2015–16 operating cost model included an adjustment to each cost centre representing the difference between employee cash bonuses paid in 2015–16 and 2014–15. Aurizon Network said this adjustment was made because the level of bonuses paid during 2015–16 was abnormally low. In total, the proposed adjustment to the 2015–16 base year cost is around \$2 million. This matter is discussed below.

QCA analysis and assessment

Some stakeholders did not accept the use of Aurizon Network's actual historical costs as the basis for UT5 expenditure forecasts. The QRC disagreed with Aurizon Network's view that the QCA should focus on the submitted operating cost forecasts rather than the results of benchmarking exercises. The QRC noted Aurizon Network has an incentive to overstate costs

and considered that greater emphasis should be placed on benchmarking to establish efficient allowances.⁷²⁴

Anglo American said efficient costs should be those required to meet Aurizon Network's access obligations and not those arbitrarily escalated from UT4 costs.⁷²⁵

Aurizon Network has underspent against its approved UT4 operating cost allowance in recent years and realised cost savings, which is reflected in its proposed actual base year costs. We note that Aurizon Network has further adjusted its actual base year costs to remove non-recurrent costs and incorporated ongoing labour cost efficiencies. Aurizon Network's adjusted base year system-wide and regional costs are lower than the QCA approved UT4 allowances, when adjusted to include Network Legal and Network Finance costs that were previously treated as corporate overheads.

The QCA considers that the efficiencies realised by the Aurizon Group and Aurizon Network in recent years—and the ongoing program of transformation—demonstrate that the business is improving efficiency and productivity. The QCA is encouraged by Aurizon Group's recent efficiency gains, and considers this indicative of an organisation moving closer to the efficient frontier.

For these reasons, and in the absence of any evidence to indicate that Aurizon Network's adjusted base year costs are inefficient or materially overstated, the QCA considers them a reasonable basis for developing the system-wide and regional operating cost forecast. Nonetheless, where Aurizon Network proposes to adopt actual historical costs as baseline operating costs for future undertaking periods, the QCA is minded to require that those expenditures be independently audited prior to submission to the QCA.

In general, if using actual historical costs as baseline costs, the QCA considers it appropriate to use the most recent data available. Accordingly, the QCA will use Aurizon Network's actual 2015–16 system-wide and regional costs for developing forecasts for the UT5 period, once adjusted for non-recurrent costs and identified efficiencies.⁷²⁶ AECOM also recommended that 2015–16 costs be adopted as the base year expenditures for both system-wide and regional costs, and corporate overheads.

Nonetheless, we do not accept Aurizon Network's proposal to adjust the 2015–16 base year cost to include 2014–15 cash bonus costs. A review of Aurizon Network's recent bonus expenses reveals that costs incurred in 2014–15 were around 60 per cent higher than those incurred in 2013–14, and around 110 per cent higher than those in 2015–16.⁷²⁷ In our view, cash bonus costs incurred in 2014–15 were anomalous.

The QCA is not convinced that 2014–15 cash bonus costs are a better estimate of a reasonable level of these costs over the UT5 period. As such, we have excluded Aurizon Network's proposed adjustment and retained cash bonus amounts at the level revealed in the 2015–16 base year costs.

⁷²⁴ QRC, sub. 21: 47.

⁷²⁵ Anglo American, sub. 18: 11.

⁷²⁶ This decision has implications for a number of Aurizon Network's proposed step-changes and base-year adjustments for non-recurrent costs, which are discussed in the relevant sections below.

⁷²⁷ Based on total bonus costs, before allocation.

7.5.3 Allocation of costs

In assessing whether the proposed system-wide and regional costs are efficient, the QCA has had regard to the extent to which the proposed costs would be reasonably required in providing below-rail services on the CQCN.

In addition to providing access to the CQCN below-rail service, Aurizon Network also provides services that do not directly relate to this function and should not be recovered through reference tariffs for coal-carrying trains. Examples of these services include:

- rail infrastructure management and train control services for rail spurs
- land leases to customers of corridor land and land owned by Aurizon Network
- design, scope and standard reviews of connecting infrastructure
- rail relocation and related construction and maintenance services (for private spurs and loops)
- transfer facilities licences regarding load-out interface requirements, load profiling, dust veneering and other matters Aurizon Network has sole authority over.⁷²⁸

Furthermore, Aurizon Network provides below-rail services to both coal-carrying and non-coal-carrying train services (including regional passenger services, general freight, grain and livestock haulage, among other services). However, the allowable revenues and reference tariffs are specified only for coal-carrying train services in the 2017 DAU.

Aurizon Network's proposal

Aurizon Network's proposed system-wide and regional cost forecasts are derived using allocations of Aurizon Network's total direct costs, as set out in Table 51.

These allocations reflect Aurizon Network's views on the proportion of total Aurizon Network direct costs that relate to the provision of below-rail services. In the case of Network Train Operations costs, the allocation represents the proportion of costs that Aurizon Network considers relate to providing train control services to coal traffic.

Table 51 Aurizon Network proposed cost allocations to below-rail services

<i>Functional area/cost centre</i>	<i>UT4 allocation (%)</i>	<i>Proposed UT5 allocation (%)</i>
Network Regulation	90	100
Network Finance	n/a (treated as corporate overhead)	100
Network Legal	n/a (treated as corporate overhead)	90
Network Control, Safe working and Operations (excl. Network Train Operations)	100	100
Network Train Operations	91	98
Commercial Development (Except Major Projects)	90	90
Major Projects	0	50

⁷²⁸ QCA 2014b: 56–57.

<i>Functional area/cost centre</i>	<i>UT4 allocation (%)</i>	<i>Proposed UT5 allocation (%)</i>
Infrastructure Management	100	100
Network Operations Management	100	100
Infrastructure (asset maintenance and mechanised production)	0	0
EVP Network	0	0

Source: Aurizon Network, sub. 1; 201–202; Aurizon Network system-wide and regional operating cost model.

QCA analysis and assessment

In considering the efficient allocation of direct costs for the provision of below-rail services, we have had regard to the extent to which the proposed costs would be reasonably incurred in providing below-rail services to coal-carrying trains on the CQCN.

Figure 18 summarises the general separation of Aurizon Network's services, and how the QCA considers costs of providing these services should be generally allocated. This illustrates the distinction between below-rail services, and provision of below-rail services to coal-carrying trains.

We note that, with the exception of Network Train Operations costs, it is not clear that any of the allocated amounts expressly include a deduction for activities that relate to non-coal access. Notwithstanding Aurizon Network's statement that costs related to non-regulated activities such as non-coal train services are excluded from the operating expenditure proposal⁷²⁹, the QCA has not been able to verify how non-coal allocations for other cost categories have been estimated.

This section discusses our analysis and assessment of appropriate allocations of direct costs to below-rail services, and the further allocation of costs to non-coal traffic, where appropriate.

Below-rail services allocations

Aurizon Network has made deductions to its direct costs for a number of functional areas in recognition of activities that do not relate to the provision of below-rail services. The QCA's analysis and assessment of these deductions are discussed below.

Business Management

Network Finance and Network Legal

Aurizon Network has included its Network Finance and Network Legal cost categories as direct costs within the Business Management function. In UT4, these costs were recovered through the allocated corporate overhead allowance.

Aurizon Network's Network Finance group is responsible for billing, budgets, forecasting and preparing financial and statutory reports.⁷³⁰ The Network Legal team provides legal advice on matters pertinent to Aurizon Network in relation to the supply of below rail services.⁷³¹ Aurizon Network submitted that these functional areas are part of the Aurizon Network legal entity, independent from the legal and finance functions of Aurizon Holdings.

⁷²⁹ Aurizon Network, sub. 1: 204.

⁷³⁰ Aurizon Network, sub. 1: 202.

⁷³¹ Aurizon Network, sub. 1: 202.

Anglo American questioned why these costs had been shifted to direct costs and whether the reduction to corporate overheads was commensurate with the increase in direct costs as a result.⁷³²

The QRC did not object to the re-categorisation of these costs in principle; however, it expressed concerns regarding transparency of how the responsibilities of these functional areas are allocated between the regulated and non-regulated business. The QRC said it was not clear whether Aurizon Network had increased the proportion of these costs borne by the regulated business and considered that the proposed allocations were not substantiated.⁷³³

In its February 2017 submission, Aurizon Network said that the proposed treatment of network legal and finance costs for UT5 results in an average cost saving of \$1.6 million per annum, relative to the QCA's UT4 final decision.⁷³⁴

AECOM's review concluded that treating these costs as direct costs was reasonable. AECOM also reviewed Aurizon Network's operating expenditure models and confirmed that the costs had been transferred appropriately between overhead and direct costs with no evidence of double counting. The QCA agrees with AECOM's assessment and considers that the re-categorisation of these cost from overheads to direct costs is reasonable, given that these functional areas perform activities almost solely for Aurizon Network.

The allocation of Network Legal costs includes a 10 per cent deduction in recognition of the non-regulatory activities undertaken in this area, consistent with the deduction applied in 2016–17. The QCA notes this deduction was based on the proportion of below-rail revenue to total Aurizon Network revenue. We consider this is generally a reasonable means of allocating these costs to below-rail services, as the first stage of allocation to allowable revenues.

In contrast, Aurizon Network's Network Finance costs have been fully allocated to the below-rail service on the basis that the responsibilities of the team are directly attributable to the provision of access to the CQCN for coal-carrying train services.⁷³⁵ In UT4, Aurizon Network applied a deduction to these costs to reflect a contribution to non-regulated activities.⁷³⁶ Aurizon Network said that allocating 100 per cent rather than 90 per cent of Network Finance costs is offset by excluding a corporate overhead allocation for 'Group Accounting, Planning and Reporting' team costs that would otherwise be attributed to Aurizon Network.⁷³⁷

AECOM concluded that there was some overlap between the functions of Network Finance and those of Group Accounting, Planning and Reporting and considered it reasonable that the costs for the latter are not included in the operating expenditure for UT5.⁷³⁸ Nonetheless, AECOM did not consider it reasonable to allocate 100 per cent of Network Finance costs to allowable revenues. AECOM formed the view that the Network Finance team is responsible for a number of financial functions across the whole Aurizon Network business. AECOM further noted:

⁷³² Anglo American, sub. 18: 11–12.

⁷³³ QRC, sub. 21: 48.

⁷³⁴ Aurizon Network, sub. 26: 20.

⁷³⁵ Aurizon Network, sub. 1: 342.

⁷³⁶ Deduction based on the ratio of non-regulated revenue to total revenue, each year. The deduction in 2016–17 was 10 per cent.

⁷³⁷ Aurizon Network, sub. 1: 343.

⁷³⁸ AECOM 2017b: 13.

As Aurizon Network's costing manual outlines, the 'costs of Finance, Regulation and Commercial by their nature predominantly relate to Below Rail Services. As timesheets are not kept to record time spent on various activities, an allocation to Other Services will be made based on % of revenue for Other Services compared to revenue for Below Rail Services.'⁷³⁹

While we consider the Network Finance group would be predominantly involved in matters directly related to the provision of below-rail services, we consider it likely that some portion of its activities would relate to non-regulated activities. In our view, a reasonable allocation of these costs should recognise a deduction for these activities and we consider an allocation of 90 per cent, consistent with the allocation applied in UT4, would be reasonable.

Major Projects

Aurizon Network's proposed UT5 expenditure includes an allocation of 50 per cent of the total costs of the 'Major Projects' cost centre. Aurizon Network's UT4 expenditure forecasts did not include an allocation of these costs. The Major Projects team is a small group within the 'Network Commercial' team and is involved in activities including:

- development of SUFA
- commercial negotiations and execution of contracts for new expansions
- providing support relating to the process for network development, planning, studies and expansions
- preparing submissions and responses in regard to regulatory activities (SUFA and UT4).^{740,741}

Aurizon Network said that Major Projects team costs have been included due to the team's involvement in regulatory processes such as the development of SUFA. Aurizon Network said that the 50 per cent allocation represents the proportion of work undertaken on regulated activities.⁷⁴²

Some stakeholders were critical of including an allocation of major projects in the operating cost allowance. Anglo American and QRC noted the major projects team undertakes activities that do not relate to regulated below-rail services and expressed concerns that users are being asked to subsidise those activities.⁷⁴³

Anglo American considered that including an operating expenditure allowance for Major Projects costs would result in double counting, as these costs would be capitalised and included in Aurizon Network's annual capital expenditure claims.⁷⁴⁴

The QRC also said there is no evidence that the major projects group will continue to dedicate 50 per cent of its time/costs to regulated activities in the UT5 regulatory period.⁷⁴⁵ The QRC said that it appeared inconsistent to claim that 50 per cent of the major projects group's activities relate to regulated below-rail services, given that Aurizon Network is not planning any major new expansion projects in the UT5 period.⁷⁴⁶

⁷³⁹ AECOM 2017b: 13–14.

⁷⁴⁰ Aurizon Network, sub. 1: 202.

⁷⁴¹ Aurizon Network, sub. 26: 20.

⁷⁴² Aurizon Network, sub. 1: 217.

⁷⁴³ Anglo American, sub. 18: 12–13; QRC, sub. 21: 48.

⁷⁴⁴ Anglo American, sub. 18: 12–13.

⁷⁴⁵ QRC, sub. 21: 48.

⁷⁴⁶ QRC, sub. 21: 48.

AECOM formed the view that the roles of the Major Projects team are specifically related to the provision of access and concluded that an allocation of these costs to operating expenditure is reasonable. However, AECOM noted that some costs for the Major Projects team may be capitalised given their involvement in capital project development, and it would be unreasonable to allocate the full amount of these costs. AECOM concluded:

In accordance with the Aurizon Group cost capitalisation policy, project costs should be mostly considered operating expenditure in the concept and pre-feasibility stage. We consider that the 50% cost allocation to operating expenditure, as proposed, is reasonable.⁷⁴⁷

The QCA agrees with AECOM's assessment. While it would be inappropriate to allocate all of these costs to the operating expenditure allowance, it is likely that some allocation is reasonable, based on the activities undertaken by this team.

On balance, the QCA considers that an allocation of 50 per cent of Major Projects team costs to below-rail services is not unreasonable. This recognises that some Major Projects team costs would be capitalised or otherwise not related to providing access to the below-rail service.

Network Regulation

Aurizon Network has stated that its Network Regulation team is not expected to undertake any activities that are not related to the regulated below-rail network during the UT5 regulatory period.⁷⁴⁸ On this basis, the full cost of this functional area has been allocated to the MAR.

The QRC questioned why the Network Regulation team would no longer be involved in unregulated activities.⁷⁴⁹ In its collaborative submission, Aurizon Network submitted:

Within Part 3 of UT4, Aurizon Network must at all times employ a regulatory affairs advisor, compliance officer and not outsource any regulatory function to any other part of the Aurizon Group.

These obligations, the extensive compliance program within the Access Undertaking and responding to complex Stakeholder and QCA requests regarding any future enhancements to the Access Undertaking, make any work outside of the scope of the Access Undertaking difficult for the Regulatory team. For this reason, 100% of the Network regulation costs are included within the Operational Allowance.⁷⁵⁰

AECOM considered it is reasonable to allocate 100 per cent of regulation costs to below-rail services, based on the information before it.⁷⁵¹

On balance, and based on the Network Regulation team activities identified by Aurizon Network, the QCA considers that the full allocation of these costs to below-rail services is reasonable.

Infrastructure Management

Aurizon Network said the core objective of the infrastructure management function is to maximise the performance and reliability of Aurizon Network's rail infrastructure through engineering solutions, for the lowest whole of life cost, while maintaining safety.⁷⁵² Aurizon Network said its infrastructure management functions include activities that are directly related to the provision of access to customers, including development of standards for track, electrical,

⁷⁴⁷ AECOM 2017b: 15.

⁷⁴⁸ Aurizon Network, sub. 1: 344.

⁷⁴⁹ QRC, sub. 21: 48.

⁷⁵⁰ Aurizon Network, sub. 26: 20.

⁷⁵¹ AECOM 2017b: 15.

⁷⁵² Aurizon Network, sub. 1: 340.

telecommunications and signalling, asset maintenance and renewals planning and execution, maintenance strategies, plans and programs.⁷⁵³ These costs are fully allocated to below-rail services.

Aurizon Network noted that costs associated with non-regulated and capital activities (e.g. Rail Infrastructure Management costs associated with privately owned infrastructure) are captured through timesheets and recorded in separate cost centres and are excluded from the operating expenditure proposal.⁷⁵⁴

On balance, the QCA considers that Aurizon Network's infrastructure management costs are predominantly related to below-rail services and the proposed allocation appears reasonable.

Network Control, Safe Working and Operations

Aurizon Network said these costs are required to manage the safety, reliability and availability of Aurizon Network's rail infrastructure. The teams within this group are responsible for:⁷⁵⁵

- network control and scheduling
- operations planning and management
- maintenance planning
- incident management
- closure planning, command and control
- performance reporting and analytics.⁷⁵⁶

Aurizon Network has fully allocated these costs to below-rail services, with the exception of Network Train Operations costs, which attract a two per cent deduction for non-coal activity, as discussed below.

Based on the nature of the activities undertaken by these functional areas, the QCA considers it reasonable that the majority of these cost are directly attributable to the provision of access to below-rail services. On this basis, Aurizon Network's proposed allocation to below-rail services appears reasonable.

Deductions for non-coal activities

As discussed above, the costs attributable to providing below-rail services can be further allocated between coal-carrying and non-coal-carrying train services. Where an allocation is made to non-coal traffic, this is reflected as a deduction to the cost allocated to allowable revenues recovered through reference tariffs for coal-carrying trains.

The QCA considers it reasonable that Aurizon Network recover the majority of its system-wide and regional costs through reference tariffs and allowable revenues for coal-carrying train services. Nonetheless, we consider that an efficient allocation of costs would recognise the contribution that non-coal-carrying train services make to the costs of operating the CQCN.

Aurizon Network proposed an explicit non-coal deduction to its Network Train Operations costs category only.

⁷⁵³ Aurizon Network, sub. 1: 201.

⁷⁵⁴ Aurizon Network, sub. 1: 214.

⁷⁵⁵ Aurizon Network, sub.1: 339–340.

⁷⁵⁶ Aurizon Network, sub. 1: 207–208.

Network Train Operations

Aurizon Network proposed a deduction of two per cent of total Network Train Operations costs in recognition that some Network Train Operations resources are utilised in delivering train control services to non-coal traffic on the CQCN. The proposed UT5 deduction represents a decrease from the approved UT4 deduction of nine per cent.

Aurizon Network also proposed a two per cent deduction during the UT4 investigation based on estimated FTE's required for non-coal train control services, after initially proposing a nine per cent deduction based on non-coal train kilometres.

In considering this issue during the UT4 investigation, the QCA concluded that a two per cent deduction was not reflective of the costs associated with non-coal traffic. The QCA considered that Aurizon Network's original proposal, which used proportion of non-coal train kilometres as the allocator, was more likely to reflect the resources used by Aurizon Network in providing this service to non-coal customers, given train control costs are a function of scheduling and the time spent on the track.⁷⁵⁷ The QCA's decision in UT4 was to allocate 91 per cent of Aurizon Network's Train Control Centre costs to coal traffic (i.e., a nine per cent deduction for non-coal traffic).

Aurizon Network said that the nine per cent deduction applied in UT4 was excessive and materially overstated the incremental costs associated with managing non-coal traffic on the CQCN and, as a result, Aurizon Network was not appropriately compensated for the efficient costs of delivering these services during UT4.⁷⁵⁸ Aurizon Network argued that a lower allocation is appropriate because non-coal train services:

- do not require dedicated network control boards or control centre labour resources
- run on less than 4 per cent of network track kilometres
- operate as timetabled traffic and are subject to minimal rescheduling
- have declined in absolute and proportional volume terms in recent years.⁷⁵⁹

Aurizon Network also said that:

- passenger train movements are prioritised over coal traffic and coal traffic requires more interaction with network control to accommodate passenger trains movements
- using train kilometres as an allocator does not take into account the impact of closures for maintenance and on-track vehicles, and does not consider cancellations and rescheduling.⁷⁶⁰

Aurizon Network submitted that a two per cent deduction is adequate based on the fact that non-coal train services represent less than two per cent of total GTK railed.⁷⁶¹

Anglo American and the QRC expressed concerns with the reduced non-coal allocation.⁷⁶² The QRC considered that the proposed allocation of these costs to coal services was inappropriately

⁷⁵⁷ QCA 2014b: 49.

⁷⁵⁸ Aurizon Network, sub. 1: 210.

⁷⁵⁹ Aurizon Network, sub. 1: 209–211.

⁷⁶⁰ Aurizon Network, sub. 1: 211.

⁷⁶¹ Aurizon Network, sub. 1: 211.

⁷⁶² Anglo American, sub. 18: 12; QRC, sub. 21: 47.

high and would result in coal access services cross-subsidising non-coal access services.⁷⁶³ The QRC added:

While it may be true that no dedicated resources are provided for non-coal traffic in the network control centre, there is clearly activity which would not be being conducted in the absence of the passenger or freight services. Given issues like statutory passenger priority under the Transport Infrastructure Act 1994 (Qld), the QRC finds it hard to believe that such services only take 2% of the available resources. The QRC also considers it is likely that the time (and costs) involved in managing non-coal train services will be well in excess of the proportion of GTK railed (given issues like their special needs and lower gross tonnage per service), such that this is not a reasonable basis for making allocations of this cost category (and even an alternative basis like numbers of train paths would be likely to result in an insufficient allocation to non-coal services).⁷⁶⁴

In its collaborative submission, Aurizon Network maintained that the costs associated with providing network control services to non-coal carrying trains are negligible. Aurizon Network said the change of deduction from nine per cent to two per cent increases Aurizon Network's base MAR by approximately \$1.3 million per annum or approximately \$0.005 per net tonne at the proposed volume forecast for FY2018.⁷⁶⁵

AECOM considered this matter and agreed with the QCA's view that that train control costs are a function of the number of trains and distance travelled rather than of the tonnage moved. AECOM note that this allocation approach is consistent with that used by ARTC, which said:

Train Km is chosen as the most appropriate causal allocator as the network controllers interact with trains as they travel across the territory covered by the control board. Therefore the number of trains and the distance travelled (hence Train Km) is a better measure as a causal allocator rather than say any relationship to the size of the train.⁷⁶⁶

AECOM reviewed historical train kilometres on the CQCN, which revealed a relatively stable split between coal and non-coal services of approximately 88 per cent and 12 per cent respectively in 2015–16. AECOM added that there is no fundamental change in train paths from the UT4 period and forecast across the UT5 period, and considered that an 88 per cent allocation for coal-carrying traffic is appropriate and reasonable.⁷⁶⁷

The QCA maintains that a deduction based on the proportion of non-coal train kilometres is more likely to reflect the resources used by Aurizon Network in providing train control services to non-coal train operators, given these costs are a function of scheduling and the time spent on the track.

The QCA considers a reasonable deduction should consider the most recent information regarding the split between coal and non-coal train kilometres. Based on train kilometres observed in 2015–16, the QCA concludes that a deduction of 12 per cent should apply to Aurizon Network's Network Train Operations costs to reflect non-coal traffic, resulting in the recovery of 88 per cent of these costs from reference tariffs for coal-carrying trains.

Non-coal deductions—Other costs

Based on Aurizon Network's submission, Network Train Operations is the only cost category that attracts an explicit deduction for non-coal activities. However, there is a general lack of

⁷⁶³ QRC, sub. 21: 47.

⁷⁶⁴ QRC, sub. 21: 47.

⁷⁶⁵ Aurizon Network, sub. 26: 20.

⁷⁶⁶ ARTC 2016: 11.

⁷⁶⁷ AECOM 2017b: 16.

clarity around what costs are explicitly included in or excluded from Aurizon Network's allocated costs, and whether the deductions applied are intended to exclude costs that relate to services provided to non-coal trains.

Aurizon Network's submission and responses to information requests characterise these deductions in various ways. For example, in reference to the 10 per cent deductions applied to selected Business Management costs, Aurizon Network said:

[U]nless otherwise outlined ... non-coal cost allocations have been set at 10% for all years of UT5, which is consistent with the QCA approved rate for FY2017.⁷⁶⁸

It also said:

[C]ommercial costs have been reduced by 10% to reflect the Commercial team's involvement in some non-regulated activities. This is consistent with the non-coal cost reduction applied by Aurizon Network in FY2017, which was approved by the QCA in the UT4 Final Decision.⁷⁶⁹

Aurizon Network has also described the costs generally excluded from allowable revenues as:

related to non-regulated activities such as non-coal train services. For clarity, such costs are excluded from the operating expenditure proposal, are not included in the MAR, and Reference Tariffs do not recover any part of them.⁷⁷⁰

The above descriptions imply that these allocations recognise deductions for non-coal activity.

In contrast, also in reference to the 10 per cent deduction to selected Business Management costs, Aurizon Network notes:

A portion of Aurizon Network's annual revenue is earned from non-regulated activities, which supplement the revenue recovered through regulated reference tariffs. In recognition of this, Aurizon Network has excluded a portion of its forecast operating expenditures when calculating its regulated revenue allowance and reference tariffs. In its final decision on the UT4, the QCA approved a 10% allocation for FY2017, representing the proportion of non-regulated revenue to total revenue. Aurizon Network has applied a 10% deduction consistently across all years of the UT5 regulatory period.⁷⁷¹

The deduction applied in UT4 was based on the ratio of total revenue earned from below-rail services, to total Aurizon Network revenue. The QCA understands that total below-rail revenue includes revenue from non-coal access, which implies there is no specific recognition of non-coal activities in the allocated amounts.

The QCA sought to confirm whether deductions for non-coal below-rail costs had been applied elsewhere or by other means. Aurizon Network advised that:

By applying deductions to its operating cost proposal for the UT5 regulatory period, Aurizon Network recognises that some Aurizon Network staff will perform tasks which are not solely attributable to the provision of the declared service, e.g. non-coal train services.

It is difficult to isolate costs that relate solely to these activities when those costs are inextricably linked to the costs of regulated activities. This is particularly relevant to labour costs when time records are not kept to be able to apportion costs.

In its UT4 Final Decision, the QCA approved Aurizon Network's proposal to reduce its budgeted costs for specific cost centres in FY2017 by 10%: a rate which reflected the percentage of non-

⁷⁶⁸ Aurizon Network, sub. 1: 216.

⁷⁶⁹ Aurizon Network, sub. 1: 217.

⁷⁷⁰ Aurizon Network, sub. 1: 204.

⁷⁷¹ Aurizon Network, sub. 1: 202–203.

regulated revenue as a portion of total Aurizon Network revenue. Where appropriate, Aurizon Network has maintained the deductions for the UT5 regulatory period.⁷⁷²

Based on the information before it, the QCA considers it unlikely that deductions for non-coal use of the CQCN are recognised in these general deductions, or allocations of other cost categories other than Network Train Operations.

The next issue then is whether Aurizon Network ought to explicitly recognise a deduction for non-coal below-rail services in allocating other costs.

In the case of Network Train Operations costs, Aurizon Network argued that the resources required to provide network control services to non-coal-carrying trains are minimal and do not create any incremental costs.⁷⁷³ While this may be true, it is clear that non-coal-carrying trains use Aurizon Network's train control services and therefore derive some benefit from them. As discussed above, Aurizon Network makes a deduction to the costs allocated to the allowable revenues in recognition of this.

While this non-coal traffic deduction applies only to Network Train Operations costs, it could be argued that this logic applies to other categories of costs that are reasonably incurred in the provision of below rail services, specifically where:

- costs relate to activities and resources that provide identifiable services to non-coal traffic, or
- non-coal traffic otherwise derives some benefit from the functions being undertaken.

The Network Regulation team is an example of a function that is partially and indirectly involved in non-coal access. Aurizon Network has submitted that its Network Regulation team is not expected to undertake any activities that are not related to the regulated below-rail network during the UT5 regulatory period.⁷⁷⁴ However, allocating 100 per cent of Network Regulation costs to coal-carrying train services fails to recognise that non-coal-carrying train services are also beneficiaries of the regulatory framework and measures prescribed within an approved access undertaking, which is predominantly an output of the Network Regulation team. For example, access to the below-rail service for non-coal-carrying train services may be provided subject to the terms of the Standard Access Agreement and Train Operations Deed, which are products of the approved Access Undertaking.

On this basis, it could be argued that Network Regulation costs should be more transparently shared by all operators that access the CQCN in accordance with the Access Undertaking framework and therefore benefit from the regulatory protections it provides. Moreover, a similar reasoning might justify a non-coal deduction to costs incurred by other functional areas.

We note that the Australian Energy Regulator (AER) has considered similar issues in the context of electricity distribution and transmission networks, where shared assets are used to provide both regulated and unregulated services. To recognise this, the AER applies a reduction to regulated revenues where unregulated revenues earned from shared assets exceed a defined materiality threshold.⁷⁷⁵

The QCA does not intend to require that Aurizon Network apply non-coal deductions to other cost categories at this stage. The issue of how to recognise and allocate non-coal costs is not

⁷⁷² Aurizon Network, Response to UT5 RFI—Operating cost allocations, 25 September 2017.

⁷⁷³ Aurizon Network, sub. 1: 210.

⁷⁷⁴ Aurizon Network, sub. 1: 217.

⁷⁷⁵ AER 2013: 6.

limited to Aurizon Network's operating costs. Therefore, we consider the matter ought to be considered in the context of costs incurred more broadly by Aurizon Network.

Given that the Aurizon Group is undergoing a process of corporate restructuring, the QCA may consider undertaking a review of cost allocation methods during, or ahead of, the next undertaking investigation process. This review would aim to establish an allocation approach that efficiently shares costs between coal and non-coal traffic, where such sharing is appropriate and reasonable.

As an interim step, the QCA proposes to require Aurizon Network to transparently document its allocations and identify how they have accounted for a reasonable attribution to non-coal below-rail activities for costs other than Network Train Operations.

QCA assessment

The QCA has some concerns regarding Aurizon Network's conceptual basis for allocating costs to reference tariffs and allowable revenues for coal-carrying train services. In particular, we have concerns that the deductions applied by Aurizon Network may understate the value of its 'non-regulated' activities by failing to include explicit deductions to reflect a reasonable share of costs incurred in providing below-rail access to non-coal-carrying trains.

Nonetheless, with the exception of allocations for Network Finance and Network Train Operations, we consider the overall forecasts that these allocations produce are not unreasonable, when considered in the context of Aurizon Network's overall operating cost proposal, and taking into account the QCA's adjustments to the proposed forecasts outlined in this chapter.

The QCA is mindful that there are alternative means of estimating a reasonable allocation of costs to below-rail services for coal-carrying traffic. While we do not necessarily endorse the specific allocation rates applied by Aurizon Network, the QCA's assessment applies Aurizon Network's proposed rates of allocation for all system-wide and regional costs except Network Finance and Network Train Operations. In developing our alternative expenditure estimate, Network Finance costs have been allocated at a rate of 90 per cent, consistent with Aurizon Network's proposed allocation of other Business Management costs. Network Train Operations costs have been allocated at a rate of 88 per cent based on the split between coal and non-coal train kilometres observed in 2015–16.

7.5.4 Step changes

Once base year costs have been adjusted to reflect an efficient level of recurrent expenditure, consideration must be given to factors that may change that base level of expenditure during the regulatory period, other than real cost escalation (see section 7.10). These adjustments are described as step changes, and represent incremental increases or decreases in expenditure from the efficient base year costs.

Aurizon Network's proposal

Aurizon Network's proposed step changes for the UT5 period are summarised in Table 52. These proposed adjustments were predicated on using 2014–15 actual costs as the efficient cost base.

Table 52 Aurizon Network's proposed step changes during the UT5 period

<i>Proposed adjustment</i>	<i>Cost category</i>	<i>Aurizon Network rationale</i>	<i>Incremental cost (UT5 period total)</i>
APEX system	Network Control, Safe Working and Operations	Additional support and maintenance costs associated with the implementation of the first phase of APEX, which is an integrated operational planning, scheduling, and real-time traffic management tool.	\$7.48m commencing in 2017–18
Network control school	Network Control, Safe Working and Operations	Additional allowance to conduct annual network controller training for up to 12 trainees to address impending skill shortages during the UT5 period due to retirement.	\$3.15m commencing in 2017–18
Commercial planning and Development - additional FTEs	Business Management	Increase in costs to account for the additional obligations imposed by the QCA in the UT4 final decision (e.g. baseline capacity assessment, strategic train plan, consultation obligations for the development and associated review of the baseline capacity assessment, system operating parameters and the network development plan).	\$2.1m commencing in 2017–18
Commercial planning and development—professional advisory services	Business Management	As above.	\$2.04m commencing in 2017–18
Condition-based assessment	Business Management	Estimated cost to undertake condition-based assessment as required by the 2017 DAU.	\$0.65m in 2019–20
Manager, Permanent Way	VP Network Operations	Cost to employ an engineering manager responsible for the supervision and maintenance of track and associated ballast and equipment in the Goonyella and Newlands Systems.	Commencing in 2017–18 ⁷⁷⁶

Note: Step change for Manager, Permanent Way was not identified in Aurizon Network's submission.

Based on Aurizon Network's 2014–15 base year operating expenditure forecast model.

Aurizon Network's 2015–16 operating cost model included a number of additional step changes that were not identified in its original proposal. These step changes are set out in Table 54.

QCA analysis and assessment

The QCA and AECOM have reviewed the proposed step changes and find them to be generally reasonable.

Nonetheless, in our view, assessing the base year and step changes is not an exercise in identification of and recovery of actual incremental 'business-as-usual' costs.

While we have considered the need for Aurizon Network's proposed step changes, we have not applied a rigid materiality test to the associated costs. However, we are minded to do so in future, once Aurizon Network's base-step-trend forecasting approach is well established and efficient costs are revealed.

⁷⁷⁶ The QCA has not disclosed the value of this step change as it reflects an individual employee's remuneration.

In future reviews the QCA is minded to limit its consideration of step changes in costs to those that are material and uncontrollable, and unable to be reasonably funded by an efficient and prudent business operating within its budget constraints.

As Aurizon Network proposed to use 2014–15 costs as base year costs, the QCA's decision to adopt 2015–16 actual costs as the base year removes the need to apply some of the proposed step-changes. This is because the proposed changes in costs are either fully, or partially, included in actual 2015–16 costs. Based on AECOM's assessment, the following proposed step changes are recognised in 2015–16 base year costs:

- Commercial Planning and Development—Additional FTEs for reporting (around \$0.5 million per year)
- Commercial Planning and Development—Professional advisory services (around \$0.5 million per year)
- Manager, Permanent Way.

Our assessment of each proposed step change are set out below.

Commercial planning and development

Aurizon Network proposed two step changes to its 2014–15 base year costs to comply with additional obligations included in the 2016 Undertaking such as baseline capacity assessments, strategic train planning, system operating parameters and the Network Development Plan. Aurizon Network proposed a step change in costs to reflect three additional FTEs, and additional professional advisory services, which it considered necessary to meet these obligations.

Some stakeholders were critical of Aurizon Network's claim for additional costs of complying with additional regulatory obligations within the 2016 Undertaking.⁷⁷⁷ Anglo American did not accept Aurizon Network's suggestion that compliance costs have increased.⁷⁷⁸ The QRC considered that the UT4 compliance obligations were not onerous and would not require significant additional resources.⁷⁷⁹

The QCA notes that the 2017 DAU is not materially different from the 2016 Undertaking with regard to the regulatory obligations identified by Aurizon Network. As such, it is expected that the resources needed to fulfil these obligations during the UT5 period will not be materially different from those currently required.

Information provided by Aurizon Network indicates that 3.8 FTEs were added to the Planning and Development function during 2015–16 in response to additional workload arising from UT4 Undertaking obligations.⁷⁸⁰ On this basis, the cost of these resources will be reflected in the 2015–16 base year cost, and no further step change is required.

With regard to additional costs for professional advisory services, AECOM considered that the costs incurred in the 2015–16 base year would already reflect the cost of consulting services needed to meet Aurizon Network's obligations. As such AECOM recommended that no further step change be included for these costs.

⁷⁷⁷ QRC, sub. 21: 48; Anglo American, sub. 18: 11.

⁷⁷⁸ Anglo American, sub. 18: 13.

⁷⁷⁹ QRC, sub. 21: 47.

⁷⁸⁰ Aurizon Network, Response to RFI 21, Briefing note, 4 April 2017.

The QCA considers that no further step changes are required for additional resources, as the proposed costs of the resources identified by Aurizon Network are adequately reflected in the 2015–16 base year cost.

Manager—Permanent Way

Aurizon Network has included a step change to reflect the cost to employ an engineering manager responsible for the supervision and maintenance of track and associated ballast and equipment in the Goonyella and Newlands Systems. This step change was not specifically identified in Aurizon Network's public submission.

AECOM considered this issue and concluded that the role is required as part of the restructuring of the Mackay and Rockhampton Network Control centres and Infrastructure Management responsibilities.

AECOM found that the role was established in 2016, and noted that the associated cost has been incorporated into the 2015–16 base year costs. We have accepted the value identified in the 2015–16 forecast model as the efficient base cost.

Condition-based assessment

Aurizon Network proposed an allowance of around \$0.6 million in 2019–20 as an estimate of costs incurred to conduct the condition-based assessment, as required by the 2017 DAU.⁷⁸¹ As discussed in Chapter 20, the QCA considers it appropriate to approve the proposed provisions within the 2017 DAU relating to condition-based assessments.

The QRC supported the inclusion of these costs, subject to QCA scrutiny as to whether those costs are efficient. The QRC said that it would expect these costs to decrease over time as Aurizon Network becomes more experienced with conducting such assessments.⁷⁸²

The QCA considers it appropriate to include an allowance for the estimated efficient costs of conducting the condition-based assessment. We also note that, where actual costs of the condition-based assessment differ from the forecast allowance, Aurizon Network is able to claim the difference through a revenue adjustment under Schedule F of the 2017 DAU.

Aurizon Network's proposed step change in 2019–20 was based on actual costs incurred in conducting the condition-based assessment in 2013, escalated to 2020 dollars. However, we note that a condition-based assessment was most recently completed in May 2017. We consider the cost of this more recent exercise is a better estimate of future efficient costs. Accordingly, we have included an allowance of \$0.46 million in 2019–20, representing the actual cost of undertaking the 2017 condition-based assessment, escalated to 2019–20 dollars.

Network control school

Aurizon Network has proposed an additional allowance for the annual 'network control school' training program. This course is a six-month program that trains around 10 applicants per year to become network train controllers. Aurizon Network said that the majority of network control school costs relate to labour costs of trainees and two existing Aurizon Network employees who conduct the training.

The QCA has reviewed the business case for the proposed additional expenditure and considers the need has been reasonably justified. Aurizon Network expects a potentially critical FTE

⁷⁸¹ These costs were separately identified by Aurizon Network in UT4 but have been included as part of the Business Management category for the 2017 DAU.

⁷⁸² QRC, sub. 21: 50.

shortage within the Network Control function over the UT5 period, driven in part by a significant proportion of existing controllers nearing retirement.⁷⁸³ On this basis, we consider training of additional network controllers, above the business-as-usual level, is reasonable and prudent at this time.

Based on AECOM's analysis of Aurizon Network's expenditure models, \$0.65 million of the total proposed step change of \$0.75 million is already incorporated into 2015–16 base year costs. Accordingly, a step change of approximately \$0.10 million per year has been included from 2017–18 onwards for additional network train control school costs. As network control school costs are incurred within the Network Train Operations function, the step change incorporates a deduction of 12 per cent for non-coal traffic, as discussed in section 7.5.3.

APEX system costs

Aurizon Network's Advanced Planning and Execution (APEX) tool is a software solution to support faster and more responsive planning and scheduling of trains. The software is being implemented in three stages over the coming years.

Aurizon Network said that implementing the APEX tool has the potential to deliver efficiencies within the Network Planning function, increased network capacity and improvements to operational performance such as on-time arrival and network velocity.⁷⁸⁴

The APEX system is a significant capital investment, which was considered and approved by the QCA in its review of Aurizon Network's 2016–17 capital expenditure claim. The step changes proposed in each year of the UT5 period reflect operating expenditure for ongoing support and maintenance of the system. The QCA considers it reasonable that these costs are included in the forecast operating cost allowance.

In its review of this expenditure item, AECOM identified that implementation of the APEX system has been delayed. The support and maintenance costs schedule is now different to that proposed in Aurizon Network's submission and costs will not be incurred until 2018–19. Based on the latest implementation timeline, we have included step changes as set out in Table 53. As these costs are incurred within the Network Control function, these step changes incorporate a deduction of 12 per cent for non-coal traffic, as discussed in section 7.5.3.

Table 53 QCA assessment of APEX system costs (\$m)

<i>APEX system costs (\$m)</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>
Aurizon Network proposes step change	1.77	1.78	1.74	1.65
QCA proposed step change	–	0.40	0.56	1.64

Other step changes—2015–16 operating cost model

During the course of the investigation, the QCA asked Aurizon Network to provide updated expenditure models using actual 2015–16 costs. Aurizon Network's original forecasts accompanying its 2017 DAU were based on 2014–15 costs.

In reviewing Aurizon Network's 2015–16 operating expenditure model, AECOM identified six step changes in costs that were not noted in Aurizon Network's 2017 DAU submission or 2014–15 base year cost model. These step changes are set out in Table 54.

⁷⁸³ Aurizon Network, Response to RFI 20, Memorandum, Trainee Network Controller School—FY17, 7 September 2016.

⁷⁸⁴ Aurizon Network, Response to RFI 19, 16 March 2017.

Table 54 Additional step changes identified in 2015–16 operating cost model

<i>Proposed adjustment</i>	<i>Cost category</i>	<i>Aurizon Network rationale</i>	<i>Incremental cost (\$ m)</i>
Network performance	Network Control, Safe Working and Operations	Planning and engagement resourcing	\$0.52 per year commencing in 2017–18
Network planning	Network Control, Safe working and Operations	Planning and engagement resourcing	\$0.37 per year commencing in 2017–18
Network customer service	Network control, Safe working and Operations	Planning and engagement resourcing	\$0.14 per year commencing in 2017–18
Safety management systems review	VP Network Operations	Requirement to review safety management systems.	\$0.22 per year commencing 2017–18
Continuous improvement	VP Network Operations	Activities to optimise capital investment and improve operations.	\$0.30 per year commencing 2017–18
Electrical specialist role	Commercial Development and Governance	Creation of a specialist role to engage in regulatory and policy processes regarding electricity wholesale and network issues.	Commencing in 2017–18

The QCA does not consider it appropriate to include these step changes in the UT5 operating expenditure allowance.

These changes were not identified in Aurizon Network's November 2017 proposal and have not been substantiated in terms of need, scope or cost. As the proposed step changes occur from 2017–18 onward, and are incremental to base year costs, it is not clear why these were not also identified in Aurizon Network's original forecasts derived from the 2014–15 base year.

Moreover, in the absence of any material and uncontrollable change in circumstances driving these proposed changes, the QCA considers these costs are incremental business-as-usual expenses. We do not consider step changes are a mechanism to allow the pass-through of incremental costs associated with normal operations. Therefore, we would expect Aurizon Network to meet these costs within its overall operating cost allowance provided for the UT5 period.

To the extent that these incremental costs are efficient, we would expect them to be revealed in the assessment of efficient base year expenditures for subsequent regulatory periods.

QCA assessment

Table 55 sets out the QCA's assessment of step changes in system-wide and regional operating costs over the UT5 period.

Table 55 QCA assessment of step changes—system-wide and regional costs (\$m)

<i>Step change (\$m)</i>	<i>Cost category</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>
APEX system	Network Control, Safe Working and Operations	-	0.40	0.56	1.64
Network control school	Network Control, Safe Working and Operations	0.09	0.09	0.10	0.10
Condition-based assessment	Business Management	-	-	0.46	-
Commercial planning and development—additional FTEs	Business Management	Included in 2015–16 base year			
Commercial planning and development—professional advisory services	Business Management	Included in 2015–16 base year			
Manager, Permanent Way	Business Management	Included in 2015–16 base year			
Total step changes (\$m)		0.09	0.50	1.12	1.74

Notwithstanding our acceptance of these costs, the QCA has some concerns with Aurizon Network's proposed use of step changes within the base-step-trend method.

In the QCA's view, the role of the base-step-trend method is to establish a reasonable allowance within which Aurizon Network can prudently and efficiently operate its business during a regulatory period. Forecasting expenditures using the base-step-trend approach should not be an exercise in identification and recovery of all anticipated business-as-usual costs and savings, or a supplementary cost pass-through mechanism.

The QCA has adopted a pragmatic approach to step changes for this investigation and has not applied a rigid materiality test. This is in recognition that Aurizon Network's base-step-trend method is still maturing, and efficient costs will continue to be revealed over time. In future, the QCA will place greater emphasis on materiality of incremental costs and the drivers of step changes in its assessment.

QCA assessment—system-wide and regional operating expenditure

The QCA has assessed the elements of Aurizon Network's proposed system-wide and regional costs and has developed an alternative estimate that it considers reasonable. Our estimate is derived by making the following adjustments to Aurizon Network's proposed costs:

- substituting proposed 2014–15 base year costs with 2015–16 costs, removing the need for a number of proposed step changes
- removing proposed cash bonus adjustments from 2015–16 base year costs
- decreasing the allocation of Network Finance costs from 100 per cent to 90 per cent

- increasing the non-coal deduction for Network Train Operations costs from 2 per cent to 12 per cent
- applying the QCA's CPI inflation forecast and updated WPI inflation forecasts (see section 7.10).

Applying these adjustments results in a total allowance for system-wide and regional costs for the UT5 period of \$246.6 million, which is 15 per cent less than Aurizon Network's proposal. The QCA's assessment of a reasonable allowance for system-wide and regional costs is set out in Table 56.

Table 56 QCA assessment of Aurizon Network's system-wide and regional operating costs (\$m)

<i>Cost category</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>UT5 total</i>
Network Control, Safe Working and Operations	24.14	25.15	26.04	27.88	103.20
Infrastructure Management	17.82	18.26	18.75	19.26	74.09
Business Management	16.53	16.94	17.88	17.92	69.28
Total	58.49	60.34	62.67	65.05	246.57

Totals may not add due to rounding.

7.6 Corporate overheads

Aurizon Network's proposal

Aurizon Network has proposed corporate overheads of \$49.1 million in 2017–18, increasing to \$52.6 million in 2020–21. The total proposed allowance over the UT5 period is \$203.8 million, which Aurizon Network said is 8.6 per cent lower than the total UT4 allowance.

Aurizon Network submitted that its proposed corporate overheads relate to non-operational costs incurred within the Aurizon Group that Aurizon Network would reasonably incur if it operated on a stand-alone basis. Table 57 summarises Aurizon Network's proposed corporate overheads for the 2017 DAU period.

Table 57 Aurizon Network's proposed corporate overheads (\$m)

<i>Function^a</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>UT5 total</i>
Board and CEO	2.07	2.12	2.17	2.23	8.58
Finance	3.03	3.11	3.20	3.29	12.62
Enterprise real estate	14.82	15.45	15.78	16.04	62.09
Human resources	3.72	3.83	3.94	4.06	15.55
General counsel and company secretary	1.50	1.54	1.58	1.62	6.23
Information technology (IT)	18.03	18.31	18.60	18.89	73.82
Safety, health and environment	2.49	2.56	2.63	2.70	10.38
Other enterprise services	3.43	3.55	3.69	3.82	14.49
Total	49.08	50.46	51.58	52.65	203.77

a For more information on the roles and responsibilities of these functional areas, see Aurizon Network sub. 1: 345–347.

Source: Aurizon Network, sub.1: 225.

Totals may not add due to rounding.

Aurizon Network has also adopted different methods for allocating some shared costs in its UT5 proposal compared with its approach in UT4. Specifically:

- Network Finance and Network Legal costs are included in Business Management (system-wide and regional costs) rather than corporate overheads (see section 7.5.3).
- Enterprise real estate costs are allocated using a more sophisticated approach, based on a detailed analysis to identify costs specifically attributable to the network business.
- Shared finance services costs are allocated based on the number of transactions performed (for accounts receivable and accounts payable functions) and FTEs (for payroll costs). These costs were previously allocated using a direct cost allocator.

QCA analysis and assessment

When assessing Aurizon Network's proposed corporate overheads, we have had regard to the factors set out in s. 138(2) of the QCA Act and have given them appropriate weight in making our assessment.

Aurizon Network is part of the vertically integrated Aurizon Holdings Limited. The QCA Act requires us to form a view on what constitutes the efficient costs of the declared service provided by Aurizon Network, not Aurizon Holdings' efficient costs.

Specifically, ss. 138(2)(b) and (c) of the QCA Act focus on the legitimate business interests of the owner and operator of the declared service (and, if the owner is legally distinct from the operator, only the operator), hence Aurizon Network. Section 137(1A)(b) of the QCA Act requires that Aurizon Network's access undertaking must include provisions for preventing Aurizon Network from recovering, via the access price, costs that are not reasonably attributable to the provision of the declared service.

The QCA is of the view that this is particularly relevant in assessing Aurizon Network's corporate overheads, given the vertically integrated nature of Aurizon Network. In forming our view, we need to be satisfied that the corporate overheads allocated to Aurizon Network's allowable revenues are reasonable and that resulting access prices do not allow Aurizon Network to discriminate in favour of a related party.

Stakeholder comments

Stakeholders expressed concerns regarding a number of aspects of Aurizon Network's proposed corporate overheads. The QRC considered that the reduction in proposed overheads appears to be mostly due to the reallocation of the Network Finance and Network Legal costs from corporate overhead to Business Management costs.⁷⁸⁵

Pacific National expressed concerns that Aurizon Network may seek to 'over allocate' shared costs to the regulated business and gain a competitive advantage in the above rail business.⁷⁸⁶

⁷⁸⁵ QRC, sub. 21: 49.

⁷⁸⁶ Pacific National, sub. 19: 6.

The QRC shared a similar concern and requested particular scrutiny of the proposed corporate overhead allowance.⁷⁸⁷

The QRC also questioned why Aurizon Network is seeking an increase in corporate overheads, given that its members have faced significant reductions in overheads in response to the downturn in coal prices during UT4, requiring reduced layers of management, less labour, greater productivity and less use of external service providers.⁷⁸⁸

In its collaborative submission, Aurizon Network disagreed with the QRC's submission, stating that there has been a reduction in the submitted cost allowances in almost all functional areas. Aurizon Network added that corporate overheads of the Aurizon Group have decreased since UT4 was submitted as the company continues to implement transformational changes, and noted that actual costs for FY15 have been adjusted to include targeted savings for FY16.⁷⁸⁹

Aurizon Network also said that the use of direct costs as an allocation methodology implicitly includes efficiencies, as it results in a lower cost allocation than would otherwise be provided using a blended allocator methodology.⁷⁹⁰

Benchmarking

Anglo American and the QRC called for greater use of benchmarking to assess Aurizon Network's proposed corporate overhead costs.⁷⁹¹ Anglo American challenged the relevance of the benchmarking information submitted by Aurizon Network and suggested the QCA consider more relevant comparisons, such as the ARTC, where appropriate, properly validated by relevantly qualified consultants with access to complete information.⁷⁹²

As discussed above, the QCA does not consider it necessary or appropriate to conduct detailed benchmarking of Aurizon Network's operating costs at this time.

For the UT4 investigation, Aurizon Network commissioned a report by Ernst & Young (EY) on the benchmark efficiency of Aurizon Network's corporate overheads.⁷⁹³ Aurizon Network has made reference to the findings of the EY report to support the reasonableness of some of its proposed corporate overhead allocations for the UT5 period.

While we have considered Aurizon Network's references to the EY report, the report was completed in June 2012 and its findings are now likely outdated. As such, we have not given significant weight to these findings in our assessment.

Aurizon Network also conducted a review of cost allocation methods used by other regulated entities in support of its proposed allocations of corporate overheads.⁷⁹⁴ The QCA has considered this information in deciding whether Aurizon Network's proposed allocators are appropriate.

The Aurizon Group has realised significant cost savings in recent years through its transformation program, which will continue through the UT5 period. Aurizon Network said that these transformational activities have delivered savings of \$57 million in Aurizon Group

⁷⁸⁷ QRC, sub. 21: 49.

⁷⁸⁸ QRC, sub. 21: 49.

⁷⁸⁹ Aurizon Network, sub. 26: 21.

⁷⁹⁰ Aurizon Network, sub. 26: 21.

⁷⁹¹ Anglo American, sub. 18: 12; QRC, sub. 21: 49.

⁷⁹² Anglo American, sub. 18: 12.

⁷⁹³ Ernst & Young 2012.

⁷⁹⁴ Aurizon Network, sub. 1: 223–224.

corporate costs during 2014–15 and 2015–16. These savings have been realised through reductions in labour costs (FTEs), professional services and rationalisation of the property portfolio and improved procurement practices.⁷⁹⁵

7.6.1 Forecasting method

Aurizon Network's proposal

Aurizon Network's proposed corporate overheads have been derived by allocating a portion of Aurizon Group shared costs that Aurizon Network considers would reasonably be incurred if Aurizon Network were a standalone entity. Costs are allocated to allowable revenues based on various parameters, such as FTEs, direct costs or other allocators. The allocation rates applied are fixed and do not change each year with changes in underlying parameters.

Once identified and allocated to Aurizon Network, these costs become baseline costs for a base-step-trend forecast for the UT5 period, similar to that used in developing the system-wide and regional cost forecast. Aurizon Network used actual 2014–15 costs as base year expenditure, before adjusting for identified efficiencies and one-off costs, real cost escalations, and step changes to produce a forecast for the UT5 period.

QCA analysis and assessment

As discussed in the context of system-wide and regional costs, the QCA considers that the base-step-trend method is a reasonable forecasting approach when applied appropriately.

The QCA considers that Aurizon Network's forecasting approach is reasonable in the current circumstances, and acknowledges that the QCA has approved this approach in the past. Nonetheless, we consider that Aurizon Network's application of the method is not appropriate in some aspects. These matters are discussed below.

7.6.2 Choice of base year

Aurizon Network's proposal

Aurizon Network used 2014–15 costs as base year costs to develop its corporate overhead forecasts. As is the case for system-wide and regional costs, the QCA asked Aurizon Network to provide updated corporate overhead forecasts using 2015–16 actual costs as the baseline.

QCA analysis and assessment

The QCA's considerations regarding the appropriate base year for system-wide and regional costs are equally relevant to selecting the base year for corporate overhead costs.

In general, if using actual incurred costs as base year costs in a base-step-trend forecast, the QCA considers it appropriate to use the most recent cost data available, as we consider this is likely to result in the best estimate of future recurrent costs.

Using the most recent cost data available is particularly relevant when developing forecasts of Aurizon Network's efficient corporate overheads, as Aurizon Group (Holdings) has realised efficiencies in recent years, which are not fully captured in the proposed 2014–15 base year costs. This is important to our assessment of Aurizon Network's corporate overheads, as the majority of savings have been realised at the Aurizon Group (Holdings) level, rather than within the Aurizon Network business. The QCA considers this a compelling reason to adopt 2015–16 as

⁷⁹⁵ Aurizon Network, sub. 1: 220.

the base year for corporate overheads as it better reflects those recent efficiency gains. AECOM also recommended that 2015–16 be adopted as the base year.

For these reasons, the QCA considers Aurizon Network actual 2015–16 corporate overhead costs are a reasonable basis for developing forecasts for the UT5 period.

Base year adjustments

Aurizon Network has examined its base year actual corporate costs to identify and remove one-off costs and expected cost savings.⁷⁹⁶ The QCA has reviewed these adjustments in Aurizon Network's corporate overhead model and considers them appropriate.

During the QCA's investigation, Aurizon Network said that, should the QCA adopt 2015–16 as the base year, then it should use actual staff bonus costs incurred in 2014–15 rather than those in the 2015–16 base year. Aurizon Network considered that 2014–15 bonus costs were a more appropriate base estimate of likely future costs given that bonuses paid in 2015–16 were lower than would normally be expected.⁷⁹⁷

As is the case for cash bonuses relating to Aurizon Network's system-wide and regional costs, we note that allocated corporate cost bonuses paid in 2014–15 were significantly higher than those paid in both 2013–14 and 2015–16. AECOM considered that bonus costs in 2014–15 were anomalous due to long-term incentives maturing and concluded that 2015–16 bonuses were likely to be a reasonable indication of future costs.⁷⁹⁸

Nonetheless, AECOM recognised that the Aurizon Group board chose not to award any short-term incentives to the Managing Director and CEO, or this role's direct reports during 2015–16. AECOM considered it reasonable to expect that some short-term incentives would be awarded to key management personnel during the UT5 period. AECOM noted that such incentives are a recognised means of attracting and retaining high quality senior executives, and a common feature of remuneration packages, including those of similar businesses such as the ARTC and Pacific National.⁷⁹⁹ On this basis, AECOM recommended that the 2015–16 base cost be adjusted by \$0.6 million to reflect the allocated value of short-term incentives awarded to key management personnel in 2014–15.

The QCA does not consider that Aurizon Network has made a compelling case to adjust the base year to reflect total bonus costs incurred in 2014–15. We agree with AECOM and consider that actual bonus costs incurred in 2015–16 are likely to offer a more realistic estimate of future recurrent costs than those incurred in 2014–15.

Nonetheless, the QCA accepts AECOM's recommendation to include a partial adjustment for key management personnel short-term incentives, which were not included in the 2015–16 base year cost. We are of the view that an efficient organisation would offer short-term attraction and retention incentives for key senior executives, and that it is reasonable for the corporate overhead allowance to include some allocation of these costs.

⁷⁹⁶ Aurizon Network, sub. 1: 220.

⁷⁹⁷ Bonus costs allocated through the corporate overhead allowance include cash bonuses awarded to shared staff resources, including key management personnel such as the Managing Director and CEO. Bonuses included in the system-wide and regional cost forecasts relate to those awarded to staff directly attributable to the network business.

⁷⁹⁸ AECOM 2017b: 33.

⁷⁹⁹ AECOM 2017b: 33.

7.6.3 Allocation of costs

Aurizon Network's proposal

Aurizon Network has identified 161 categories of shared costs (cost centres) that it considers relevant to the network business and are included in the corporate cost base for UT5. These costs capture functions performed within the Aurizon Group that Aurizon Network considers it would necessarily undertake if it were a standalone entity.⁸⁰⁰ Aurizon Network said that it has allocated shared costs to the network business which are:

- directly related to below-rail operations (for example, depreciation of network buildings); or
- not directly related to below-rail network operations but which do provide services to the below-rail network business and/or would be required for a standalone regulated business.⁸⁰¹

Aurizon Network said that costs that are not directly related to below-rail network operations, and which provide no services to the below-rail network business (for example, Above-Rail Finance), are excluded from the corporate cost base.⁸⁰²

Once identified, these shared costs have been proportionally allocated to the network business using various parameters including percentage of:

- full-time equivalents (FTEs as a measure of employee numbers—calculated as below-rail network FTEs as a percentage of total Aurizon Holdings Limited Group FTEs)
- transactions processed (for accounts payable and receivable)—calculated as the number of transactions processed for Aurizon Network as a percentage of transactions processed for the Aurizon Holdings Limited Group
- direct costs—calculated as the direct operating costs of the below rail network business as a percentage of the direct operating costs of the operational functions of the Aurizon Holdings Limited Group.⁸⁰³ Aurizon Network said that a direct costs method has been used where no causal driver could be identified to allocate costs to Aurizon Network.

Table 58 sets out the parameters used to allocate shared corporate costs to the network business.

Table 58 Aurizon Network's proposed corporate cost allocators

<i>Shared corporate cost</i>	<i>Allocation parameter</i>
Board and CEO	Direct costs
Finance	
CFO, Treasury, tax and insurance, Investor relations, Enterprise procurement	Direct costs
Finance Partner Marketing and Operations	Nil allocation
Group accounting, planning and reporting	Nil allocation
Network Finance	Nil—Transferred to Business Management

⁸⁰⁰ Aurizon Network, sub. 1: 220.

⁸⁰¹ Aurizon Network, sub. 1: 221.

⁸⁰² Aurizon Network, sub. 1: 221.

⁸⁰³ Direct costs exclude maintenance costs, corporate overheads, energy and fuel, and access charges.

<i>Shared corporate cost</i>	<i>Allocation parameter</i>
Finance Shared Services	
Accounts receivable	Accounts receivable transactions processed
Accounts payable	Accounts payable transactions processed
Payroll	FTEs
Enterprise Real Estate	Property and associated costs directly identifiable. FTE's applied to non-directly identifiable costs.
Human Resources	
Executive Vice President	FTEs
Share based payments	Direct costs
Business partner teams, organisational capability, Enterprise support	FTEs
Brand and Communications	Direct costs (excluding Corporate Sponsorship and Events—nil allocation)
Enterprise services	
EVP, Company secretary, internal audit, information technology	Direct costs
General Counsel	Direct costs
Network Legal	Nil—Transferred to Business Management
Safety, Health and Environment, Risk services	FTEs

Source: Aurizon Network, sub. 1: 222.

Compared with UT4, Aurizon Network has made a number of changes to its allocation approach for UT5, specifically:

- Network Finance and Network Legal costs are now included as the system-wide and regional costs (direct costs). These costs are no longer captured in the corporate overhead (discussed in section 7.5).
- Shared finance services are allocated based on the percentage of transactions processed, and payroll costs are allocated based on FTEs.
- Aurizon Network said that it had reviewed the occupancy footprint of the network business for operational sites, property and facility related assets in order to confirm property and facility maintenance costs for inclusion in this overhead cost proposal. The FTE allocator is applied to non-directly identifiable costs. Aurizon Network said this has resulted in a more accurate cost allocation of its 'enterprise real estate' shared costs.⁸⁰⁴

QCA analysis and assessment

Section 137(1A)(b) of the QCA Act requires that Aurizon Network's access undertaking must include provisions for preventing Aurizon Network from recovering costs that are not reasonably attributable to the provision of the declared service.

⁸⁰⁴ Aurizon Network, sub. 1: 228.

In considering the efficient allocation of shared overhead costs, we have considered the reasonableness of:

- the nature of costs allocated to Aurizon Network, and whether they would be reasonably incurred if Aurizon Network was a standalone network business
- the parameters used to allocate those costs, and the extent to which the resulting allocated amounts are a reasonable reflection of the contribution of the Aurizon Network business to the total costs.

In general, the QCA considers that shared costs should be allocated in a manner that advances the pricing principle at s. 168(c) of the QCA Act. That is, costs should not be allocated in a way that allows Aurizon Network to set terms and conditions for access that discriminate in favour of downstream operations of a related body. To achieve this, the QCA considers that shared costs should, wherever possible, be allocated using a causal allocator that reasonably approximates the contribution that the network business makes to the total shared cost.

Stakeholders expressed general concerns regarding allocation of some categories of corporate overheads, in particular, whether allocations result in cross-subsidisation of Aurizon Network's non-regulated activities through its regulated revenues for below-rail services.⁸⁰⁵

Nature of allocated costs

Aurizon Network uses the assumption of a standalone business to estimate its allocated corporate overhead costs. This implies that the allocated corporate cost base may include costs that are not directly related to the provision of below-rail services to coal-carrying trains, but would likely be incurred if Aurizon Network was a standalone business.

The QCA notes there may be alternative ways of estimating an efficient allocated corporate overhead for Aurizon Network, which could be examined in future reviews. The QCA considers that standalone cost estimates represent the upper-bound of a range of potential characterisations of efficient base costs, however we consider the proposed approach reasonable at this time.

We have reviewed the categories of costs allocated to the corporate overhead allowance and find them to be generally reasonable, on the basis that they would likely be incurred if Aurizon Network were a standalone entity.

Anglo American disagreed with the inclusion of a \$0.4 million per year allocation for investor relations costs, which are a component of the allocated finance cost base. It did not accept that a standalone rail network business necessarily needs to be an ASX-listed company and therefore entitled to allowance for such related overheads.⁸⁰⁶

Aurizon Network said that its investor relations team manage strategic communications for the investment community to keep its debt and equity investors, and analysts, informed about the performance of the company to ensure future sources of funding for Aurizon Network.⁸⁰⁷ The costs included in this category relate to debt capital market disclosures, presentation of results to analysts, debt and equity investor roadshows, consultancy costs for research and reports on market and investor sentiment and conditions, and monthly shareholder analysis.⁸⁰⁸

⁸⁰⁵ QRC, sub. 21: 48; Anglo American, sub. 18: 12–13.

⁸⁰⁶ Anglo American, sub. 18: 12.

⁸⁰⁷ Aurizon Network, sub. 1: 227.

⁸⁰⁸ Aurizon Network, sub. 1: 227.

The QCA considers it likely that such costs would reasonably be incurred by a standalone monopoly business such as Aurizon Network. While being an ASX-listed public company likely brings with it additional costs, we consider that the many of the investor relations activities identified by Aurizon Network would be incurred by a standalone monopoly network business, irrespective of how the company raises debt and equity.

Methods of allocation

In assessing Aurizon Network's proposed allocation approaches, the QCA has considered whether the parameters used to allocate each category of shared cost are likely to result in an allocation of costs that reasonably reflects Aurizon Network's contribution to the total overhead cost pool.

The QRC expressed concerns with the proposed treatment of Finance Shared Services and Enterprise Real Estate costs and suggested that the allocation methods were changed in order to increase the operating cost allowance.⁸⁰⁹ Aurizon Network said this was not the case, and noted that there has been a reduction in the submitted cost allowances in almost all functional areas.⁸¹⁰

The QRC said that allocations should be rejected if they result in the regulated business cross-subsidising the unregulated activities of the Aurizon Group.⁸¹¹

The QCA has considered the methods used to allocate Aurizon Network's shared corporate overhead costs and finds them to be reasonable, with the exception of the allocator for shared IT costs. The QCA has also examined Aurizon Network's proposed FTE allocation rate and considers this should be updated to reflect more recent actual data. These matters are discussed below.

Direct cost allocator

Around 60 per cent of Aurizon Network's proposed corporate overhead costs are derived using a 'direct cost' allocation method. That is, the total of the relevant shared costs are allocated using the proportion of Aurizon Network total direct costs, to Aurizon Group total direct costs.⁸¹² Aurizon Network has used this allocator for cost centres where no causal driver could be identified for allocation of costs to Aurizon Network.⁸¹³

Aurizon Network has submitted that the direct cost allocator will increase from 19 per cent during UT4 to 24 per cent for the UT5 period.

AECOM noted that Aurizon Network's direct costs have been largely static during recent years, while Aurizon Group costs have reduced. The result of this is an increase in the ratio of Aurizon Network to Aurizon Group direct costs and therefore an increase in the direct cost allocation rate. Based on its analysis, AECOM considered the proposed direct cost allocation rate of 24 per cent was reasonable.

The QCA has reviewed the application of the direct cost allocator and considers it a reasonable parameter for allocating the costs it applies to, with the exception of information technology costs.

⁸⁰⁹ QRC, sub. 21: 49.

⁸¹⁰ Aurizon Network, sub. 26: 20.

⁸¹¹ QRC, sub. 21: 49.

⁸¹² Total direct costs used to derive the allocator are exclusive of maintenance costs, corporate overheads, energy and fuel, and access charges.

⁸¹³ Aurizon Network, sub. 1: 221.

Information technology costs

Aurizon Network has included around \$18 million in information technology costs per year in its proposed corporate overhead allowance, allocated using the direct cost allocator.⁸¹⁴ Aurizon Network said that these costs relate to managing information and business systems and are incurred centrally within the Aurizon Group.⁸¹⁵

During the UT4 investigation, Aurizon Network submitted a report commissioned by ITNewcom presenting benchmark costings for IT services that Aurizon Network considered would be required if it were a standalone entity.⁸¹⁶ Aurizon Network said there has been no significant change in its IT practices since this report was prepared and the benchmarks remain appropriate for UT5.

Aurizon Network said that escalating the benchmark IT cost established in the 2014 ITNewcom report implies a benchmark IT cost of \$20 million in 2017–18. On this basis, Aurizon Network considered its proposed allocated IT cost of \$18 million in 2017–18 to be efficient.

While the use of a direct cost allocator for shared IT costs is consistent with the QCA's decision in UT4⁸¹⁷, AECOM noted:

IT costs are usually incurred or allocated on a per-seat or license basis, which therefore uses headcount. Aurizon had a benchmarking review of its IT services carried out by ITNewcom, who, in their December 2014 report, refer to the volume of licences in use for all IT assets at the time. We therefore consider that the relative number of licences should be used for cost allocation of IT services.⁸¹⁸

The QCA sought additional information from Aurizon Network on the relative number of software licenses; however, the level of information available was not sufficient to derive an appropriate allocator. Given this, AECOM recommended that FTE count be applied as a proxy allocator.

The QCA accepts AECOM's recommendation and considers that, in the absence of an allocator based on software license numbers, IT costs should be allocated by FTE count rather than direct costs.

Taking 2015–16 to be the base year, applying the FTE allocator results in a nominal allocated IT cost of \$46 million over the UT5 period, which represents a 37 per cent reduction from Aurizon Network's proposed allocation.

FTE allocator

Aurizon Network's proposed FTE allocator for the UT5 period is 15.8 per cent, which is a slight increase over the UT4 rate of 15.4 per cent. The QCA has reviewed the application of the FTE allocator and considers it is a reasonable parameter for allocating the costs to which it has been applied.

AECOM noted that the actual FTE ratio has been increasing in recent years, due to reductions in staff numbers which have predominantly occurred in areas of the Aurizon Group, other than the

⁸¹⁴ \$16.6 million in the 2015–16 base year.

⁸¹⁵ Aurizon Network, sub. 1: 235.

⁸¹⁶ Aurizon Network, sub. 3.

⁸¹⁷ In its 2013 DAU, Aurizon Network proposed to use a blended allocator for costs where no causal driver could be identified (including IT costs). The QCA did not accept the proposed blended allocators and applied a direct cost approach to allocate costs where no causal driver could be identified.

⁸¹⁸ AECOM 2017b: 30.

network business. Based on the latest available FTE information, AECOM calculated the FTE allocator to be 16.1 per cent in 2016–17.

The QCA accepts AECOM's recommended FTE allocator of 16.1 per cent, and has applied this rate across the UT5 period, including to the IT cost category.

Enterprise real estate

Aurizon Network said that its enterprise real estate team has accountability for the Aurizon built environment.⁸¹⁹ The UT5 proposal includes an annual allocated amount of around \$14 million for the enterprise real estate function, comprised of costs associated with corporate sites, operational sites, housing accommodation, electrical assets, property services and facilities management costs.

For its 2017 DAU proposal, Aurizon Network has undertaken a more detailed analysis of these costs, which it said results in a more accurate cost allocation for these services.⁸²⁰ This analysis involved identifying Aurizon Network's occupancy of sites, before evaluating the extent to which it is responsible for licence costs, corporate contracts and facilities management costs, council rates, electricity, land tax and outgoings.⁸²¹ The FTE allocator has been applied to remaining costs that were not allocated through this process.

The QCA has considered the proposed allocation methods and consider they result in a reasonable allocation of costs, informed by a more rigorous assessment of causal drivers.

Aurizon Network's proposed approach has resulted in some costs being allocated to the corporate overhead allowance that have not been explicitly included in the past, including 'operational sites' and 'electrical assets consumption costs'. These costs are discussed below.

Operational sites

Aurizon Network's allocated enterprise real estate allowance includes approximately \$5 million per year for costs associated with operational sites. Aurizon Network said that these costs were not included in its UT4 expenditure proposal, due to the corporate cost allowance being submitted for maintenance and other areas separately.⁸²²

Aurizon Network's operational sites are mostly regional depots that support maintenance activities. Costs associated with these sites include license and leasing costs, facility maintenance, corporate contracts, land tax, council and utility charges.

Costs associated with operational sites that are solely occupied by Aurizon Network have been fully allocated to the proposed corporate overhead allowance. Where sites are shared with other Aurizon Group business units, costs have been allocated using other methods including occupancy percentages and proportion of site area occupied.

Aurizon Network said that most operational sites are situated on land owned by Aurizon Property Pty Ltd and occupied by Aurizon Network and other Aurizon Group businesses under intercompany lease arrangements. Aurizon Network engaged CBRE Valuations to provide

⁸¹⁹ Aurizon Network, sub. 1: 228.

⁸²⁰ Aurizon Network, sub. 1: 228.

⁸²¹ Aurizon Network, sub. 1: 228–230.

⁸²² Aurizon Network, sub. 1: 229.

market rental value estimates for these sites.⁸²³ For multi-user sites, Aurizon Network said that market rate estimates were only applied to the areas occupied by Aurizon Network.⁸²⁴

Aurizon Network said that the remainder of its operational sites are, either:

- situated on land owned by third parties, and are subject to commercial leases, in which case costs are allocated in accordance with the licence agreement; or
- located on land owned by the State Government or Aurizon Network, in which case no associated lease/license costs are included in the proposed allowance.

Anglo American queried why Aurizon Network pays commercial rates for multi-user operational site tenancies it says are owned by Aurizon Property Pty Ltd, given the head leasing arrangements with the State Government.⁸²⁵

In its collaborative submission, Aurizon Network clarified that licence fees paid to Aurizon Operations (where the properties are owned by a related party), are based on the market rates estimated by CBRE Valuations Pty Ltd. The licence agreement between Aurizon Operations and Aurizon Network for the use of the properties provides for the licence fee to align to these market rates, and this licence fee is paid from Aurizon Network to Aurizon Operations.⁸²⁶

The QCA has reviewed Aurizon Network's approach to identifying and allocating these costs and considers it reasonable. We have also considered the advice prepared by CBRE and note that the rental estimates provided have regard to individual property characteristics and softening economic and property market conditions in many of the relevant localities. The QCA considers the market rental rates applied are reasonable.

Based on its review of Aurizon Network's expenditure models, AECOM concluded that the proposed costs for operational sites are already captured in the 2015–16 base year allocated corporate overhead cost.

The QCA understands that Aurizon Network will cease to incur costs associated with two of the operational sites, which will be decommissioned during the UT5 period. AECOM found that the costs associated with these two sites were included in the 2015–16 allocated base year cost, and recommended a negative step change of around \$0.13 million per year from 2017–18 to reflect that the sites will be decommissioned.

The QCA considers it appropriate that Aurizon Network recovers reasonable costs associated with its operational sites. We note that these costs are included in the 2015–16 base year cost and no further positive step change is needed. We accept AECOM's recommendation and have applied a total negative step change of \$0.54 million to reflect costs associated with two operational sites that will be decommissioned during the UT5 undertaking period.

Electrical assets and consumption costs

Aurizon Network's proposed enterprise real estate costs include around \$2.8 million per year in costs associated with electricity consumption charges, as well as maintenance and compliance costs for corridor electrical assets. These assets include signalling and communication equipment rooms, power equipment rooms and centralised traffic control, track coupling units,

⁸²³ Aurizon Network, Response to RFI 30, May 2017.

⁸²⁴ Aurizon Network, sub. 1: 231.

⁸²⁵ Anglo American, sub. 18: 13.

⁸²⁶ Aurizon Network, sub. 26: 21.

and power supply buildings.⁸²⁷ Aurizon Network said that these costs were comprised of around \$2 million in electricity consumption costs, and \$0.6 million in maintenance costs in the 2014–15 base year cost.⁸²⁸

Aurizon Network noted that these costs were included in the UT4 allowance for train control, safe working and operations (system-wide and regional costs). However, under the Aurizon Group's current structure, these costs are incurred within the enterprise real estate function.⁸²⁹

The proposed UT5 allowance for these costs is notably higher than the UT4 allowance of around \$1.2 million per year. In explaining the proposed increase, Aurizon Network noted that some costs may not have been fully captured in the UT4 proposal due to organisational structural change taking place. Aurizon Network also noted that the UT4 allowance did not include the costs of maintaining these assets.⁸³⁰

The QCA sought further information from Aurizon Network on the breakdown of the maintenance component, which revealed that the majority of costs in 2014–15 related to electrical services (28 per cent) and maintenance of air-conditioning (35 per cent).⁸³¹

AECOM formed the view that the proposed cost reflects a transition of functions due to organisational structural change, and recommended that the costs be accepted. AECOM reviewed the relevant cost centres in Aurizon Network's expenditure models and concluded there was no evidence of double counting of these costs. AECOM noted that the 2015–16 base year allocated corporate cost includes allowances of \$2.26 million for electrical asset consumption costs and \$0.55 million for allocated labour, attributable to this cost item.

The QCA considers that these costs are reasonable and are adequately reflected in the 2015–16 base year. As such, no further step change is required.

Finance shared services

Aurizon Network's finance shared services include accounts receivable, accounts payable, payroll processing and compliance, credit card management and reconciliations, and motor vehicle fleet management.⁸³² The proposed UT5 corporate overhead includes an annual allocated amount of around \$0.8 million for these costs. These costs are a subset of a broader category of allocated Aurizon Group finance costs.⁸³³

In UT4, finance shared service costs were allocated using the direct cost percentage. For UT5, Aurizon Network has allocated its accounts payable and accounts receivable costs using the proportion of transactions processed, and payroll costs using the FTE allocator. The balance of costs in this category are allocated using the direct cost allocator.

AECOM was of the view that using percentage of transactions processed to allocate accounts payable and receivable costs will provide an allocation that is more reflective of Aurizon Network's use of these shared functions. AECOM also noted that allocating payroll costs using

⁸²⁷ Aurizon Network, sub. 1: 230.

⁸²⁸ Aurizon Network, Response to RFI 32.

⁸²⁹ Aurizon Network, sub. 1: 230.

⁸³⁰ Aurizon Network, Response to RFI 32.

⁸³¹ Aurizon Network, Response to RFI 66.

⁸³² Aurizon Network, sub. 1: 226.

⁸³³ These costs are distinct from the 'Network Finance' function, which has been included in the proposed system-wide and regional operating cost allowance.

an FTE allocator is considered reasonable practice, and has been used previously by regulated businesses, including SA Power.⁸³⁴

The QCA has considered Aurizon Network's proposed methods for allocating finance shared services costs and considers them reasonable and likely to result in an appropriate allocation of costs.

Network Legal and Network Finance

As discussed in section 7.5.3, the QCA considers Aurizon Network's proposal to categorise Network Legal and Network Finance costs as direct Business Management costs (included in the system-wide and regional cost allowance) is reasonable. The QCA and AECOM have reviewed Aurizon Network's expenditure models and found no indication of double counting in the process of re-categorising these costs as system-wide and regional costs.

Non-coal deductions

Aurizon Network's proposed allocated corporate overheads do not include any explicit adjustment for costs associated with providing below-rail services to non-coal-carrying trains on the CQCN.

In our consideration of system-wide and regional costs, we concluded it reasonable that some portion of the costs associated with providing below-rail services would be related to non-coal access, and should therefore be excluded from regulated revenues.

Conceptually, this logic could also reasonably be applied to allocated corporate overhead costs. However, Aurizon Network's allocated corporate overhead allowance is estimated using the assumption of costs that would be incurred by a standalone network business. This assumption implies that the allocated cost base may include expenses that are not directly related to the provision of below-rail services to coal-carrying trains, but would likely be incurred if Aurizon Network was a standalone business. If bound to this assumption, it is arguably reasonable that the allocated corporate overhead include some allowance for services provided to non-coal-carrying trains.

As noted in section 7.6.1, the QCA considers there may be other ways of estimating an efficient corporate overhead allocation for Aurizon Network; nonetheless, we consider using the assumption of a standalone entity is an acceptable approach at this time.

The QCA will not require Aurizon Network to apply discrete non-coal deductions to its allocated corporate overhead allowance at this stage. Nonetheless, we are minded to undertake a review of cost allocation methods in future, to establish an allocation approach that efficiently shares costs between coal and non-coal traffic, where such sharing is appropriate and reasonable.

QCA assessment

The QCA considers that Aurizon Network's proposed allocators for shared corporate costs are generally reasonable, subject to:

- Updating the proposed FTE allocator to 16.1 per cent, reflecting more recent data
- Allocating shared IT costs using a causal allocator such as number of software licences, but in the absence of that information, FTE's as a reasonable proxy.

The QCA's conclusions on reasonable corporate overhead allocation rates are set out in Table 59.

⁸³⁴ AECOM 2017b: 28.

Table 59 QCA assessment of allocators for corporate overheads

<i>Allocator</i>	<i>UT5 proposed (%)</i>	<i>QCA assessment (%)</i>
Direct costs	24	24
FTE	15.8	16.1
Finance—accounts payable	14	14
Finance—accounts receivable	31	31
Specific	100	100

7.6.4 Step changes

Aurizon Network's proposal

Aurizon Network currently occupies office space at 192 Ann Street, Brisbane under a licence agreement with Aurizon Operations. Aurizon Network said that it pays a licence fee equal to the commercial rent paid by Aurizon Operations for the premises.⁸³⁵ Aurizon Operations also occupies office space at 175 Eagle Street, Brisbane.

The Aurizon Group has announced that it will consolidate its two Brisbane corporate premises, to a new headquarters at 900 Ann Street from September 2018. Aurizon Network's proposed corporate overhead allowance includes rent and other tenancy costs, such as utility charges, outgoings, compliance reporting, land tax, repairs and maintenance for its share of 900 Ann Street costs, in place of 192 Ann Street from September 2018.⁸³⁶

In total, the corporate office consolidation results in allocated incremental costs for Aurizon Network of around \$1.7 million (\$ 2015–16) over the UT5 undertaking period, compared with the current tenancy arrangements. The step change in costs commences in 2018–19.

Aurizon Network did not identify any further step changes to occur during the UT5 undertaking period. Other proposed incremental allocations of costs (operational sites and electrical asset consumption and maintenance) are addressed in section 7.6.3.

QCA analysis and assessment

We have reviewed internal Aurizon documentation which outlines the evaluation of options and describes implementation plans relating to the corporate consolidation. The QCA understands that the decision to consolidate the Aurizon Group's Brisbane premises was made to ensure that head office accommodation aligns with and supports its corporate strategy, and to improve collaboration across the business.⁸³⁷

Anglo American considered that there was insufficient detail in Aurizon Network's proposal to determine whether the costs of leasing arrangements are reasonable and prudent. Anglo American said Aurizon Network should disclose the costs of its tenancy arrangements.⁸³⁸

Based on information supplied by Aurizon Network, the corporate office consolidation will deliver a substantial reduction in total occupancy costs to the Aurizon Group over the 10-year

⁸³⁵ Aurizon Network, sub. 1: 230.

⁸³⁶ Costs are allocated to Aurizon Network at a rate of 25%, which is based on the proportion of Aurizon Network employees to total number of desks.

⁸³⁷ Aurizon Network, Response to RFI 63, p. 6.

⁸³⁸ Anglo American, sub. 18: 13.

lease period, compared with maintaining the current tenancies.⁸³⁹ However, occupancy costs attributable to the network business are forecast to increase.

AECOM reviewed the proposed costs and formed the view that any cost reduction available to the Aurizon Group should be passed on proportionally to Aurizon Network. AECOM concluded that rental costs at 192 Ann St would otherwise have continued to increase at a contracted rate of 3.5 per cent per annum. AECOM considered this to be a reasonable alternative estimate, while noting that it would be preferable for Aurizon Network to receive a reduction in occupancy costs in line with that being gained by the Aurizon Group.⁸⁴⁰

The QCA considers that Aurizon Network has not justified the inclusion of this proposed increase in accommodation costs. While consolidation of its corporate headquarters may be a prudent commercial decision for the Aurizon Group, it is a discretionary strategic decision; the resulting costs of which we do not consider would reasonably be included in Aurizon Network's efficient cost base if it were a standalone entity.

The AER, in its final decision on AusNet Services electricity transmission determination, expressed a similar view. It noted:

[P]roposed opex projects designed to improve the operation of the business, which we consider as discretionary in the absence of any legal requirement, should be funded by base opex and trend components, together with any savings or increased revenue that they generate—rather than through a step change. Otherwise, the business would benefit from a higher opex forecast and the efficiency gains.⁸⁴¹

The QCA considers that it is not appropriate to accept the proposed step change for costs associated with the corporate office consolidation.

We accept AECOM's advice and consider that a reasonable forecast for Aurizon Network's tenancy costs should reflect its current rent costs, escalated by the annual rental increase of 3.5 per cent, as prescribed in the existing agreement. All other outgoings such as electricity consumption and corporate contracts have been escalated by CPI inflation of 2.37 per cent.

Transformation program savings

In its review of supplementary information provided by Aurizon Network, AECOM identified a range of opportunities for cost savings over the UT5 period, which were not identified in Aurizon Network's proposal. These potential savings relate to ongoing initiatives of the Aurizon Group's transformation program, including renegotiation of outsourced contracts, and re-evaluating incentive payments.⁸⁴² AECOM proposed a negative step change to reflect some of these potential efficiencies.

Aurizon has categorised its transformation initiatives as:

- locked-in
- implementing
- cash-flowing
- evaluating.⁸⁴³

⁸³⁹ Aurizon Network, Response to RFI 63, p. 17.

⁸⁴⁰ AECOM 2017b: 37.

⁸⁴¹ AER 2017b: 21.

⁸⁴² AECOM 2017b: 40.

⁸⁴³ Aurizon Network, Response to RFI 24 and 48.

AECOM recommended that all projected savings associated with those initiatives labelled as 'locked-in', 'cash flowing' and 'implementing', be included as a negative step change. For initiatives identified as 'evaluating', AECOM assumed that not all of these would actually be implemented. AECOM noted:

Some savings are likely to be achievable, however, and it seems reasonable in principle to provide Aurizon Network with an incentive to achieve greater efficiencies where they are possible. We therefore suggest that 50% of the proposed savings be included for the next regulatory period, to encourage Aurizon Network to continue their drive for efficiency improvements, and that a true-up be undertaken at the end of the UT5 period.⁸⁴⁴

AECOM recommended that a total of \$9.3 million (\$2015–16) in transformation initiative savings be included as a negative step change across the UT5 period.

The QCA considers that some of the anticipated savings from ongoing transformational activities should be reflected in the UT5 corporate overhead allowance. We agree that the projected savings identified as 'cash-flowing', 'locked in', and 'implementing' should be fully included in the negative step change.

With regard to initiatives still under evaluation, the QCA accepts that not all of these measures will come to fruition and deliver savings. The QCA agrees with AECOM and considers it appropriate to include 50 per cent of these savings in the negative step change, in recognition of this.

Aurizon has incentives to implement its transformation initiatives and realise efficiency gains. We consider incorporating this step change reinforces those incentives, while appropriately balancing the legitimate business interests of Aurizon Network, the interests of access seekers, access holders and the public interest, in accordance with s. 138(2) of the QCA Act.

While AECOM has recommended that an *ex-post* true up of these savings occur at the end of the regulatory period, we do not consider this is necessary. To the extent that Aurizon Network is able to achieve costs savings greater than the negative step change applied, these should be reflected in the base year expenditure for the UT6 undertaking period. Likewise, if actual savings fall short of the negative step change, base year expenditures should also capture this.

Accordingly, the QCA has applied negative step changes of \$10 million in aggregate over the UT5 period (nominal, after allocation).

[QCA assessment](#)

The QCA's conclusion on step changes in allocated corporate overhead costs is set out in Table 60. This includes a negative step change to reflect the budgeted costs of two operational sites to be decommissioned during the UT5 period, as discussed in section 7.6.3.

⁸⁴⁴ AECOM 2017b: 40.

Table 60 QCA assessment of step changes in allocated corporate overheads (\$m)

<i>Step changes (\$m)</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>UT5 total</i>
Escalation of corporate accommodation costs	0.08	0.12	0.17	0.21	0.58
Transformation savings	-2.31	-2.49	-2.60	-2.66	-10.05
Decommissioned operational sites	-0.13	-0.13	-0.14	-0.14	-0.54

Note: Based on allocators set out in Table 59, except corporate accommodation which is allocated to Aurizon Network at a rate of 25%, representing the proportion of Aurizon Network employees to total number of desks.

In the QCA's view, the role of the base-step-trend method is to establish a reasonable allowance within which Aurizon Network can prudently and efficiently operate its business during a regulatory period. Forecasting expenditures using the base-step-trend approach should not be an exercise in identification and recovery of all anticipated business-as-usual costs and savings, or a supplementary cost pass-through mechanism.

The QCA has adopted a pragmatic approach to step changes for this investigation and has not applied a rigid materiality test. This is in recognition that Aurizon Network's base-step-trend method is still maturing, and efficient costs will continue to be revealed over time. In future, the QCA will place greater emphasis on materiality of incremental costs and the drivers of step changes in its assessment.

7.6.5 QCA assessment—corporate overheads

The QCA has considered each component of Aurizon Network's proposed corporate overhead allowance, and developed an alternative estimate that it considers reasonable.

Our estimate of a reasonable corporate overhead allowance is derived by making the following adjustments to Aurizon Network's proposed costs:

- substituting proposed 2014–15 base year costs with 2015–16 costs
- removal of proposed cash bonus adjustments from 2015–16 base year costs
- increase to reflect the impact of an updated FTE allocator
- removal of allocated incremental costs due to corporate office consolidation
- reduction to shared IT costs to reflect use of an FTE allocator rather than direct cost allocator
- reduction to reflect operational sites to be decommissioned and identified savings from transformation initiatives
- application of the QCA's CPI inflation forecast and updated WPI inflation forecasts (see section 7.10).

The QCA's assessment of a reasonable allowance for corporate overheads is set out in Table 61.

Table 61 QCA assessment of Aurizon Network's allocated corporate overhead costs (\$m)

<i>(\$m)</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Corporate overhead allowance	40.32	41.21	42.29	43.45	167.28

Totals may not add due to rounding.

7.7 Risk and insurance allowances

7.7.1 Aurizon Network's proposal

Aurizon Network's proposed risk and insurance arrangements consist of a combination of commercial insurance policies, self-insurance premiums for uninsured risks and below-deductible insured risks, and pass-through (review event) provisions.

Aurizon Network engaged Jardine Lloyd Thompson (JLT) and Finity Consulting (Finity) to estimate the proposed insurance and self-insurance allowances, respectively. Redacted versions of the reports prepared by these consultants are available on the QCA's website.

Aurizon Network's proposed risk and insurance allowances are set out in Table 62 below.

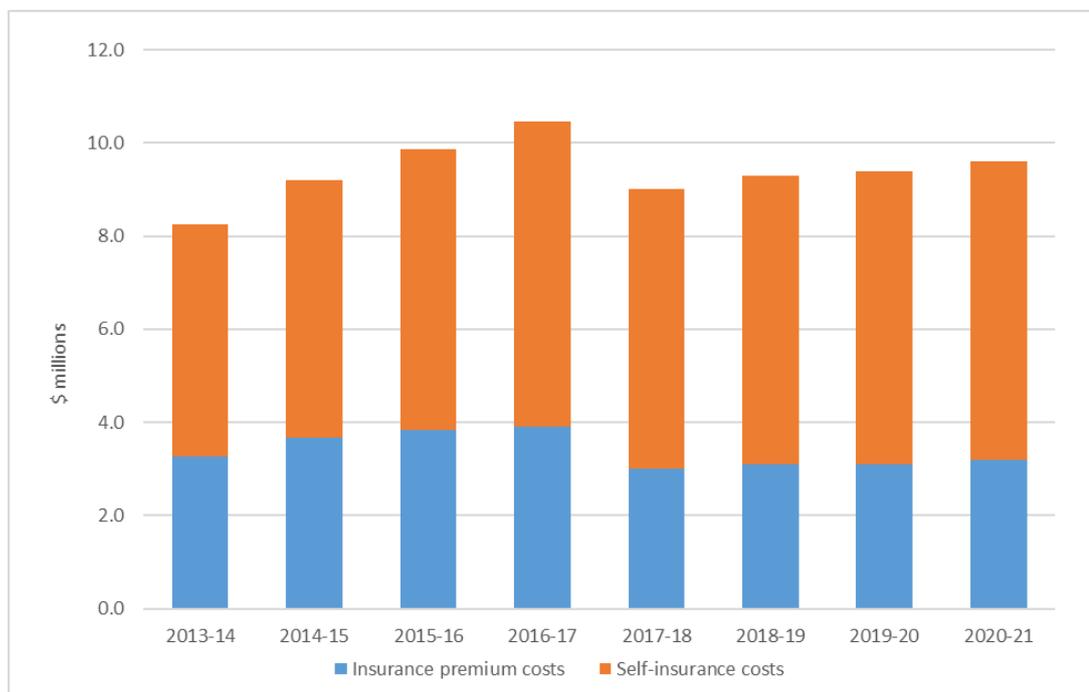
Table 62 Aurizon Network's proposed risk and insurance costs (\$m)

<i>Proposed allowances (\$m)</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Commercial insurance costs	3.04	3.08	3.12	3.16	12.40
Self-insurance costs—uninsured and retained risks	6.00	6.15	6.29	6.45	24.89
Total risk and insurance costs	9.04	9.23	9.41	9.61	37.29

Source: Aurizon Network, sub. 1: 237; Aurizon Network, UT5 Indicative Premium Summary (including statutory charges) as at 20 September 2016 (spreadsheet).

The proposed costs amount to \$37 million. Aurizon Network stated that this is seven per cent lower, in real terms, than the approved UT4 allowances. Figure 21 compares Aurizon Network's proposed UT5 risk and insurance allowances with the approved UT4 allowances.

Figure 21 Approved and proposed risk and insurance allowances (\$m)



Sources: QCA, Aurizon Network 2014 Access Undertaking, Volume IV, April 2016, p. 88; Aurizon Network, sub. 10: 8; Aurizon Network, sub. 11: 16.

Table 63 presents a summary of Aurizon Network's proposed insurance arrangements. Base premiums represent premiums before statutory charges such as the terrorism levy and stamp duty.

Table 63 Proposed insurance and risk management arrangements

<i>Risk</i>	<i>Estimated annual base premium (at September 2016)</i>	<i>Assumptions</i>
Industrial and special risks (ISR)	\$1,155,457	Limited key infrastructure commercially insured - Assumes \$100,000 deductible (\$1 million deductible for rollingstock).
General liability	\$648,000	Assumed commercial insurance. \$500,000 deductible on each and every loss.
Director and officer liability	\$407,000	Assumed commercial insurance, with deductible of \$250,000 (Company reimbursement) and \$1 million (Securities claims).
Civil liability professional indemnity	\$55,000	Assumed commercial insurance, with \$50,000 deductible.
Employment practices liability	\$6,000	Assumed commercial insurance, with \$50,000 deductible.
Terrorism—rollingstock only	\$58,014	Assumed commercial insurance, with \$500,000 deductible.
Corporate travel	\$7,500	Assumed commercial insurance—various sub-limits and deductibles.
Crime	\$25,000	Assumed commercial insurance, with \$250,000 deductible.
Marine cargo	\$115,000	Assumed commercial insurance to \$20 million, with \$50,000 deductible.
Contract works—material damage and third party liability	\$239,876	Assumed commercial insurance, with deductibles of between \$25,000 and \$150,000.
Weather-related losses—force majeure events	\$371,000	Self-insured to \$1 million. Claims over \$1 million subject to cost pass-through.
Derailment	\$3,297,000	Self-insured.
Dewirement	\$304,000	Self-insured.
Third-party repairs	\$202,000	Self-insured.
Liability losses (below-deductible)	\$495,000	Self-insured. ⁸⁴⁵

Sources: Aurizon Network, sub. 11; Aurizon Network, sub. 10; Aurizon Network, sub. 1: 240.

Commercial insurance costs

Aurizon Holdings has insurance coverage for a range of risks, through commercial policies placed with its captive insurer, Iron Horse Insurance Company Pty Ltd. It also holds other

⁸⁴⁵ Aurizon Network's submission noted that liability losses in excess of \$8 million would be subject to pass-through; however, it later clarified this is not accommodated under the 2017 DAU.

policies placed directly with the Australian insurance market. We understand that these policies provide cover to Aurizon Holdings subsidiaries for property and general liability, employment practices liability, directors and officers liability, professional indemnity, corporate travel, terrorism and industrial special risks (ISR).

Aurizon Network said that, while it does receive coverage under these policies, premiums paid reflect all of the activities of the Aurizon Group and separate premiums are not established for the Aurizon Network subsidiary business. Aurizon Network engaged JLT to estimate commercial premiums that would apply if Aurizon Network were a standalone entity.

In addition, Aurizon Network proposed the following additional premiums that were not included in its UT4 insurance allowance:

- marine cargo—covers Aurizon Network for its exposures to loss or damage to goods whilst being transported or in transit
- contract works—covers material damage and third party liability. Premium is based on the value of assets under construction
- crime—cover for loss arising from employee dishonesty, forgery and third party computer and funds transfer fraud.

JLT also estimated a premium for motor vehicle insurance, although Aurizon Network confirmed that it did not include an allowance for this premium in its proposal.

Table 64 illustrates the proposed base premiums for UT5 compared with the proposed UT4 equivalent costs. This illustrates that while a number of premiums have increased, the base premiums in aggregate are less than those proposed for UT4.

Table 64 Changes in estimated commercial insurance costs from UT4—base premiums

<i>Commercial insurance policies</i>	<i>Proposed base premiums (\$)</i>		
	<i>UT4 (2012–13)</i>	<i>UT5 (2016–17)</i>	<i>% change</i>
General liability	633,262	648,000	2%
Industrial special risks (ISR)	2,276,277 ^a	1,155,457	–49%
Directors and officers liability	290,956	407,000	40%
Civil liability and professional indemnity	27,062	55,000	103%
Employment practices liability	3,033	6,000	98%
Terrorism	Included in ISR premium	77,903 ^b	n/a
Corporate travel	3,355	7,500	124%
Marine cargo, contract works, crime	0	379,876	n/a
Total	3,233,945	2,736,736^c	–15%

a Includes estimated terrorism insurance policy premium and terrorism levies applied to ISR policies.

b Includes estimated terrorism levies applied to ISR policies.

c Includes estimated terrorism levies on ISR policies of \$19,889.

Note: All base premium costs exclude GST and stamp duty.

Source: Aurizon Network, 2013 Draft Access Undertaking, Volume 3, 30 April 2013, pp. 263–264; Aurizon Network, sub. 11; Aurizon Network, UT5 Indicative Premium Summary (including statutory charges) as at 20 September 2016 (spreadsheet).

Table 65 sets out Aurizon Network's proposed notional commercial insurance premiums for the UT5 period. These premiums include a statutory terrorism levy of 2.6 per cent of the industrial special risk premium (excluding rolling stock), and stamp duty of nine per cent applied to all premiums.⁸⁴⁶ Aurizon Network's proposed premiums do not include GST.

Consistent with the UT4 approach, Aurizon Network has identified the proportion of ISR costs associated with feeder stations, to enable these costs to be allocated to the operating expenditure allowance for electric assets.

To establish notional premiums for each year of the period, Aurizon Network has indexed JLT's 2016–17 base estimates (including statutory charges) by forecast CPI inflation.⁸⁴⁷ The proposed commercial insurance costs amount to \$12.4 million over the UT5 period.

Notwithstanding increases in some individual policy estimates, and the inclusion of premiums for additional policies, the total estimated cost of commercial insurance over the UT5 period is lower than the approved UT4 allowance.

Table 65 Proposed commercial insurance costs—notional premiums (\$m)

<i>Commercially insured risk (\$m)</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Industrial special risks	1.31	1.32	1.34	1.36	5.33
Non-electric	0.88	0.89	0.90	0.91	3.57
Electric (feeder stations)	0.43	0.44	0.44	0.45	1.76
General liability	0.72	0.73	0.74	0.75	2.94
Directors and officers liability	0.45	0.46	0.46	0.47	1.84
Civil liability professional indemnity	0.06	0.06	0.06	0.06	0.25
Marine cargo	0.13	0.13	0.13	0.13	0.52
Contract works	0.27	0.27	0.27	0.28	1.09
Employment practices liability	0.01	0.01	0.01	0.01	0.03
Terrorism—rollingstock only	0.06	0.07	0.07	0.07	0.26
Corporate travel	0.01	0.01	0.01	0.01	0.03
Crime	0.03	0.03	0.03	0.03	0.11
Total	3.04	3.08	3.12	3.16	12.40

Note: Totals may not add due to rounding. Values represent notional premiums, inclusive of statutory charges (assumed terrorism levies, and stamp duty).

Sources: Aurizon Network, sub. 1: 238; Aurizon Network, UT5 Indicative Premium Summary (including statutory charges) as at 20 September 2016, unpublished spreadsheet; QCA analysis.

Self-insurance costs

Aurizon Network proposed to self-insure for a number of uninsured risks, and below-deductible losses on some insured risks.

⁸⁴⁶ For more information on the statutory terrorism levy, see Aurizon Network, sub. 11.

⁸⁴⁷ JLT applied escalation based on an estimate of forecast change in the ABS Insurance and Financial Services index, however this was not adopted by Aurizon Network.

Aurizon Network said that its below-deductible, self-insured losses relate to insured risks where it has material levels of retained risk, either due to the frequency or size of losses, primarily property and public liability losses.⁸⁴⁸

Aurizon Network's uninsured risks primarily relate to tracks and associated infrastructure that commercial insurance markets typically do not have the appetite to underwrite.⁸⁴⁹ Aurizon Network proposed self-insurance allowances for the following uninsured risks:

- derailment
- dewirement
- weather damage (storms, floods and extreme heat)
- third-party repairs.

Aurizon Network proposed to include a self-insurance allowance for third party repairs, which was not included in UT4. This allowance relates to the cost of repairing damage to the network caused by third parties, net of any recovery made against the responsible party.⁸⁵⁰

Aurizon Network engaged Finity to estimate allowances for these self-insured risks. Finity's estimation approach is largely the same as that used to estimate Aurizon Network's UT4 premiums.

Finity estimated future losses for each risk based on historical observations, and derived notional insurance 'premiums' by adding to the base costs a 10 per cent loading for expenses (derailment losses only) and a 20 per cent loading for profit and the net cost of reinsurance. The QCA notes that the proposed profit and reinsurance loading applying to Finity's UT4 estimates was 15 per cent.

Table 66 sets out Finity's estimated total projected self-insured losses (before application of loadings) compared with the equivalent UT4 estimates.

Table 66 Finity's projected self-insured losses (before loadings)

<i>Risk</i>	<i>Total projected losses (\$m)</i>		
	UT4	UT5	% change
Derailment	16.26	13.64	-16%
Dewirement	0.73	1.27	74%
Weather-related losses	3.41	1.54	-55%
Third party repairs	n/a	0.84	
Liability (below-deductible losses)	1.94	2.10	8%
Total	22.34	19.38	-13%

Note: Values represent base premiums and are net of loadings for expenses and profits.

Sources: Aurizon Network, sub. 10: 41; Finity, Review of Self Insurance Risk Premium—Access Undertaking UT4, March 2013, p. 38.

Finity noted that its estimate of projected losses for the UT5 period is lower than that assumed for UT4. This is largely due to:

⁸⁴⁸ Aurizon Network, sub. 1: 239.

⁸⁴⁹ Aurizon Network, sub. 1: 239.

⁸⁵⁰ Aurizon Network, sub. 10: 36.

- increased emphasis on preventative maintenance and rail restressing in recent years which has seen the frequency of low-severity derailments trending downwards, relative to medium- and high-severity events
- the net cost of weather-related events has decreased due to a greater incidence of events captured by pass-through provisions (i.e., relatively fewer events with costs below the pass-through threshold).

Table 67 sets out Aurizon Network's proposed notional self-insurance premiums for the UT5 period, inclusive of a 10 per cent loading for expenses (applied to derailment losses only) and a 20 per cent loading for profit and the net cost of reinsurance.

Table 67 Proposed self-insurance costs—notional premiums (\$m)

<i>Self-insured risk (\$m)</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Derailment	4.35	4.45	4.55	4.65	18.00
Dewirement	0.36	0.38	0.39	0.39	1.52
Weather-related losses	0.45	0.46	0.47	0.48	1.84
Third party repairs	0.24	0.25	0.25	0.26	1.00
Liability (below-deductible losses)	0.59	0.63	0.64	0.67	2.52
Total	6.00	6.15	6.29	6.45	24.89

Note: Numbers may not sum due to rounding.

Source: Aurizon Network, sub. 1: 240.

7.7.2 QCA analysis and assessment

When assessing Aurizon Network's proposed risk and insurance costs, we have had regard to the factors set out in s. 138(2) of the QCA Act and weighed them appropriately in our assessment.

The QCA considers that it is in the legitimate business interest of Aurizon Network that it be permitted to recover reasonable costs associated with maintaining a prudent insurance program. We accept that Aurizon Network's insurance and risk arrangements for the CQCN may include a combination of corporate insurance premiums, self-insurance and cost pass-through (review event) arrangements. However, we do not consider Aurizon Network's proposed allowance are reasonable.

The QRC and Anglo American also expressed concerns with Aurizon Network's proposed insurance costs.

Our considerations and assessment of reasonable allowances for risk and insurance costs are set out below.

Self-insurance

The QCA has considered Aurizon Network's proposal and Finity's actuarial analysis and considers the approach is generally reasonable for forecasting the value of uninsured losses. We note that projected self-insured losses are lower in aggregate compared with the UT4 approved allowances. This decrease appears to be largely driven by the impact of recent rail stressing and preventative maintenance activities on the frequency and severity of derailment events.

Notwithstanding this overall reduction, the QCA has a number of concerns with Aurizon Network's proposed self-insurance costs, as discussed below.

Trade-offs between losses and maintenance activities

Aurizon Network proposes an extensive re-railing program for the UT5 period. All other things being constant, this would reasonably be expected to improve the overall condition and safety of track, and reduce instances of derailment. Similarly, Aurizon Network is proposing to undertake significant upgrades to drainage and culverts which could reasonably be expected to improve resilience to flood damage and reduce the magnitude of flood-related losses.

Aurizon Network's projected losses are based on historical average losses, which capture the effect of past preventative maintenance and rail stressing activities. This is evident in the lower historical average derailment losses observed in recent years. However, projected losses do not appear to take account of work to be carried out during the UT5 period and its potential impact on the frequency and severity of losses. To the extent that Aurizon Network makes further improvements to track condition and drainage during the UT5 period, we could expect to see some corresponding incremental reduction in derailment events and damage from floods.

Where possible, there may be scope to improve the accuracy of forecasts by considering the impact of incremental changes in other determinants of exposure (such as asset condition and resilience), during a prospective regulatory period. Nonetheless, we consider that forecasting based on average historical losses is reasonable, noting that any reduction in average losses realised during the UT5 period will flow through as lower projected losses in subsequent undertaking periods.

Escalation of losses

In order to inflate historical average losses to nominal terms for the UT5 period, Aurizon Network has applied the maintenance cost index (MCI) to all categories of historical losses. Aurizon Network said that this reflects that the expected costs of rectifying future losses are all inherently linked to maintenance tasks.⁸⁵¹

While the majority of losses would reasonably require reparation actions akin to maintenance activities, the QCA does not consider this necessarily true for liability losses. In our view, liability losses would be more appropriately escalated by forecast CPI inflation than MCI. Nonetheless, we do not consider the difference to be material in this case. The QCA has not adjusted Aurizon Network's proposed losses to reflect its draft decision on the MCI as we do not consider the impact to be material in this case.

Projected losses for derailment and dewirement are sensitive to forecast volumes, as a measure of exposure. Similarly, Finity's method uses company turnover as a measure of exposure in projecting liability losses. The QCA has updated the projected derailment and dewirement losses using revised volume forecasts (Chapter 6), based on Finity's per-unit measures of exposure.⁸⁵² No adjustments have been made to liability losses for updated company turnover values; however, we will consider such revisions should Aurizon Network propose them in response to this draft decision.

Formalising the self-insurance function

Aurizon Network has chosen not to implement a formal self-insurance function. This is notwithstanding the QCA's previous decisions⁸⁵³, in which it clearly articulated what it considered was a necessary set of criteria for implementing a self-insurance program. These

⁸⁵¹ Aurizon Network, Response to risk and insurance RFI 13.

⁸⁵² See, Aurizon Network, sub. 10: 42.

⁸⁵³ For example, the QCA's draft decisions on the 2005, 2009 and 2010 DAUs.

criteria included providing a Board resolution to self-insure the identified risks. Aurizon Network has not sought a Board resolution and has indicated that it does not intend to do so.⁸⁵⁴

Despite this, Aurizon Network's UT5 proposal seeks to include costs to manage a self-insurance scheme that has not been formally established or endorsed. These costs include a margin of 20 per cent for profits and reinsurance costs, and a 10 per cent loading for expenses (applied to derailment losses only).

The QCA maintains that it is reasonable that access holders and their customers receive the comfort of a resolution from Aurizon Network's directors that the business will cover the costs of uninsured risks. In the absence of a clear commitment from Aurizon Network to do so, the QCA does not consider it reasonable that Aurizon Network recovers any margins for profits or reinsurance through its self-insurance allowance. These costs represent compensation that a commercial insurer would demand for insuring risks and are surplus to a reasonable allowance for uninsured losses.

The QCA considers it reasonable to provide an operating cost allowance equal to the value of projected uninsured losses only, including reasonable expenses for derailments. However, given Aurizon Network's reluctance to commit to formally self-insuring these risks, the QCA considers that the majority of these projected losses are essentially unplanned or corrective maintenance costs and suggests Aurizon Network consider treating them as such in future.

Commercial insurance

The QCA has considered Aurizon Network's proposal and the JLT analysis and notes the methodology adopted for estimating commercial insurance premiums is largely consistent with the UT4 approach. Aurizon Network has however included additional insurance premiums, and the projected cost of some premiums has increased. Notwithstanding this, Aurizon Network's proposed UT5 insurance premiums are lower than those approved for the UT4 undertaking period.

While the QCA considers the overall approach to estimating commercial insurance premiums is generally reasonable and supported by expert advice, it has concerns with some of the proposed allowances, as discussed below.

Civil liability and indemnity

Aurizon Network has proposed a total allowance of \$0.25 million for civil liability and professional indemnity insurance premiums. Aurizon Network said that this insurance provides coverage in respect of claims for civil liability arising from the provision of professional services to third parties.⁸⁵⁵

In its report, JLT noted:

Whilst Network asked JLT to include premium costings for this type of policy, in the complete insurance questionnaire, Network were unable to identify any professional services provided to third parties that were specifically attributable to CQCN. Revenue derived from Network's Professional Services was declared to be incidental at a figure of circa \$500k.⁸⁵⁶

Willis Australia Limited (Willis) made a similar observation in its 2013 report providing advice on Aurizon Network's commercial insurance premiums for the UT4 period. Willis noted:

⁸⁵⁴ Aurizon Network, Response to risk and insurance RFI 2.

⁸⁵⁵ Aurizon Network, Response to risk and insurance RFI 12.

⁸⁵⁶ Aurizon Network, sub. 11: 9.

Whilst our brief was to include premium costings for this type of insurance the completed insurance questionnaire provided no details of Professional Services being undertaken in relation to the QCN and a nil annual income was therefore declared for such Professional Services. Therefore, the only premium costing we can provide is a minimum premium, which would be required by the Australian insurance market, should Professional Services be being undertaken of a similar nature to those declared under the annual Aurizon Holdings coverage.⁸⁵⁷

The QCA asked Aurizon Network to confirm whether it provides, or expects to commence providing, any professional services that would be considered insurable under such a policy. We also asked Aurizon Network to explain the extent to which these professional services are necessary for providing the declared service.

In its response, Aurizon Network identified examples of activities that may be subject to such an insurance policy, including engineering studies, training, feasibility studies, project management work, and design of third party rail infrastructure. Aurizon Network said it provides such services from time to time.⁸⁵⁸ Aurizon Network also cited feasibility studies related to an expansion as a further example, but said it was unaware if any of these will occur during the UT5 period.⁸⁵⁹

The QCA considers it is not appropriate to include the proposed premium for civil liability and professional indemnity in the forecast operating expenditure allowance. The QCA considers that Aurizon Network has not justified the need for the proposed premium.

Marine cargo insurance

Aurizon Network's proposed insurance allowance includes a total premium of \$0.52 million for marine cargo insurance. This premium was not included in the UT4 allowance.

Aurizon Network said that marine cargo insurance provides coverage for property owned or leased by Aurizon Network whilst in transit. Aurizon Network cited an example as coverage provided for physical loss or damage to unregistered plant and equipment being moved around central Queensland by road transport.⁸⁶⁰

In estimating this premium, JLT noted:

It is understood that it is extremely difficult to estimate the total value of goods that is transported in any one policy period and therefore the premium has been calculated on the estimated revenue of [redacted].⁸⁶¹

While the QCA accepts that while some level of insurance cover for plant and equipment while in transit may be reasonable, it is not clear that revenue is an appropriate basis for estimating a hypothetical premium. The fact that the value of goods transported cannot be readily estimated suggests that transportation occurs infrequently and/or the value of goods transported is highly variable. Notwithstanding this, one would assume that Aurizon Network maintains a record of all insured consignments, including the value of the goods transported, which could presumably inform an actuarial estimate of a suitable premium.

The QCA considers Aurizon Network has not substantiated the value of the proposed premium and considers it is not appropriate to be included in the expenditure allowance. As a general observation, if road transportation of plant and equipment occurs relatively infrequently, the

⁸⁵⁷ Willis 2013: 5.

⁸⁵⁸ Aurizon Network, Response to risk and insurance RFI 12.

⁸⁵⁹ Aurizon Network, Response to risk and insurance RFI 12.

⁸⁶⁰ Aurizon Network, Response to risk and insurance RFI 11.

⁸⁶¹ Aurizon Network, sub. 11: 13.

QCA considers a prudent operator would consider placing these policies on a per-consignment basis, and allocate costs directly to the relevant cost centre as a transportation expense.

Review events

Aurizon Network's proposal indicated its intent to use review event or 'cost pass-through' provisions of the 2017 DAU to recover costs associated with the following:

- major weather events where below-rail losses exceed \$1 million
- catastrophic damage to the network from perils such as earthquake and other natural disasters where losses exceed \$1 million
- liability losses which exceed \$8 million.

Aurizon Network said that these arrangements are consistent with approved UT4 arrangements.

The QCA notes that, while the first two events could qualify as review events under section 5.3 of Schedule F of the 2017 DAU, there does not appear to be scope to recover liability losses in excess of \$8 million, as Aurizon Network has proposed.

In response to the QCA's request to clarify its intent, Aurizon Network acknowledged that the DAU does not contain a provision to accommodate such a pass-through, nor has it proposed to introduce one. Aurizon Network said:

The \$8m threshold was originally derived as 1% of projected revenue (although this was established in the UT3 report). In the data supplied to Finity, there are no liability losses which exceed \$8m, so this has not affected their estimates.

Both the approved 2016AU and the 2017 DAU do not contain any provisions that allow for the cost pass through of liability losses. Cost pass-throughs are only limited to those contained within Schedule F, Clause 5.3 of the 2017 DAU (which are the same as the 2016AU).⁸⁶²

On this basis, the QCA has not given consideration to the proposed \$8 million threshold for liability losses. The QCA's assessment of Aurizon Network's proposed review event provisions are discussed in Chapter 8.

The QRC expressed concern regarding the potential overlap between recovery of costs through self-insurance allowances and the review event mechanism. Anglo American shared this concern and said the access undertaking should include more prescriptive details regarding which assets and events are funded using self-insurance collected from users.⁸⁶³ Anglo American added that the application of Aurizon Network insurance coverage (external, internal and self-insurance) is never clear.⁸⁶⁴

The QRC questioned the continued justification of significant self-insurance premiums, given that users pay for replacement of below-rail track infrastructure damaged by unforeseen events through the review event mechanism.⁸⁶⁵ The QRC also noted Aurizon Network's proposed thresholds for review events and considered that the undertaking does not prevent Aurizon Network for seeking to recover costs below those amounts (i.e. costs for which it is seeking self-insurance premiums) through the cost pass-through mechanism.⁸⁶⁶ The QRC considered that

⁸⁶² Aurizon Network, response to risk and insurance RFI 7.

⁸⁶³ Anglo American, sub. 18: 25.

⁸⁶⁴ Anglo American, sub. 18: 23.

⁸⁶⁵ QRC, sub. 21: 50.

⁸⁶⁶ QRC, sub. 21: 50.

either self-insurance premiums should be reduced or the cost pass-through mechanisms restricted such that they do not apply to events below the identified thresholds (for which the self-insurance premium has been provided).⁸⁶⁷

In its March 2017 submission, Aurizon Network said that the access undertaking is clear about self-insurance and cost pass-through mechanisms.⁸⁶⁸ Aurizon Network said:

The only mechanism to seek recover of additional costs is the review event mechanism contained within Schedule F of the Access Undertaking. There is a minimum threshold for cost, requiring incremental costs to exceed at least \$1 million before a claim can be considered. There are also other triggers outlined in Schedule F, Clause 5.3 which prevent claims under the \$1m threshold. If incremental costs are under \$1m and meet the requirement of a Force Majeure Event, then it would be expected that these costs would be incurred by Aurizon Network as these are recovered through the self-insurance process and costs built into the Reference Tariffs.⁸⁶⁹

The QCA considers the distinction between self-insurance events and review event provisions is sufficiently clear. We also note that the 2016 Undertaking required additional reporting criteria to be included regarding insurance costs (now contained in clause 3.7.2 of the 2016 Undertaking).⁸⁷⁰ These provisions were included to improve transparency and address concerns of the type expressed by Anglo American and the QRC.

QCA assessment

Self-insurance

While self-insurance may feature in a prudent insurance program, Aurizon Network has chosen not to implement a formal self-insurance function. This is notwithstanding the QCA's previous decisions⁸⁷¹, in which it clearly articulated what it considered was a necessary set of criteria for implementing a self-insurance program. These criteria included providing a Board resolution to self-insure the identified risks. Aurizon Network has not sought a Board resolution and has indicated that it does not intend to do so.⁸⁷²

For these reasons, the QCA considers Aurizon Network's proposed self-insurance allowance is not reasonable. The QCA considers it reasonable to approve an operating cost allowance for projected uninsured losses only, exclusive of margins for profits and the cost of reinsurance. The proposed margin of 10 per cent for derailment expenses is considered reasonable and this has been included in our alternative allowance. The QCA's alternative allowance applies MCI escalation as proposed by Aurizon Network and applied by Finity.

However, given Aurizon Network's reluctance to commit to formally self-insuring these risks, the QCA considers that the majority of these projected losses are more akin to unplanned or corrective maintenance costs and suggests Aurizon Network considers treating them as such in future.

Commercial insurance

The QCA considers the majority of Aurizon Network's proposed commercial insurance premiums are generally reasonable. However, we consider that Aurizon Network has not

⁸⁶⁷ QRC, sub. 21: 50.

⁸⁶⁸ Aurizon Network, sub. 26: 8.

⁸⁶⁹ Aurizon Network, sub. 26: 21.

⁸⁷⁰ See UT4 final decision, Vol. I: 159.

⁸⁷¹ For example, the QCA's draft decisions on the 2005, 2009 and 2010 DAUs.

⁸⁷² Aurizon Network, Response to risk and insurance RFI 2.

substantiated its claim for civil liability and professional indemnity or marine cargo premiums. We have excluded these premiums from our alternative estimate and have also applied our estimated CPI inflation forecast.

Assessment of risk and insurance allowances

In summary, we consider it appropriate to make the following adjustments to Aurizon Network's proposed risk and insurance costs:

- reduction to proposed costs for uninsured and retained risks (self-insurance) to reflect removal of profit margins and costs of reinsurance
- reduction to reflect the removal of the proposed premiums for civil liability and professional indemnity, and marine cargo, which we consider are unsubstantiated
- increase to reflect the application of the QCA's volume forecasts to projected derailment and dewirement losses
- increase to commercial premiums to reflect the application of the QCA's CPI inflation forecast.

Applying these adjustments results in a total allowance for risk and insurance costs that is less than Aurizon Network's proposal. The QCA's assessment is set out in Table 68.

Table 68 QCA assessment of risk and insurance allowances for UT5 (\$m)

<i>Allowance (\$m)</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Commercial insurance costs					
Non-electric	2.45	2.51	2.57	2.63	10.16
Electric	0.44	0.45	0.46	0.47	1.81
Uninsured losses and retained risks (self-insurance)	5.11	5.26	5.39	5.49	21.25
Total risk and insurance costs	8.00	8.22	8.42	8.59	33.22

Totals may not add due to rounding.

7.8 Electricity transmission and connection costs

7.8.1 Aurizon Network's proposal

Aurizon Network has proposed a total cost of \$324 million over the UT5 period for electricity transmission and connection costs. This expenditure reflects the forecast costs associated with transporting electricity from generators to overhead power infrastructure via connections with the Powerlink and Ergon Energy networks.⁸⁷³

Under Aurizon Network's 2017 DAU, these costs are recovered through the AT5 reference tariffs on the Blackwater and Goonyella Systems, consistent with treatment of these costs in the 2016 Undertaking. Aurizon Network's proposed transmission costs are set out in Table 69.

Aurizon Network noted that the forecast annual costs for each year of the UT5 period are lower than the 2016–17 costs (the final year of the UT4 period). Aurizon Network attributed this to an expectation that transmission charges will be lower as a result of Powerlink's proposed revenues for the 2018–22 regulatory control period. Aurizon Network also said that it has

⁸⁷³ Aurizon Network, sub. 1: 241.

sought opportunities to optimise its transmission pricing arrangements, which are expected to result in cost savings during the UT5 regulatory period.

These forecasts do not include the costs of purchasing electric energy supplied to electric traction trains. These costs are discussed in section 7.9.

Table 69 Aurizon Network's proposed transmission and connection costs (\$m)

<i>System</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Blackwater (including Rolleston)	40.34	41.27	42.12	42.99	166.73
Goonyella	38.35	39.04	39.75	40.47	157.60
Total	78.69	80.31	81.87	83.45	324.32

Source: Aurizon Network, Connection costs spreadsheet.

Totals may not add due to rounding.

Aurizon Network said that it is exploring options to reduce its transmission costs including through ongoing implementation of regenerative braking, and the use of AC locomotives on the Blackwater System to reduce the need for harmonic filters. Aurizon Network said that these initiatives could drive improvements in reliability and present opportunities to optimise connection points in the Blackwater System.⁸⁷⁴

Aurizon Network's UT5 transmission cost forecasts exclude transmission connection costs associated with three connection points (Dingo, Moranbah South and Rocklands), which the QCA understands will be decommissioned during the UT5 period.⁸⁷⁵

Updated transmission costs—May 2017

On 10 May 2017, Aurizon Network notified the QCA that electricity transmission prices for 2017–18 would change from those used in setting 2017–18 transitional reference tariffs. As a result of this change, transmission costs in the approved transitional AT₅ tariff for 2017–18 would change by more than 2.5 per cent.⁸⁷⁶

Under the endorsed variation event provisions of the 2016 Undertaking⁸⁷⁷, Aurizon Network is entitled to request that 2017–18 transitional reference tariffs be varied to reflect this change in electricity transmission costs. However, Aurizon Network requested that the QCA consider the revised transmission cost forecasts in making its UT5 draft decision, rather than adjusting transitional reference tariffs. Aurizon Network stated:

Instead of seeking to amend its submitted FY2018 Transitional Reference Tariffs in respect of an Endorsed Variation Event, Aurizon Network requests that the QCA adjust the Transmission and Connection costs within the electric revenue build-up of its Draft Decision on UT5 to reflect the FY 2018 Revised Pricing....⁸⁷⁸

⁸⁷⁴ Aurizon Network, sub. 1: 242.

⁸⁷⁵ Aurizon Network, Connection summary spreadsheet.

⁸⁷⁶ Aurizon Network 2017b.

⁸⁷⁷ An endorsed variation event includes a change in electricity transmission prices that varies the electricity costs reflected in the AT₅ tariff by more than 2.5 per cent. Under clause 5.2(b) of Schedule F of the 2016 Undertaking, Aurizon Network is able to request a variation in reference tariffs within 60 days of being aware of an endorsed variation event.

⁸⁷⁸ Aurizon Network 2017b.

Aurizon Network said that it had outlined its proposal with stakeholders who expressed no concerns with the revised 2017–18 transmission and connection charges being treated as part of the UT5 process.⁸⁷⁹

Updated transmission costs—July 2017

In July 2017, Aurizon Network provided further revised transmission cost forecasts for each year of the UT5 period, as set out in Table 70 below.

Table 70 Aurizon Network's revised transmission and connection costs (\$m)

<i>System</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Blackwater (including Rolleston)	36.59	37.19	37.76	37.76	149.31
Goonyella	35.88	36.64	37.07	37.07	146.67
Total	72.47	73.83	74.84	74.84	295.98

Source: Aurizon Network, *Connection V.2 summary*, 4 July 2017.

Totals may not add due to rounding.

7.8.2 QCA analysis and assessment

No stakeholders commented on Aurizon Network's proposed transmission costs, with the exception of the QRC, who said:

QRC accepts these charges being passed through via the MAR at cost, subject to QCA scrutiny as to whether those costs, including decisions in relation to investment in new feeder stations, are efficient.⁸⁸⁰

The Australian Energy Regulator (AER) is responsible for the economic regulation of electricity network businesses, including Powerlink and Ergon Energy under national energy market legislation and rules.⁸⁸¹

For most of Aurizon Network's connections to the transmission network, access and usage charges are directly regulated by the AER, because they are classified as prescribed transmission services. For these services, Aurizon Network pays regulated prices determined in accordance with the National Electricity Rules (NER) and the regulatory determinations of the AER. Setting of these prices is facilitated by AER approval of Powerlink's pricing methodology, and Ergon Energy's tariff structure statement and annual pricing proposals.⁸⁸²

The remaining transmission connections are for the sole use of Aurizon Network, and are classified as negotiated services.⁸⁸³ Charges for these services are determined by negotiation between the network provider and user, or arbitration and dispute resolution by a commercial arbitrator. To facilitate these processes, the AER approves:

- a negotiating framework, which sets out procedures for negotiating the terms and conditions of access

⁸⁷⁹ Aurizon Network 2017b.

⁸⁸⁰ QRC, sub. 21: 50.

⁸⁸¹ For further information on the AER's role and responsibilities, see: www.aer.gov.au.

⁸⁸² Under derogations at clause 9.32.1(b) of the National Electricity Rules, Ergon Energy's network assets that may otherwise be considered prescribed 'transmission' services, are treated as distribution services for the purposes of economic regulation.

⁸⁸³ Around one-third of Aurizon Network's connections are negotiated services.

- negotiated service criteria that each network service provider must apply when negotiating terms and conditions of access, including prices and access charges.

The AER is required to make a determination relating to the network providers' negotiating framework and negotiating service criteria, in accordance with the NER. The NER outlines the negotiated services principles and requirements for the negotiating framework. Under these requirements, the terms and conditions of access for a negotiated service should be fair and reasonable and any access charges should be based on the costs reasonably incurred by the network provider in providing network user access.

The AER has approved Powerlink and Ergon Energy's current negotiating framework, negotiated service criteria, pricing methodology (Powerlink), tariff structure statement and pricing proposal (Ergon Energy).

Feeder station investments

The QCA notes that two additional feeder stations (Wotonga and Memooloo) were commissioned during the UT4 period. The QRC said that the QCA should scrutinise whether the decisions in relation to investment in new feeder stations were efficient.⁸⁸⁴

Aurizon Network identified the need for the Wotonga feeder station in its 2010 Coal Rail Infrastructure Master Plan (CRIMP). In 2011, the QCA approved the scope of the projects detailed in the 2010 CRIMP.⁸⁸⁵ The Memooloo feeder station was commissioned as part of the electrification of the Bauhinia spur line between Rangal south and the Rolleston thermal coal mine. This feeder station is Aurizon Network's sole connection to the Ergon Energy distribution network.

The capital expenditure associated with both projects was approved by the QCA in its decision on Aurizon Network's 2015–16 capital expenditure claim.⁸⁸⁶ The QCA's decision was informed by an engineering assessment of the prudence of scope, standard and cost of the projects, conducted by AECOM.⁸⁸⁷

QCA assessment

The transmission charges paid by Aurizon Network are determined in accordance with an established regulatory framework, and oversight by the AER. This provides some comfort that the charges are reasonable. Aurizon Network also has an incentive to negotiate more favourable transmission connection costs to deliver a lower AT₅ tariff to promote utilisation of its electric assets.

The QCA is also mindful that Schedule F of the 2017 DAU includes a revenue cap adjustment process to reconcile differences between allowed and actual transmission costs each year.⁸⁸⁸ Subject to materiality, changes in transmission costs may also qualify as an endorsed variation event under clause 5.2(b) of Schedule F of the 2017 DAU, allowing Aurizon Network to adjust reference tariffs accordingly at any time. These mechanisms provide for symmetric, *ex post* reconciliation of forecast and actual transmission costs which minimises risk of significant forecast error.

⁸⁸⁴ QRC, sub. 21: 50.

⁸⁸⁵ QCA 2011.

⁸⁸⁶ QCA 2017c.

⁸⁸⁷ AECOM 2017a: 17.

⁸⁸⁸ Clause 4.3(c)(iii), Schedule F.

For these reasons, the QCA considers that Aurizon Network's revised transmission cost forecasts are reasonable. However, as some determinants of variable transmission costs are sensitive to forecasts of electric gross tonne kilometres (egtk) (energy consumption, demand, etc.), we require Aurizon Network to update its forecasts to reflect the impact of the QCA's independent volume forecasts. We require Aurizon Network to undertake this modelling ahead of the QCA's Final Decision on the 2017 DAU.

For the purposes of establishing system allowable revenues and reference tariffs for this draft decision we have used Aurizon Network's revised transmission cost forecasts provided to the QCA on 4 July 2017, as set out in Table 70.

7.9 Electric traction energy costs

7.9.1 Aurizon Network's proposal

Aurizon Network supplies electricity to electric traction train operators through its overhead distribution network on the Goonyella and Blackwater Systems. Aurizon Network procures electricity through a supply agreement with an electricity retailer, and recovers the cost of providing this service through the electric energy charge (EC) component of reference tariffs.

The 2017 DAU provides a mechanism for the true-up of any over- or under-recovery of electric traction energy costs, as discussed in Chapter 8. In practice this mechanism means that these costs are passed through at cost, with any difference between forecast and actual costs reconciled through an *ex post* adjustment to the EC component.

In its November 2016 submission, Aurizon Network's proposed total costs for electric traction energy of \$219 million over the UT5 period, as set out in Table 71.

Table 71 Aurizon Network proposed electric traction energy costs (\$m)

	2017–18	2018–19	2019–20	2020–21	Total
Electric traction energy costs (\$m)	52.77	54.89	55.56	56.24	219.46

Source: Aurizon Network sub. 1: 243; Aurizon Network EC forecast model, January 2017.

Aurizon Network noted that its existing energy supply contract was due to expire and a new energy purchasing strategy, based on the concept of progressive purchasing, was being implemented from 1 July 2017. Progressive purchasing allows energy to be purchased periodically in 'blocks' at different prices, which are more reflective of movements in wholesale electricity market prices.

Aurizon Network submitted that it had consulted with users on its proposed approach, and had received support. The QRC endorsed the proposed approach.⁸⁸⁹

Aurizon Network submitted that the progressive purchasing strategy shares some similarities with a standard retail supply agreement; however, the retailer will apply a transparent margin to the wholesale cost of each block of electricity purchased. Aurizon Network said it expects the margin to be lower than that embedded in standard retail price contracts as there is no wholesale price risk borne by the retailer under a progressive purchasing arrangement.⁸⁹⁰ Aurizon Network said that this approach provides an improved opportunity to monitor

⁸⁸⁹ QRC, letter to Aurizon Network, 13 December 2016.

⁸⁹⁰ Aurizon Network, Proposed changes to the procurement of electricity from July 2017, unpublished information.

electricity price movements and opportunistically lock in the price for its electricity requirements in smaller blocks.⁸⁹¹

Updated electric traction energy costs— June 2017 Electric Energy Charge DAAU

In June 2017, Aurizon Network completed its tender process for the progressive purchasing supply arrangement, and provided the QCA with further information regarding its energy purchasing strategy, and proposed energy costs for the UT5 period.

Aurizon Network submitted a DAAU on 6 June 2017, which proposed an EC component for 2017–18 of \$1.083 per egtk. Aurizon Network noted that, given it was adopting a progressive purchasing approach, electricity prices beyond December 2017 had not been confirmed. As such, the proposed EC component was derived using half-year volumes, and an adjusted energy cost of \$36.35 million for the half-year to December 2017.

To establish an indicative EC component for the UT5 period, Aurizon Network proposed to retain the approved EC component for 2017–18, until it is varied. Aurizon Network said that this was in recognition that the EC component does not affect the MAR directly, and any under- or over-recoveries of electric energy costs would be reconciled through the process set out in cl. 2.2, Schedule F of the 2017 DAU.⁸⁹²

The QCA approved the DAAU on 20 June 2017, noting that:

- any final true-up of revenues is expected to be dealt with in the approval of the replacement undertaking (UT5)
- its decision relates to the 2016 access undertaking and does not limit its consideration of matters in the approval of the replacement undertaking.⁸⁹³

On 28 September 2017, Aurizon Network submitted a further DAAU seeking to extend the 2016 Undertaking period for a further six months from 1 January 2018 to 30 June 2018. In this DAAU, Aurizon Network proposed an updated EC component of \$1.01 per egtk, to apply for the second half of 2017–18.⁸⁹⁴ Aurizon Network noted that the EC component for the second half of 2017–18 is an estimate and any under- or over-recoveries will be reconciled under cl. 2.2 of Schedule F of the 2016 Undertaking and will be reflected in the setting of the 2018–19 EC component.⁸⁹⁵ The QCA approved Aurizon Network's DAAU on 9 November 2017.

7.9.2 QCA analysis and assessment

The QCA has considered Aurizon Network's progressive energy purchasing strategy and notes that it appears to have undertaken a sound procurement process. Moreover, this was developed in close consultation with industry and was supported by the QRC.

Procuring energy through a traditional fixed-price retail contract typically provides reasonable price stability, insulating customers from potentially significant short-term price volatility in the wholesale electricity market. To offer this stability, retailers bear the short-term price risk on behalf of the customer, hedge that risk, and are compensated in the form of a margin. In contrast, progressive purchasing exposes Aurizon Network's electric traction customers to significant short-term price risk, which must be managed effectively. Nonetheless, we are

⁸⁹¹ Aurizon Network 2017c.

⁸⁹² Aurizon Network, Response to request for information, email to the QCA, 4 July 2017.

⁸⁹³ QCA 2017b.

⁸⁹⁴ Aurizon Network 2017e: 7.

⁸⁹⁵ Aurizon Network 2017e: 7.

mindful that Aurizon Network has consulted with its users and obtained endorsement for the proposed approach.

Aurizon Network also proposes a mechanism in Schedule F of the 2017 DAU to reconcile any difference between forecast and actual electric traction energy costs used to set the EC component of reference tariffs.⁸⁹⁶ This recognises the volatility of wholesale electricity prices and the subsequent potential for material forecasting errors. We consider an *ex-post* adjustment is appropriate, notwithstanding our concerns outlined at Chapter 8 regarding the adjustment process itself.

For these reasons, the QCA considers Aurizon Network's proposed forecast electric traction energy costs are reasonable.

For the purposes of modelling indicative EC reference tariff components for this draft decision, we have assumed Aurizon Network's forecast electric traction energy cost for the full 2017–18 year, as implied in its September 2017 DAAU. This cost has been escalated by CPI inflation and converted to indicative EC components using the QCA's updated volume forecasts. The QCA's conclusion on indicative electric energy costs, and EC reference tariff components for the UT5 period, is set out in Table 72 below.

Table 72 QCA conclusion on indicative electric traction energy costs and reference tariff components

	2017–18	2018–19	2019–20	2020–21	Total
Electric traction energy costs (\$m)	70.13	71.79	73.50	75.24	290.66
QCA forecast egtk ('000's)	68,284,683	68,863,759	69,189,894	69,206,062	275,544,398
Indicative EC component (\$/'000 egtk)	\$1.027	\$1.043	\$1.062	\$1.087	-

As foreshadowed in our June 2017 decision on the EC component DAAU, any difference in the approved 2017–18 EC amount and actual costs will be considered in the context of the UT5 process. If any difference is known before the QCA's decision on the 2017 DAU is finalised, this may be considered and reconciled in that process. Alternatively, it may be considered through the operation of clause 2.2 of Schedule F of the 2017 DAU after commencement of the approved UT5 undertaking.

7.10 Cost escalation

The base-step-trend forecasting approach requires an estimate of the rate of change in Aurizon Network's operating costs over the UT5 period. This typically involves examining the underlying drivers of key input costs. In its most simple form, the rate of change might be a forecast measure of input price growth such as CPI inflation. More complex approaches take account of different rates of change in specific input costs (labour, materials, fuel etc.), and may include adjustments for productivity growth.

Aurizon Network's proposal

Aurizon Network has applied two indices to escalate its adjusted base year system-wide and regional costs and corporate costs over the UT5 period:

⁸⁹⁶ See Chapter 8.

- forecast change in the CPI for non-labour operating costs
- forecast change in the WPI for labour costs.⁸⁹⁷

Aurizon Network's proposed real cost escalators are illustrated in Table 73.

Table 73 Aurizon Network's proposed real cost escalators

	2015–16	2016–17	2017–18	2018–19	2019–20	2020–21
WPI—Labour (%)	2.25	2.75	3.00	3.25	3.25	3.25
CPI— Non-labour ^a (%)	1.49	2.50	1.22	1.22	1.22	1.22

a FY16 taken from ABS 6401.0; FY17 from QCA's UT4 final decision.

Source: Aurizon Network, sub. 1: 205–206.

Aurizon Network has used CPI inflation forecasts based on the method discussed in Chapter 4 of this draft decision. Forecasts for WPI inflation are derived from Queensland Treasury and Trade's Mid-year Fiscal and Economic Review 2015–16.

QCA analysis and assessment

The base-step-trend forecasting approach requires an estimate of the efficient rate of change in Aurizon Network's operating costs over the UT5 period. By this, we mean that if costs are efficient, the rate of their escalation should correspond with the net effect of the changes in the underlying determinants of those costs during the UT5 period. This includes considering:

- likely changes in costs of providing the service (labour and non-labour cost escalation) and
- where there are other factors, such as changes in volume, how this will impact on efficient costs.

Labour costs

Labour costs represent around two-thirds of Aurizon Network's system-wide and regional costs, and corporate overheads, based on the 2015–16 base year cost.

Unlike maintenance activities which require the employment of specific classes of specialised labour, the labour classes associated with Aurizon Network's operating costs are more varied in nature. Therefore the Queensland Treasury and Trade WPI forecast is considered a reasonable estimate for the purpose of forecasting WPI over the UT5 period.⁸⁹⁸

More recent WPI forecasts have been released since Aurizon Network prepared its 2017 DAU submission, which we propose to adopt for this draft decision.

The QCA's conclusion on labour cost escalation for operating costs is set out in Table 74 below.

Table 74 QCA conclusion on escalators for operating labour costs

	2017–18	2018–19	2019–20	2020–21
WPI—Labour (%)	2.25	2.50	3.00	3.00

⁸⁹⁷ Aurizon Network has also applied CPI to escalate commercial insurance premiums, electric traction energy costs and some transmission charges. Self-insurance costs are escalated by the proposed MCI.

⁸⁹⁸ The QRC (sub. 21: 47) questioned whether it was appropriate to escalate costs based on WPI, when Aurizon Network notes it has made labour cost savings. However, the QCA notes that labour cost savings are incorporated into Aurizon Network's base year costs before application of WPI cost escalation.

Source: Queensland Government, 2017–18 Budget, Budget Strategy and Outlook, Budget Paper No. 2, Table 1, p. 5.

Non-labour costs

Non-labour costs represent around one third of Aurizon Network's system-wide and regional costs, and corporate overheads in the efficient base year.

We consider CPI inflation a reasonable escalator for non-labour operating costs. CPI inflation is a widely accepted proxy for the growth in general prices over time and has been applied in previous regulatory determinations of the QCA and other regulators.

As discussed in Chapter 4 of this draft decision, the QCA does not accept Aurizon Network's proposed forecast of CPI inflation. In escalating the non-labour component of operating costs, we propose that Aurizon Network adopt our alternative forecast of 2.37 per cent per year over the UT5 period.

Ex post adjustment of escalation rates

Clause 4.3(c)(ii) of Schedule F in Aurizon Network's 2017 DAU provides for an annual *ex post* adjustment to the operating costs component of allowable revenue to account for the difference between the:

- forecast CPI inflation used for the purposes of determining reference tariffs in the relevant year, and
- actual CPI inflation for the relevant year.
- In addition, cl. 4.4(a)(ii) outlines a requirement for allowable revenue in subsequent years to be adjusted to reflect the actual change in the MCI and CPI as used in the calculation of the approved revenue adjustment amount.

The QCA notes these mechanisms applying to operating costs (excluding maintenance costs) do not take into account that the labour components of Aurizon Network's operating expenditure forecast are escalated by WPI rather than CPI. In practice, this means costs that are forecast using WPI escalation are 'trued-up' in the revenue cap adjustment process using the difference between forecast WPI and actual CPI. The QCA considers this a conceptual anomaly that ought to be corrected.⁸⁹⁹

On this basis, the annual revenue cap adjustment process should be amended to include adjustments for the difference between the Queensland Treasury and Trade forecast of WPI and the ABS estimate (Queensland WPI, private sector, all industries).⁹⁰⁰ The QCA has provided suggested drafting for the amendment of Schedule F, cl. 4.3(c)(ii) and cl. 4.4(a)(ii) of Aurizon Network's 2017 DAU to reflect this change, as set out in Appendix G.

We consider these changes deliver a more conceptually sound outcome that balances the interests of all parties by permitting a more efficient recovery of costs.

Volume forecasts

The QCA has considered Aurizon Network's proposed operating expenditure in light of the independent volume forecasts commissioned by the QCA. These forecasts suggest higher

⁸⁹⁹ In UT3, Aurizon Network escalated all operating costs by CPI only. In UT4, a separate labour cost escalation was introduced; however, cl. 4.3(c)(ii) and 4.4(a)(ii) were not revised to reflect this.

⁹⁰⁰ ABS 2017. This index reflects the varied nature of labour classes associated with Aurizon Network's operating costs.

growth in coal railings during the UT5 period compared with Aurizon Network's submitted forecasts.⁹⁰¹

Coal volumes have a direct impact on forecast costs associated with electric traction energy, electricity transmission and self-insurance. We have considered the impact of updated volume forecasts on these costs, where relevant.

However, we are of the view that the revised volume forecasts are unlikely to result in an incremental increase in train paths during the UT5 period of a sufficient magnitude to justify a step change in other operating costs. As such, we have not recommended any increase or escalation to Aurizon Network's forecast system-wide and regional operating expenditures, or corporate overheads, as a consequence of updated volumes. We are also mindful that Aurizon Network's proposed expenditure includes costs for training additional train controllers during the UT5 period, which we expect would accommodate any notional increases in train control resourcing requirements arising from an increase in train paths, should that eventuate.

Anglo American said that Aurizon Network's claimed expenditures are forecast to increase despite the proposed volume forecast remaining 'flat' for the UT5 period.⁹⁰² Based on the QCA's review of Aurizon Network's proposed step changes in operating expenditures, these increases are the result of factors other than coal volumes.

QCA assessment

Table 75 sets out the real cost escalation rates that the QCA considers appropriate to apply to Aurizon Network's operating expenditure for the UT5 period.

Table 75 QCA assessment of escalators for operating costs

<i>Escalator</i>	<i>2015–16</i>	<i>2016–17</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>
WPI—Labour (%)	1.80	1.70	2.25	2.50	3.00	3.00
CPI—Non-labour (%)	1.50	1.80	2.37	2.37	2.37	2.37

Source: Queensland Government, 2017–18 Budget, Budget Strategy and Outlook, Budget Paper No. 2.

The QCA also considers it appropriate to amend the annual revenue cap adjustment process to include adjustments for the difference between the Queensland Treasury and Trade forecast of WPI and the ABS estimate of Queensland WPI, private sector, all industries.⁹⁰³ This will ensure that costs attracting WPI escalation during forecasting are subject to an *ex post* reconciliation based on the actual change in WPI, rather than the change in CPI.

The QCA has provided suggested drafting for the amendment of Schedule F, cl. 4.3(c)(ii) and cl. 4.4(a)(ii) of Aurizon Network's 2017 DAU to reflect this change, as set out in Appendix G.

7.11 QCA assessment of total operating expenditure

The QCA has assessed each element of Aurizon Network's proposed operating expenditure allowance for the UT5 period and has developed an alternative estimate that it considers reasonable, as set out in Table 76.

⁹⁰¹ See, Chapter 6.

⁹⁰² Anglo American, sub. 18: 7.

⁹⁰³ ABS 2017. This index reflects the varied nature of labour classes associated with Aurizon Network's operating costs.

Table 76 QCA assessment of Aurizon Network's proposed UT5 operating expenditure (\$m)

<i>Operating costs (\$m)</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
System-wide and regional costs	58.49	60.34	62.67	65.05	246.57
Business management	16.53	16.94	17.88	17.92	69.28
Network control, safe working and operations	24.14	25.15	26.04	27.88	103.20
Infrastructure management	17.82	18.26	18.75	19.26	74.09
Corporate overheads	40.32	41.21	42.29	43.45	167.28
Risk and insurance	8.00	8.22	8.42	8.59	33.22
Transmission and connection	72.47	73.83	74.84	74.84	295.98
Total	179.28	183.61	188.22	191.93	743.04

Totals may not add due to rounding.

Our conclusion on a reasonable total operating cost allowance is derived by making the following adjustments to Aurizon Network's proposed costs, inclusive of adjustments for cost escalation:

- \$43 million reduction to system-wide and regional costs
- \$36 million reduction to corporate overheads
- \$4 million reduction to risk and insurance allowances
- \$28 million reduction to proposed transmission and connection charges.

We consider it appropriate to make these adjustments having regard to each of the matters set out in s. 138(2) of the QCA Act for the reasons contained in our analysis above.

Applying the QCA's adjustments results in a total operating cost allowance (excluding electric traction energy costs) of \$743 million for the UT5 period, which is 13 per cent less than Aurizon Network's proposal of \$855 million. In aggregate, the QCA considers this is a material difference and therefore concludes that it is not appropriate to approve Aurizon Network's proposed allowance.

We consider Aurizon Network's proposed operating expenditure allowance is higher than reasonably required and does not appropriately balance the legitimate business interests of Aurizon Network and the interests of relevant stakeholders. In addition, such an outcome would not promote the economically efficient operation, use of and investment in infrastructure underpinning the service.

The QCA's conclusion on a reasonable total operating cost allowance, after allocation to each coal system, is set out in Table 77 below.

Table 77 QCA conclusion—total UT5 operating expenditure by system (\$)

<i>System operating expenditure (\$)</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Blackwater					
Non-electric	42,226,098	42,321,182	43,457,416	44,270,807	172,275,503
Electric	36,761,554	37,372,172	37,948,446	37,953,099	150,035,270
Goonyella					
Non-electric	46,932,727	47,532,540	47,939,065	48,728,597	191,132,929
Electric	36,140,658	36,909,043	37,347,564	37,353,762	147,751,027
Moura	4,040,897	4,827,419	5,068,673	5,154,847	19,091,835
Newlands	2,739,376	3,198,134	3,219,092	3,273,820	12,430,422
GAPE	10,441,065	11,436,829	13,210,484	15,162,667	50,251,045
WIRP NCL	0	12,601	31,461	31,996	76,059
Total	179,282,374	183,609,919	188,222,201	191,929,595	743,044,090

Totals may not add due to rounding.

8 MAINTENANCE COST ALLOWANCE

8.1 Aurizon Network's 2017 DAU proposal

Aurizon Network's proposed reference tariffs and allowable revenues are based on a maintenance allowance for the 2017 DAU period of \$920.6 million (in nominal terms). Table 78 presents Aurizon Network's proposed maintenance allowance by category.

Table 78 Aurizon Network's UT5 forecast total cost in nominal dollars

<i>Aurizon Network UT5 maintenance proposal</i>	<i>FY2018</i>	<i>FY2019</i>	<i>FY2020</i>	<i>FY2021</i>	<i>Total</i>
Mechanised Ballast Undercutting	64.5	65.7	70.8	72.1	273.0
Resurfacing	24.5	25.5	26.4	27.0	103.4
Rail Grinding	18.8	19.1	19.3	19.6	76.8
Rail Renewal	–	–	–	–	–
General Maintenance	54.3	55.2	56.1	57.1	222.7
Signalling	25.8	26.3	26.8	27.3	106.1
Traction Power	10.2	10.3	10.4	10.5	41.4
Telecommunications	5.0	5.1	5.2	5.3	20.6
Structures	4.5	3.9	4.0	4.2	16.6
Maintenance Planning and Support	4.6	4.7	4.8	4.9	19.0
Total direct costs	212.2	215.7	223.8	227.9	879.6
Return on Assets	6.8	6.5	9.6	9.0	31.8
Return on Inventory	1.7	1.6	1.5	1.5	6.2
GPR Costs	–	1.5	–	1.5	3.0
Total maintenance allowance	220.7	225.2	234.9	239.8	920.6

8.2 Key issues identified during the QCA's investigation

The QCA has considered all elements of Aurizon Network's 2017 DAU proposed maintenance allowance in making this draft decision. The following issues attracted comment from stakeholders, or were identified for further consideration:

- the appropriateness of Aurizon Network's direct cost forecasting approach (section 8.5)
- determining an efficient cost for major maintenance activities—bottom-up, cost build-up approach (section 8.6)
- determining an alternative base year estimate (section 8.7), including:
 - selecting a suitable base year of actual maintenance costs (section 8.7.1)
 - recognising efficient adjustments in scope and costs section (section 8.7.2)
 - considering productivity and efficiency gains (section 8.7.3).
- the appropriateness of Aurizon Network's indirect costs and related matters, for example, depreciation and return on maintenance assets, and inventory holding costs (section 8.8)

- the appropriateness of Aurizon Network's MCI forecast (section 8.9).

8.3 QCA draft decision

Summary of draft decision 8.1

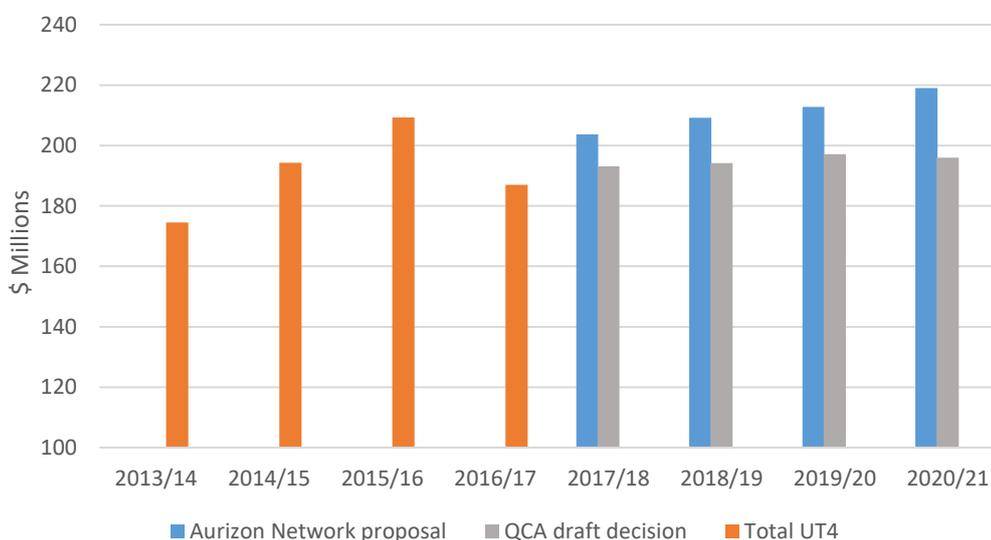
- **The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to revise its proposed allowable revenues and reference tariffs based on the maintenance allowance set out in Table 79, Table 80, and Table 81.**
- **A maintenance allowance of \$817 million reflects the efficient costs of maintaining the declared service over the UT5 undertaking period.**

The QCA has assessed each element of Aurizon Network's proposed maintenance allowance in making this draft decision.

Aurizon Network's proposed maintenance allowance of \$920 million for the UT5 undertaking period has not been justified and is substantially greater than what is required to maintain the below-rail service for coal-carrying trains during the UT5 undertaking period. The QCA considers that this does not appropriately balance Aurizon Network's legitimate business interests, the public interest, and the interests of relevant stakeholders. Aurizon Network's proposed maintenance allowance would not promote the economically efficient operation and use of the declared service.

Figure 22 sets out the QCA's draft decision on Aurizon Network's maintenance expenditure allowance for the UT5 period, compared with Aurizon Network's 2017 DAU proposal, and actual expenditure since FY2015.

Figure 22 Aurizon Network's proposed UT5 maintenance forecast compared with the QCA draft decision forecast and UT4 actuals (\$m)⁹⁰⁴



Note: Costs exclude return on assets.

Table 79 sets out the QCA's proposed UT5 maintenance allowance for each category of maintenance expenditure; Table 80 sets out our draft decision allowances after allocation to

⁹⁰⁴ Aurizon Network, sub. 1: 147, and QCA FY2014, FY2015, FY2016 and FY2017 maintenance cost reports.

each coal system and Table 81 sets out our allocation between electric and non-electric expenditure.

Table 79 QCA's draft decision UT5 maintenance allowance, by category (\$m)

	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
1. Direct maintenance costs					
Ballast undercutting—mainline	52.1	54.1	57.7	57.8	221.8
Ballast undercutting—turnouts	3.8	3.9	4.2	4.2	16.0
Maintenance planning & support	5.0	5.1	5.2	5.3	20.7
General track	51.3	53.5	55.4	57.0	217.2
Grinding—mainline	14.8	15.0	15.2	15.4	60.3
Grinding—turnout	4.0	4.1	4.1	4.2	16.5
Resurfacing—mainline	16.9	17.2	17.5	17.8	69.4
Resurfacing—turnouts	3.4	3.5	3.6	3.6	14.1
Signalling	22.4	22.8	23.3	23.8	92.4
Structures	4.5	3.9	4.1	4.2	16.7
Telecommunications	4.8	4.9	5.0	5.1	19.7
Traction power	10.2	10.3	10.5	10.6	41.5
Total	193.2	198.3	205.8	209.1	806.3
2. Indirect maintenance costs					
Return on plant	7.7	8.1	9.4	8.8	34.1
Return on inventory	0.8	0.7	0.7	0.7	2.8
Total	201.6	207.1	215.9	218.6	843.2
3. Efficiency adjustment					
Efficiency factor	0.0	–4.1	–8.6	–13.1	–25.9
QCA allowance	201.6	203.0	207.2	205.5	817.3

Table 80 QCA's draft decision UT5 maintenance allowance, by system (\$m)

	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>	<i>Total</i>
Blackwater	86.9	86.9	84.4	83.6	341.8
GAPE	16.4	16.5	14.6	15.1	62.7
Goonyella	81.6	81.9	90.5	89.4	343.4
Moura	12.4	13.0	14.2	14.1	53.7
Newlands	4.3	4.6	3.6	3.3	15.8
Total	201.6	203.0	207.2	205.5	817.3

Table 81 QCA's draft decision UT5 maintenance allowance, by electric and non-electric (\$m)

	2017–18	2018–19	2019–20	2020–21	Total
1. Non-electric					
Blackwater	82.2	82.3	79.8	79.0	323.3
GAPE	16.4	16.5	14.6	15.1	62.6
Goonyella	76.0	76.3	85.0	83.9	321.2
Moura	12.4	13.0	14.2	14.1	53.7
Newlands	4.3	4.6	3.6	3.3	15.8
Total—non electric	191.3	192.8	197.0	195.3	776.4
2. Electric					
Blackwater	4.7	4.7	4.6	4.6	18.6
Goonyella	5.6	5.6	5.6	5.5	22.3
Total—electric	10.3	10.3	10.2	10.1	40.9
Total	201.6	203.0	207.2	205.5	817.3

Note: Figures may not add due to rounding.

The QCA's draft decision reflects the result of various adjustments to Aurizon Network's proposed maintenance expenditure, including:

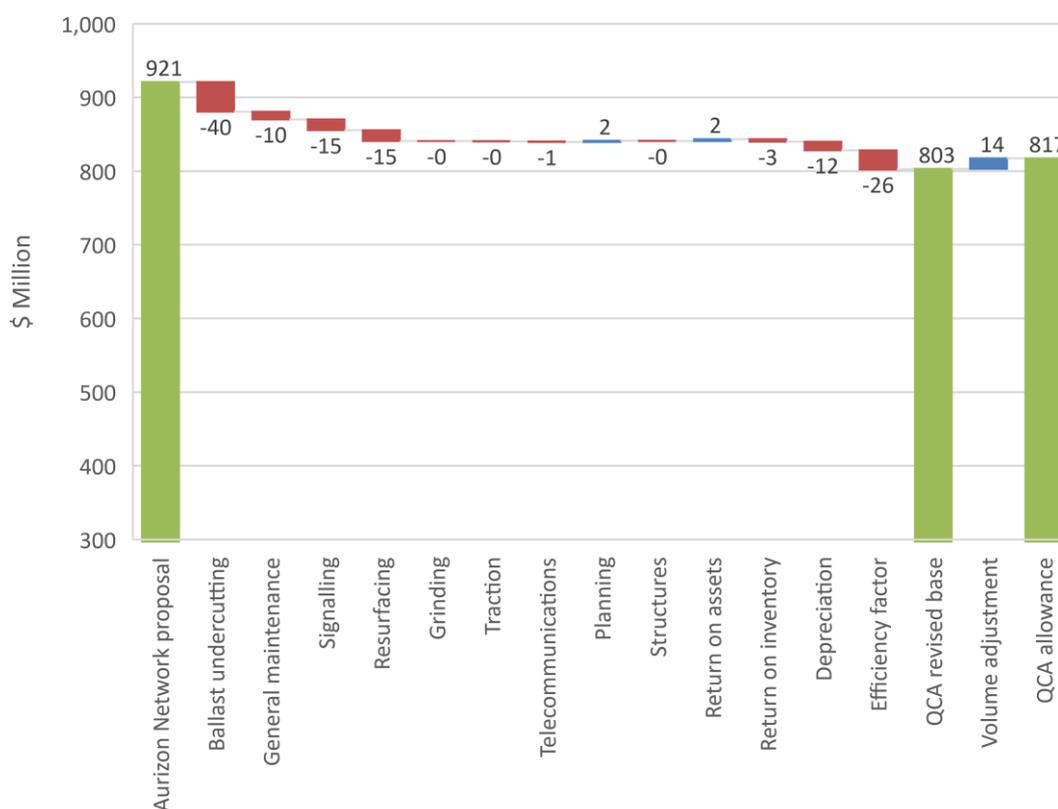
- adopting financial year 2016–17 (FY2017) as the forecasting base year rather than 2014–15, for all maintenance categories excluding rail grinding, structures and traction power (section 8.7.1)
- reducing ballast undercutting costs to reflect the QCA's draft decision to remove additional scope proposed by Aurizon Network (section 8.7.2)
- approving costs for one GPR run, rather than two, at a cost of \$0.9 million (section 8.7.2)
- applying a post-tax nominal WACC to the written-down value of the fixed asset register resulting in an increase to the return on maintenance assets (section 8.8.3)
- decreasing the return on inventory, using information provided in UT3 to estimate inventory assets required for maintenance activities and applying a post-tax nominal WACC (section 8.8.4)
- removing the escalation of depreciation charges and deriving depreciation costs from the updated fixed asset register (section 8.8.1)
- incorporating an efficiency factor as a means of addressing identified inefficiencies (section 8.7.3)
- accounting for increased forecast volume (section 8.7.2)
- using Aurizon Network's proposed MCI forecasts (updated for actual FY2017 sub-indices), but not Aurizon Network's methodology used to reach its proposed MCI (section 8.9).

The QCA's draft decision results in a total maintenance allowance of \$817.3 million for the UT5 period, which is around \$104 million less than Aurizon Network's proposal of \$920 million. The impact of the proposed changes on each of the major components of maintenance cost is

illustrated in Figure 23. The choice of FY2017 as the base year accounts for 60 per cent of the variation.⁹⁰⁵

In aggregate, the QCA considers this is a material difference and therefore concludes that Aurizon Network's proposed maintenance allowance is not appropriate to approve.

Figure 23 Variation between Aurizon Network's UT5 proposal and QCA draft decision (\$m)⁹⁰⁶



8.4 Overview of maintenance cost approach

Aurizon Network's approach

Aurizon Network advised that its UT5 maintenance cost proposal reflects a balanced asset management approach, is compliant with its legislative, regulatory and contractual obligations and has been informed by Aurizon Network's professional engineering judgements. Aurizon Network states that the overarching strategic objective of the UT5 maintenance cost proposal is to deliver an appropriate balance between the following business priorities:

- (1) To meet producer demand for a reliable and available network that is capable of delivering all of its contracted services.
- (2) To provide consistent and reliable access to the service at an efficient level of cost.
- (3) To plan and execute maintenance activities to deliver productivity and efficiency gains, reduce below-rail delays and cancellations, and improve operational performance to plan.

⁹⁰⁵ A graphical representation of this is provided in Section 8.7.1, see Figure 26.

⁹⁰⁶ Aurizon Network, sub. 1: 147.

- (4) To optimise the life of assets while balancing the tension between investment in maintenance and capital.

Aurizon Network said its proposed forecast costs should be considered efficient because they are based on FY2015 allowances approved in the UT4 allowance and are consistent with Aurizon Network's actual costs in FY2015.

Stakeholder submissions

Stakeholders raised a number of issues regarding Aurizon Network's proposed maintenance allowance, which the QCA has considered in its draft decision.

Submissions requested the QCA undertake a detailed efficiency review of the proposed UT5 maintenance cost proposal, including the efficiency of the processes underpinning maintenance services. The QRC said that given that Aurizon Network's proposed maintenance costs allowance constitutes approximately 20 per cent of Aurizon Network's proposed MAR, the QCA should scrutinise the efficiency and appropriateness of the maintenance costs allowance being claimed.⁹⁰⁷

The QCA's approach to assessment

The QCA's role is to assess the maintenance allowance proposed by Aurizon Network in providing below-rail services to coal-carrying trains when considering the reference tariffs and allowable revenues in the 2017 DAU, having regard to the factors in s. 138(2) of the QCA Act.

In light of stakeholder concerns the QCA has undertaken a detailed and thorough investigation into Aurizon Network's maintenance proposal.

Key considerations are whether the UT5 total maintenance forecast allowance is:

- prudent—justified with reference to identified and defensible scope, standard and/or cost drivers
- efficient—supported with evidence to demonstrate the expenditure will minimise costs in maintaining and providing the declared service.

In reaching its draft decision, the QCA has considered the legislative framework and the efficient level of maintenance expenditure. The QCA is predisposed to making an allowance for non-coal services, but have not done so at this stage. The QCA is seeking stakeholder submissions in relation to this matter.

The QCA has undertaken a detailed review of Aurizon Network's proposed maintenance costs to test the reasonableness of these costs. In making this assessment, we have considered whether the proposed maintenance allowance is sufficient for Aurizon Network to recover at least its efficient costs of maintaining the declared service, while balancing the legitimate business interests of Aurizon Network, and the interests of its customers and the general public. In doing so, our approach (illustrated in Figure 24) involves:

- (1) Reviewing Aurizon Network's proposed maintenance expenditure, by considering forecasting methods, base year efficiency, cost allocation, step changes and rates of escalation
- (2) Developing alternative estimates of maintenance expenditure, based on the findings of the review

⁹⁰⁷ QRC, sub. 21: 40.

- (3) assessing Aurizon Network’s proposed expenditure against the QCA alternative estimates, in aggregate:
 - (a) If the difference is not material, approve the proposed allowance.
 - (b) If the difference is material, reject the proposed allowance and substitute it with the QCA's alternative estimate.

Figure 24 QCA's maintenance expenditure assessment approach



To assist in its assessment, the QCA engaged GHD to review Aurizon Network's proposed maintenance cost proposal and models. GHD's review was informed by extensive information requests issued to Aurizon Network, as well as in-person interviews with key Aurizon Network staff.⁹⁰⁸ The QCA also engaged B&H Strategic Services to review all relevant information, including Aurizon Network's proposal and GHD's findings, in order to assist the QCA's decision-making process.⁹⁰⁹ In particular, advice was sought with respect to a reasonable efficiency factor to account for the material inefficiencies identified throughout the QCA's investigation. The QCA has given consideration to GHD and B&H Strategic Services analysis and recommendations in making its draft decision. These reports are available on the QCA's website.

The QCA notes that some stakeholders considered that Aurizon Network's submission did not contain enough information for them to form views on the proposed maintenance expenditure.

⁹⁰⁸ GHD 2017, Appendix H.

⁹⁰⁹ B&H Strategic Services 2017.

During the course of the investigation, further information was requested from, and supplied by, Aurizon Network. This significant additional information has informed our assessment.⁹¹⁰ While this information is not in all cases directly referred to in our analysis, we have considered it in making our draft decision.⁹¹¹

Aurizon Network has sought to use a base year approach to develop the key components of its UT5 maintenance cost proposal.⁹¹²

In the QCA's view, this method could be used to establish a reasonable allowance within which Aurizon Network can prudently and efficiently maintain its network for the duration of a regulatory period. However, this approach involves determining a reasonable base year level of costs (that reflects efficient costs), applying reasonable escalations and reasonable step changes, and recognising expected productivity improvements. Regrettably, Aurizon Network has been unable to satisfy the QCA with its proposal, in particular the efficiency of its cost proposal.

The QCA has considered two alternative estimates to assess Aurizon Network's proposal:

- an alternative estimate, using a 'bottom-up, cost build-up' approach (section 8.6)
- an alternative estimate, using a revised base year approach (section 8.7)

The QCA's proposed maintenance allowance has been developed following an assessment of these estimates.

Alternative 'bottom-up, cost build-up' estimate

The QCA sought to develop detailed bottom-up estimates of efficient maintenance costs on a category- or program-specific basis, engaging GHD to undertake an assessment of Aurizon Network's proposal. To facilitate this exercise, it was necessary to obtain substantial information from Aurizon Network in order to obtain quality data to inform this analysis.

GHD used its expertise and a combination of different engineering tools (referencing top-down and bottom-up assessments of the information and data sets provided by Aurizon Network) to assess the efficiency of the proposed UT5 maintenance cost allowance.

GHD qualified a number of its key findings due to the limitations and deficiencies in the information provided by Aurizon Network.

The lack of structure in, and accuracy of, the information that Aurizon Network provided coupled with the time taken for Aurizon Network to provide necessary information and resolve our clarifications about data inconsistencies or errors has made the undertaking of the maintenance cost review problematic.⁹¹³

While GHD's review was heavily qualified due to the reasons and information provided, as well as the lack of other relevant information, by Aurizon Network, GHD's review has identified a range of productivity and performance issues. GHD's findings highlight that Aurizon Network's UT5 maintenance allowance is excessive. This has raised a number of concerns as to Aurizon Network's maintenance management practices and performance.

⁹¹⁰ GHD 2017, Appendix H.

⁹¹¹ Aurizon Network has claimed confidentiality over much of this material.

⁹¹² Aurizon Network, sub. 1: 163.

⁹¹³ GHD 2017: 12.

Overall, GHD recommended Aurizon Network's maintenance allowance should be lowered by at least \$101 million.⁹¹⁴ GHD also identified a number of issues relating to the efficiency and prudence of Aurizon Network's maintenance plant investments and operations.

Alternative FY2017 base year estimate

Another alternative estimate was developed using Aurizon Network's FY2017 actual maintenance costs as the base year⁹¹⁵, mirroring the process utilised by Aurizon Network, with a range of adjustments to generate a reasonable maintenance allowance.

Following the analysis of the GHD report and implications of the reported FY2017 maintenance costs, the QCA has used FY2017 as the base year for the analysis, updated for changes in scope, depreciation costs and return on assets.

In addition an 'efficiency factor' of 2 per cent a year from FY2019 has been recommended to reflect the range of inefficiencies in Aurizon Network's operations that have been identified during the course of the QCA's investigation—these are within Aurizon Network's FY2017 reported actual costs.

8.5 Aurizon Network's forecasting of direct costs

Aurizon Network's 2017 DAU proposal

Aurizon Network's proposed UT5 maintenance allowance is based on its UT4 approved maintenance allowance for FY2015⁹¹⁶, and then applying the following methodologies:⁹¹⁷

- roll-forward of the FY2015 approved scope and allowance (unit rate) for mainline ballast undercutting per kilometre and escalating by MCI
- roll-forward of the FY2015 approved scope and allowance (unit rate) for turnout ballast undercutting and escalating by MCI
- direct cost pass-through of the new rail grinding service contract (effective 1 July 2017 to 30 June 2021)
- roll-forward of the FY2015 reported actuals of the scope and cost in resurfacing, general maintenance, signalling, telecommunications, traction power, and structures, converting each category into a unit rate, and then escalating by MCI
- including a new cost category 'Maintenance Planning and Support' based on historical timesheets identifying the UT4 costs incurred in this new category.

Aurizon Network then adjusted the individual categories to account for material changes that have occurred since FY2015. For example:

- Resurfacing unit rates have been adjusted for the introduction of new resurfacing machines and the mothballing of the stoneblower.⁹¹⁸
- Traction and signalling unit rates were adjusted for changes in relevant enterprise bargaining agreements, restructures and/or redundancies.⁹¹⁹

⁹¹⁴ GHD 2017: 19.

⁹¹⁵ Aurizon Network 2017f.

⁹¹⁶ Aurizon Network, sub. 1: 158.

⁹¹⁷ Aurizon Network, sub. 1: 159.

⁹¹⁸ Aurizon Network, sub. 1: 174-176.

Aurizon Network said its proposed forecast UT5 allowance should be considered efficient because it is based on the QCA approved FY2015 allowance and is consistent with Aurizon Network's actual costs in 2014–15. However, in circumstances where the QCA-approved FY2015 allowance was not consistent with the actual cost, Aurizon Network provided reasons where actual costs should be considered as the efficient equivalent.

Ballast undercutting (undercutting)

Aurizon Network submitted that the scope and cost of UT5 undercutting program is justified as efficient on the following basis:

- Mainline undercutting—Aurizon Network has adopted the indexed UT4 unit rate in FY2015 to help ensure the approval process would be smooth, but advised that the rate did not take account of all of the costs required to deliver an effective ballast undercutting program.⁹²⁰
- Turnout undercutting—Aurizon Network has applied the indexed FY2015 turnout undercutting unit rate and escalated it at the proposed UT5 MCI.⁹²¹
- GPR requirements—GPR measurements indicate that to sustain the current condition of the track, Aurizon Network is required to undercut 140 km of ballast cleaning per annum. Aurizon Network has included costs to update its GPR data as part of its UT5 maintenance proposal, as it uses the data generated by the GPR to track the rate of ballast contamination over time and assess the effectiveness of its ballast undercutting program.⁹²²
- Procurement of new machines—Aurizon Network will be taking delivery of a new high-production ballast undercutting machine (RM902)⁹²³ in FY2019, for commissioning in July 2019. Aurizon Network indicates the new machine will enable it to lift its blended mainline undercutting capability, allowing for greater production efficiencies where undercutting can be undertaken over longer blocks before spoil wagons have to be emptied. The unit rate increase is due to the increase in depreciation of the new ballast undercutting machine.⁹²⁴ Aurizon Network said its forecast UT5 ballast undercutting base cost of \$55.6 million per annum is lower than the approved UT4 allowance by \$1.3 million in real terms. As a result, Aurizon Network contends that the adjusted base cost is efficient for this maintenance category.⁹²⁵

Rail grinding (grinding)

Aurizon Network submitted that the scope and cost for the proposed grinding program is justified as efficient on the following basis:

- Fixed cost base—Aurizon Network indicated that its grinding costs are all fixed, which contrasts with the QCA's UT4 approved position that they are variable. Aurizon Network adjusted its UT5 allowance to remove this UT4 assumption⁹²⁶, as the fixed nature of the rail grinding contract (plant and its operators) means the unit rate is variable only in regard with the maximum utilisation of that equipment.

⁹¹⁹ Aurizon Network, sub. 1: 179–183.

⁹²⁰ Aurizon Network, sub. 1: 167.

⁹²¹ Aurizon Network, sub. 1: 168.

⁹²² Aurizon Network, sub. 1: 168.

⁹²³ Aurizon Network, sub. 1: 169.

⁹²⁴ Aurizon Network, sub. 1: 189.

⁹²⁵ Aurizon Network, sub. 1: 169.

⁹²⁶ Aurizon Network, sub. 1: 171–72.

- Rail grinding services contract—the scope and cost of the grinding is subcontracted to a related-party, Aurizon Operations, via a service-level agreement.⁹²⁷

Aurizon Network stated that its forecast UT5 proposed rail grinding unit rate is comparable (on a unit rate basis) to other railways.⁹²⁸

Resurfacing

Aurizon Network submitted that the scope and cost for the proposed resurfacing program is justified as efficient, because it is consistent with the reported actual scope and costs in the FY2015 year and is lower than the UT4 approved allowance by \$0.8 million in real terms.⁹²⁹ Aurizon Network noted the following changes in its resurfacing fleet in UT4:

- Procurement of new machines—Aurizon Network stated it had commissioned a new fleet of high-production tampers and regulators to perform resurfacing tasks, with the ageing resurfacing fleet being decommissioned. The new fleet has produced a step change in the resurfacing unit rate, given a large proportion of the resurfacing fleet has been purchased at the same time. This in turn has increased depreciation rates of the new fleet, compared to the previous written-down value of the fleet replaced.⁹³⁰ The new higher-production mechanised machines are expected to increase productivity, because they require less track access time, therefore freeing up additional network paths.
- Decommissioned stoneblower—the stoneblower has been decommissioned because the new resurfacing machines deliver the same track stabilisation qualities as stoneblowing.⁹³¹

General maintenance

Aurizon Network submitted that the scope and cost for the proposed general maintenance program is justified as efficient, because it reflects the reported actual scope and costs in the FY2015 year and is consistent with the approved UT4 allowance, except for the following sub-categories where costs have increased:

- Vegetation management—Aurizon Network stated vegetation management costs have increased due to rainfall events which has required an increase in scope in UT5.⁹³²
- Rail stressing— Aurizon Network has implemented a revised work practice which results in rail stress testing being conducted after all rail related activities,⁹³³ and a laser creep monitoring project to improve its understanding of rail movements.⁹³⁴ Aurizon Network advised that rail stressing improves the performance and reliability of rail and has been proven to be effective in reducing the number of rail breaks.
- Level-crossings—Aurizon Network has included costs associated with the roll-out of rubber flangeway installation at level crossings to improve reliability and maximise the life of the rail and track in these areas.⁹³⁵

⁹²⁷ Aurizon Network, sub. 1: 172.

⁹²⁸ Aurizon Network, sub. 1: 172.

⁹²⁹ Aurizon Network, sub. 1: 175.

⁹³⁰ Aurizon Network, sub. 1: 189.

⁹³¹ Aurizon Network, sub. 1: 175.

⁹³² Aurizon Network, sub. 1: 177.

⁹³³ Aurizon Network, sub. 1: 177.

⁹³⁴ Aurizon Network, sub. 1: 177.

⁹³⁵ Aurizon Network, sub. 1: 177.

Signalling

Aurizon Network submitted that the scope and cost for the proposed signalling program is justified as efficient, because it reflects the reported actual scope and costs in the FY2015 year and is lower than the UT4 approved allowance due to enterprise bargaining agreement savings, with the benefits being directly passed through to customers.⁹³⁶ As Aurizon Network costs associated with traction engineers were re-allocated to its signalling cost base.⁹³⁷

Remaining direct costs

Aurizon Network submitted that the scope and cost for remaining direct cost maintenance activities⁹³⁸ are efficient, because they reflect the reported actual scope and costs for 2014–15 year and are consistent with the UT4 approved allowance.⁹³⁹ Examples included:

- Traction power—includes preventative inspection-type work and corrective fault repairs for all equipment in the field, at feeder stations and at track sectioning cabins.⁹⁴⁰ Aurizon Network stated that forecast UT5 traction power expenditure is lower when compared to the UT4 approved base cost.⁹⁴¹
- Telecommunications—includes preventative inspection-type work and corrective, fault-repair work.⁹⁴² Aurizon Network advised its proposed UT5 telecommunications expenditure is lower than the UT4 base cost.⁹⁴³
- Maintenance planning and support—includes planning and scheduling of all required maintenance activities and other administrative functions such as timesheets and inventory orders.⁹⁴⁴ Aurizon Network advised that it has separately identified these direct costs to provide more transparency around its proposed UT5 cost management practices.⁹⁴⁵ Aurizon Network noted these administrative direct costs were allocated in UT4 across each of the maintenance categories.
- Structures—includes both preventative inspection-type work and corrective, fault repair work.⁹⁴⁶ Aurizon Network noted that its scope is either time-based (periodic inspections) or based on the life of asset, and referenced to its historical faults data. Aurizon Network explains that the increase in its UT5 forecast scope and cost for structures relates to the increased requirement for culvert and drain cleaning requirements to be storm-ready and its decision to increase culvert maintenance and reduce culvert renewals in UT5.

Stakeholder submissions

Stakeholders had significant concerns with the forecasting approach underpinning Aurizon Network's UT5 maintenance cost proposal. These are outlined in the following tables.

⁹³⁶ Aurizon Network, sub. 1: 179–80.

⁹³⁷ Aurizon Network, sub. 1: 179–80.

⁹³⁸ Aurizon Network, sub. 1: 182.

⁹³⁹ Aurizon Network, sub. 1: 182.

⁹⁴⁰ Aurizon Network, sub. 1: 183.

⁹⁴¹ Aurizon Network, sub. 1: 183.

⁹⁴² Aurizon Network, sub. 1: 185.

⁹⁴³ Aurizon Network, sub. 1: 185.

⁹⁴⁴ Aurizon Network, sub. 1: 186.

⁹⁴⁵ Aurizon Network, sub. 1: 186.

⁹⁴⁶ Aurizon Network, sub. 1: 188.

Table 82 Stakeholder concerns regarding the forecasting approach

<i>Stakeholder</i>	<i>Comments</i>
QRC	<p>The QRC did not consider it appropriate to employ Aurizon Network's methodology of converting the UT4 allowance to unit rates and then escalating at MCI, given the allowances were approved as total allowances in UT4, not unit rates. The QRC held concerns that using unit rates means fixed maintenance costs are treated as entirely variable in nature.⁹⁴⁷</p> <p>Approved UT4 costs presumably reflect the QCA's views of efficient maintenance costs at the point of approval, not a minimum base which Aurizon Network can automatically maintain. Any assessment of maintenance costs based on the efficiency of the UT4 maintenance allowance is not a guarantee that costs are prudent and efficient. Given increasing coal volumes, a general efficiency dividend of 1–3% should be achievable; yet, unit cost reductions in real terms are not apparent in the UT5 maintenance cost proposal.⁹⁴⁸</p>
Anglo American	<p>The UT4 approval of maintenance expenditure by the QCA does not necessarily mean it is appropriate for UT5. The UT5 maintenance cost proposal is 19% higher in nominal terms compared to UT4.⁹⁴⁹ Anglo American expressed concern about the use of UT4 as a baseline.⁹⁵⁰</p>
QCoal	<p>There is no reason why the scope and budget for one period should simply reflect that of the previous period with costs escalated.⁹⁵¹</p>

Table 83 Stakeholder concerns regarding the prudence and efficiency of scope and costs in the 2016 DAU

<i>Stakeholder</i>	<i>Comments</i>
QRC	<p>Aurizon Network's 'innovative asset management methodologies do not seem to have produced lower costs in UT5.⁹⁵²</p> <p>Aurizon Network has an incentive to 'gold-plate' or 'over-engineer' maintenance costs as it gets to recover these costs as well as reduce risks for Aurizon Operations.⁹⁵³</p> <p>Maintenance tasks should not be linked to the capital value of the RAB. Newer assets such as GAPE and WIRP should involve lower maintenance costs, given their recent development and under-utilisation. The QRC referenced Aurizon Network's previous statements, which stated WIRP incremental maintenance tasks would be limited to scheduled preventative maintenance.⁹⁵⁴</p> <p>The QRC noted significant reliance on the QCA (and any expert consultant it engages) in order to scrutinise the efficiency and appropriateness of the maintenance cost allowance being claimed.⁹⁵⁵</p>
Anglo American	<p>It is still not clear whether scope is prudent and therefore whether the amounts claimed are representative of efficient maintenance costs. Anglo American submitted that it is excessive in circumstances where Aurizon Network 'maintains built capacity' compared to volumes.⁹⁵⁶</p>

⁹⁴⁷ QRC, sub. 21: 42.

⁹⁴⁸ QRC, sub. 21: 43.

⁹⁴⁹ Anglo American, sub. 18: 9.

⁹⁵⁰ Anglo American, sub. 18: 9.

⁹⁵¹ QCoal, sub. 16: 7.

⁹⁵² QRC, sub. 21: 43.

⁹⁵³ QRC, sub. 21: 39-40.

⁹⁵⁴ QRC, sub. 21: 41-42.

⁹⁵⁵ QRC, sub. 21: 40.

⁹⁵⁶ Anglo American, sub. 18: 10.

<i>Stakeholder</i>	<i>Comments</i>
	Further scrutiny is required for areas carried out by either Aurizon Network or a related party, as it is in the group's interests to over scope the activities and claim. ⁹⁵⁷
BMA	It is not clear whether Aurizon Network has taken into account past performance in delivering its maintenance program. Aurizon Network's performance of actual to planned scope was a key issue highlighted in UT4. ⁹⁵⁸
QCoal	The approach to developing a maintenance budget for new systems such as GAPE should require great scrutiny, as these systems will not have the same maintenance requirements as older systems. ⁹⁵⁹

QCA analysis

Aurizon Network focused almost exclusively on demonstrating consistency in FY2015 real dollar terms⁹⁶⁰ between the proposed UT5 annual forecast cost for each maintenance category and the UT4 approved FY2015 forecast total cost for each maintenance category.

[Aurizon Network] has used the UT4 maintenance expenditure allowances approved by the QCA as the starting point for developing the forecasts for the UT5 regulatory period⁹⁶¹

[because the UT4 allowance was approved by the QCA] it can be concluded that these allowances represent, at a minimum, the regulator's view of Aurizon Network's efficient costs⁹⁶²

Aurizon Network's turnout ballast undercutting allowance is materially aligned to the QCA's final decision on UT4 and, by extension, is reflective of its efficient costs.⁹⁶³

The QCA does not accept Aurizon Network's use of its UT4 maintenance cost allowance or expenditure to justify the efficiency of its forecast UT5 maintenance cost claim. Of key concern is the fact that the UT4 maintenance allowance approved by the QCA was:

- determined to be reasonable, but not necessarily efficient⁹⁶⁴—in the UT4 final decision, the QCA approved the UT4 maintenance allowance on the basis that it would generate a reasonable source of annual revenue for Aurizon Network to maintain its network and to incentivise Aurizon Network to reduce costs or otherwise improve productivity over the longer term
- based on FY2012 actual cost data⁹⁶⁵, converted into annual unit rates for each maintenance category—the QCA would have expected Aurizon Network to update its UT5 maintenance program of works to reflect market, business and customer changes that have occurred since FY2012.

As noted in the UT4 final decision, for UT4 the QCA 'used a reasonableness test for estimating efficient costs due to the lack of robust evidence based benchmarks for assessing efficient

⁹⁵⁷ Anglo American, sub. 18: 10.

⁹⁵⁸ BMA, sub. 24: 3.

⁹⁵⁹ QCoal, sub. 16: 7.

⁹⁶⁰ Aurizon Network's UT5 maintenance proposal has been costed on a real FY2015 dollar basis and then indexed by the MCI or CPI into nominal dollars.

⁹⁶¹ Aurizon Network, sub. 1: 158.

⁹⁶² Aurizon Network, sub. 1: 158.

⁹⁶³ Aurizon Network, sub. 1: 167.

⁹⁶⁴ QCA, 2016c, Volume IV — Maximum Allowable Revenue: 113

⁹⁶⁵ Aurizon Network, *UT4 Maintenance Submission Redacted 30 April 2013*: 110. "The cost base for the UT4 maintenance price has been developed using the actual cost for the maintenance scope completed in FY12 as the starting point".

costs'.⁹⁶⁶ The review conducted by SKM Jacobs relied on benchmarking against maintenance costs in the Hunter Valley and a qualitative assessment of Aurizon Network's approach to determining the scope and cost of its activities.

The UT4 maintenance review process highlighted the limitations of benchmark data as a means of assessing the efficiency of Aurizon Network's operations.⁹⁶⁷ Even with adjustments for network geography, Jacobs SKM found that Aurizon Network's costs were 17 per cent higher on a per GTK basis than maintenance costs in the Hunter Valley but concluded that Aurizon Network's costs were reasonable. As Jacobs SKM noted:

Benchmarking, even with appropriate normalisation of benchmark costs, can only give an indication of the likelihood of inefficiencies of one regulated entity over another and therefore should inform areas for further investigation rather than be used as a tool to inform of inefficiencies per se'.⁹⁶⁸

To address this issue, amendments to the reporting regime were approved in UT4 to provide 'more transparency and accountability in Aurizon Network's maintenance performance'.⁹⁶⁹ Despite this, the maintenance cost proposal provided by Aurizon Network continues to rely on evidence of actual performance and cost and/or previously approved allowances as proof that Aurizon Network's proposed allowance is efficient. For example:

- Aurizon Network's proposed UT5 ballast undercutting total cost has been based on the UT4 approved base unit rate for the duration of UT5. This is despite the proposed introduction of a new ballast undercutting machine, which is expected to have lower maintenance costs and higher productive capability.
- Aurizon Network's proposed ballast undercutting scope for the UT5 regulatory period remains at the level detailed in the UT4 maintenance cost proposal. This is despite the repeated references to the benefits for scope assessment of the information collected through the GPR program and the potential benefits that should be emerging from the coal fouling reduction programs⁹⁷⁰, which have been in place since 2012.
- The UT5 maintenance cost proposal has applied a generic asset maintenance philosophy approach across all coal systems in the CQCN, despite their different operating characteristics.

For example, the Moura System has excess capacity and services an export coal terminal that allows coal producers to stockpile and blend their coal to meet end-customer quality specifications. The Blackwater System services two coal terminals with different service offerings for coal producers (stockpiling and cargo assembly). The Goonyella System is relatively capacity-constrained and services a privately owned coal terminal and a multi-user coal terminal that operates on a cargo assembly basis. Rail services on the Goonyella System also operate on a bi-directional basis, with Goonyella coal producers also sending coal through to the Abbot Point coal terminal, via GAPE.

Where a more flexible and relatively more costly maintenance work program may be justified on economic grounds in the relatively capacity-constrained Goonyella System, a more fixed schedule maintenance program may be justified in systems with spare capacity (for example,

⁹⁶⁶ QCA 2016c, Volume IV — Maximum Allowable Revenue: 113.

⁹⁶⁷ SKM 2014a: 16.

⁹⁶⁸ SKM 2014a: 16.

⁹⁶⁹ QCA 2016c, Volume IV — Maximum Allowable Revenue: 113.

⁹⁷⁰ Load profiling and veneering.

Moura System) to keep costs down and maintain customer competitiveness in downstream markets from the CQCN.

The QCA has identified the following concerns with Aurizon Network's proposal:

- Aurizon Network's maintenance proposal was lodged with the QCA as a 'one-size-fits-all' program of defined maintenance activities and did not separately identify the service level standards which underpin the forecast maintenance cost claim.
- Aurizon Network has included a new UT5 line item cost (maintenance planning and support)⁹⁷¹ but has not demonstrated a corresponding reduction in the costs of each of the other maintenance cost line items and/or explained why this additional cost should now be funded.
- The UT5 general track maintenance program does not discuss or reference the cost savings that have accrued from the maintenance depot restructure⁹⁷² or the change in rail stressing practices.⁹⁷³
- Aurizon Network identifies the value of the Safety Regulator's approval to increase the required time interval between track inspections from 96 hours to 192 hours⁹⁷⁴, but the UT5 track inspections line item has been calculated on the basis of a 96-hour intervention rate.
- The UT5 maintenance cost proposal highlights the capital, maintenance and operating trade-offs that were made when it developed the scope of its proposed UT5 maintenance program.⁹⁷⁵ However, no detail has been provided on how senior management monitor these trade-offs to ensure maintenance outcomes deliver 'value for money'.
- Certain forecasts underpinning the UT5 maintenance cost proposal, when subject to scrutiny, cast doubt on whether the proposal is consistent with how Aurizon Network actually derived its UT5 forecast costs.
- Resurfacing maintenance category—Aurizon Network stated that to help facilitate the timely assessment of the UT5 maintenance cost proposal, Aurizon Network has escalated the UT4 approved FY2015 unit rate for resurfacing at the forecast MCI for the UT5 regulatory period.⁹⁷⁶ Further on in the proposal, Aurizon Network identified that the unit rate for mainline resurfacing in FY2018 is \$9,280 per km in real terms⁹⁷⁷, but in reality the FY2015 approved unit rate was \$8,510.⁹⁷⁸
- Ballast undercutting maintenance category—Aurizon Network has determined its incremental budget for the additional kilometres included in its scope in FY2020 and FY2021 by multiplying the approved UT4 rate per km by the additional km of undercutting required in UT5. This calculation appears to directly contradict Aurizon Network's advice that its ballast undercutting costs are made up of fixed and variable costs, as only the variable costs should change with incremental ballast cleaning.

⁹⁷¹ Aurizon Network, sub. 1: 182-183.

⁹⁷² Aurizon Network, sub. 1: 144.

⁹⁷³ Aurizon Network, sub. 1: 156.

⁹⁷⁴ Aurizon Network, sub. 1: 43.

⁹⁷⁵ Aurizon Network sub. 1: 151.

⁹⁷⁶ Aurizon Network, sub. 1: 330.

⁹⁷⁷ Aurizon Network, sub, 1: 174.

⁹⁷⁸ Calculated from the UT4 approved maintenance scope and cost.

These concerns prompted the QCA to obtain further information. These also supported the commissioning of GHD to undertake a bottom-up analysis, further examination of the long-term trends in maintenance costs, and consideration of 2016–17 actual maintenance cost spend.

Aurizon Network has been unable to demonstrate that it has given due attention to cost control processes, the efficiency of its resources (labour and equipment) and longer-term productivity initiatives to maintain the network. For example, there was limited supporting evidence that Aurizon Network has an effective governance system in place to guide decision-making on the cost and service quality trade-offs (i.e. capital, maintenance and network operations) as they emerge in the conduct of its business.

The QCA also has concerns regarding the trade-offs that Aurizon Network must manage when maintaining the network in accordance with its 'Asset Management Paradigm'⁹⁷⁹—in particular, where, when and how Aurizon Network decides to incur additional costs for maintenance activities to improve network path availability in a specific coal system, or more generally across the network.

8.6 Alternative estimate—bottom-up, cost build-up approach (GHD)

GHD was commissioned by the QCA to:

- review the agreed UT5 maintenance basket in real FY2015 dollar terms⁹⁸⁰ to allow Aurizon Network's forecast UT5 cost base (in FY2015 dollars) to be directly compared to GHD's estimate of the costs (in FY2015 dollars) that would be incurred by an efficient rail operator
- review the efficiency of the agreed UT5 maintenance basket based on Aurizon Network's forecast coal volume to allow Aurizon Network's forecast UT5 cost base (in FY2015 dollars) to be directly compared to GHD's estimate of costs (in FY2015 dollars) on a like-for-like basis
- develop GHD's estimate of costs (in FY2015 dollars) using the QCA's draft decision on the depreciation charges to apply to Aurizon Network's maintenance related fixed asset base.

The report outlines GHD's key findings on its detailed review of an agreed basket of maintenance activities, comprising around 78 per cent of Aurizon Network's UT5 total direct cost claim:

- Undercutting⁹⁸¹ category (34% of UT5 direct cost claim)
- Resurfacing category (12% of UT5 direct cost claim)
- Grinding category (9% of UT5 direct cost claim)
- General maintenance sub-categories (12.3% of UT5 direct cost claim)
- Signalling sub-categories (9.2% of UT5 direct cost claim)
- Maintenance planning and support category (2.2% of UT5 direct cost claim).

⁹⁷⁹ Aurizon Network, sub. 1: 151.

⁹⁸⁰ GHD did not approve Aurizon Network's application of an escalation factor to translate its FY2015 forecast cost estimate into a nominal FY2017 forecast cost estimate.

⁹⁸¹ Unlike Aurizon Network's proposal, GHD included track ballast undercutting costs in its review of ballast undercutting, and consequently removed these costs from general maintenance.

Key findings on prudence

GHD accepted the forecast scope of the UT5 CQCN asset management program with the following comments:

- GHD identified that Aurizon Network had strictly developed the mechanised maintenance scope in accordance with its Asset Maintenance and Renewal Plan recommended GTK intervention rates⁹⁸² and its forecast UT5 coal volumes, with the UT5 scope of undercutting, resurfacing and grinding being measured as a unit rate based on total cost per km.
- While GHD did not amend the forecast UT5 grinding CQCN scope on a per kilometre basis, it recommended that grinding scope be apportioned differently at a system level.⁹⁸³
- Aurizon Network was not able to identify the planned scope for the range of general track and signalling maintenance activities that would be implemented in UT5.⁹⁸⁴

However, GHD has documented the assumptions and caveats that it made in order to finalise its report on the prudence of the proposed UT5 maintenance cost proposal.

Our review of the prudence and efficiency of Aurizon Network's UT5 maintenance-cost proposal has been impacted due to the low quality of key information from Aurizon Network, including the poor timeliness associated with receiving this information. In response to that and to prepare this report, we have had to make numerous assumptions and have had to introduce many caveats in shaping our analysis.⁹⁸⁵

In the context of the QCA's analysis, GHD's report raised a number of issues with the prudence of Aurizon Network's CQCN asset management practices.⁹⁸⁶ GHD particularly noted the lack of detailed scope information, and the inefficient operating practices that characterise Aurizon Network's management of the CQCN maintenance program. GHD's report also identified a lack of granularity in the maintenance information provided on a system-by-system level, such that GHD's assessment of CQCN asset management was conducted at a generic CQCN-level.⁹⁸⁷

Key findings on efficiency

GHD assessed that Aurizon Network's forecast cost of the agreed basket of UT5 maintenance activities was on average 16 per cent higher than the costs that would expect to be incurred by a rail operator adopting efficient operating practices. Significant inefficiencies were identified in the forecast undercutting and resurfacing programs. Moderate inefficiencies were identified in the UT5 General Maintenance sub-categories and in the new Maintenance Planning and Support cost category. No inefficiencies were identified in the proposed grinding program and signalling sub-categories.⁹⁸⁸

⁹⁸² GHD advised that mechanised maintenance was directly correlated to the AMRP recommended intervention rates based on volume throughput and the use of time intervals as defined in the AMRP and non-mechanised maintenance was directly correlated to FY2015 historical costs, converted into unit rates.

⁹⁸³ GHD 2017, Appendix D: 20–21.

⁹⁸⁴ GHD 2017, Appendix E: 17–18, Appendix F: 6, Appendix G: 1.

⁹⁸⁵ GHD 2017: 12.

⁹⁸⁶ Appendix G: 1-3, 9-10.

⁹⁸⁷ GHD 2017: 13-15.

⁹⁸⁸ GHD 2017: 19-20.

Table 84 summarises GHD's assessment of the agreed basket of forecast direct costs.⁹⁸⁹ This allows Aurizon Network and stakeholders to focus specifically on GHD's specific recommendations with respect to the direct costs that would be incurred by an efficient rail infrastructure manager to deliver the forecast scope of UT5 maintenance activities.

Table 84 GHD's best estimate cost of specific maintenance sub-categories (\$)

<i>Maintenance category</i>	<i>Aurizon Network (FY2015)</i>	<i>GHD (FY2015)</i>	<i>Efficiency savings</i>
Undercutting ⁹⁹⁰	274,232,255	223,090,674	18.6%
Resurfacing ⁹⁹¹	95,627,646	60,445,160	36.8%
Grinding ⁹⁹²	70,884,017	70,884,017	0%
General Maintenance ⁹⁹³	99,859,484	87,875,360	12%
Signalling ⁹⁹⁴	74,910,932	74,910,932	0%
Maintenance Planning and Support ⁹⁹⁵	17,573,320	14,062,188	20%
Total cost assessed	633,087,656	531,268,331	16.1%
Estimated cost savings	101,819,324		

GHD assessed the efficiency of the forecast maintenance activities by reference to the costs that would be expected to be incurred by an efficient rail operator.

Where possible, GHD undertook a detailed 'bottom up' analysis:

of scope and costs through a 'bottom up' analysis drawing on limited information provided by Aurizon Network in response to our RFIs, in house cost data, engineering knowledge and previous modelling undertaken for the QCA. The provided scopes were converted into multiple quantities, such as number of shifts, shift hours and number of days required (e.g. for hire costs and accommodation costs). These quantities were multiplied by calculated unit rates to obtain annual costs for each 'cost item', consistent with Aurizon Network's maintenance cost categories.⁹⁹⁶

To develop a 'best estimate' of efficient costs, GHD was also required to undertake a 'top down' analysis, benchmarking forecast UT5 costs to Aurizon Network's actual costs of certain maintenance activities.

Undercutting

GHD assessed the forecast cost to deliver the scope of the UT5 undercutting program to be 19 per cent higher than the cost that would be incurred by a rail operator applying efficient operating practices.⁹⁹⁷

⁹⁸⁹ GHD did not review the forecast costs of traction power (5%), telecommunications (2%) and structures (2%) maintenance categories and did not assess the general maintenance (10.7%) and signalling (2.8%) sub-categories outside the agreed basket of UT5 maintenance activities.

⁹⁹⁰ GHD 2017: 19.

⁹⁹¹ GHD 2017: 19.

⁹⁹² GHD 2017: 19.

⁹⁹³ GHD 2017, Appendix E: 31-32.

⁹⁹⁴ GHD 2017, Appendix F: 9.

⁹⁹⁵ GHD 2017, Appendix G: 10.

⁹⁹⁶ GHD 2017, Appendix B: 5.

⁹⁹⁷ GHD 2017, Appendix B: 42.

Operating practices

GHD identified that Aurizon Network's bottom up costing model was based on the forecast UT5 undercutting program delivering an average of three hours productive undercutting work⁹⁹⁸ per 11-hour track closure. GHD identified that Aurizon Network's modelling assumption equated to an undercutting productive rate of 77 metres per possession hour. GHD also estimated that, based on a three-hour productivity rate per shift, Aurizon Network's forecast cost of its UT5 undercutting program includes excessive allowance for travel, equipment-inspection time and preparation, and end of shift activities.

GHD's 'bottom up' analysis identified that an efficient rail operator would deploy labour and fixed assets to deliver an average four hours of productive works per 11 hour track closure. GHD assessed that delivering four hours of productive undercutting works per 11 hour track closure was readily achievable if non-productive activities were moved outside closure times and Aurizon Network was required to comply with the possession management practices in Schedule G.

We have observed that Aurizon Network does not exploit its possession times in a prudent and efficient manner in that it allows access holders' train services to interrupt planned maintenance tasks. Drivers of this efficiency gain will come from such activities as preparation time, equipment-inspection time and travel time being conducted before the possession time begins, in addition to not allowing interruptions to maintenance tasks.⁹⁹⁹

If Aurizon Network adopted efficient operating practices, then GHD has estimated that the UT5 undercutting assets would deliver a productive capability of 109 metres per hour of mainline scope. This represents a 63.5 per cent increase in productivity compared to the forecast productivity of the UT5 undercutting program.¹⁰⁰⁰

GHD's analysis indicates that both undercutters (RM900 and RM902) should be able to process enough ballast in four productive hours to fill Aurizon Network's fleet of spoil wagons, with the RM900 producing 300 cubic metres and the RM902 producing 500 cubic metres of spoil per hour. GHD noted that the number of spoil wagons prevents the RM900 and RM902 from being utilised to their full productive capability. Based on Aurizon Network advice that the cycle time for a spoil wagon is greater than three hours, GHD assessed that the benefits of using the RM902 in short closures cannot be realised until the spoil wagon is able to make more than one disposal run and return to site.

GHD considered the planned introduction of the new undercutter in UT5 would not significantly alter the crew costs for its operation. Accordingly, GHD assessed that most of the efficiency issues in the undercutting program relate to improving the productive capability of the undercutting assets and whether existing inefficiencies could be overcome by better spoil-handling practices.

⁹⁹⁸ GHD 2017: 17.

⁹⁹⁹ GHD 2017, Appendix B: 35–36.

¹⁰⁰⁰ GHD 2017, Appendix B: 35.

Labour and consumables costs

Undercutting labour costs (18.2% of forecast cost) and consumables (65.7% of forecast cost) were based on Aurizon Network's top down forecast using FY2016 actual costs.¹⁰⁰¹ GHD was not able to generate Aurizon Network category level costs from the UT4 cost data.

GHD's 'bottom up' analysis calculated the appropriate number of shifts required to deliver maintenance outcomes aligned to the higher-productive-rate capabilities of the undercutting assets. Based on the higher-productive-capability rate, GHD determined that the number of shift hours, labour and on-track costs, hire costs for turnouts, and travel and accommodation costs would reduce over the UT5 period.

Resurfacing

GHD assessed that Aurizon Network's forecast cost of the UT5 resurfacing program was 37 per cent higher than the costs that would be incurred by a rail operator applying efficient operating practices.¹⁰⁰²

Operating practices

GHD identified that Aurizon Network's bottom-up costing model was based on Aurizon Network forecasting an average 32 per cent productive use of shift time to deliver resurfacing works in track closures.¹⁰⁰³ GHD attributed Aurizon Network's average 32 per cent resurfacing productivity rate to its inefficient CQCN possession management practices. For example, Aurizon Network does not undertake resurfacing works in System Shutdowns (1,018 system shutdown hours per annum), and only delivers resurfacing works during maintenance access windows¹⁰⁰⁴ (2,178 possession hours per annum are required to deliver the UT5 mainline resurfacing scope). GHD also noted that Aurizon Network could also drive further efficiencies if it delivered resurfacing works during train operations (via singular access windows) where duplicated track permitted.¹⁰⁰⁵

In contrast, GHD's 'bottom-up' analysis identified that an efficient rail operator would deploy labour and resurfacing assets to deliver an average 44.6 per cent of productive use of shift time to deliver resurfacing works in track closures¹⁰⁰⁶. GHD assessed that an efficient rail operator would use system shutdowns, maintenance access windows and singular access windows to deliver its UT5 resurfacing maintenance program, thereby reducing the impact of maintenance activities on train operations.

Depreciation costs

Resurfacing depreciation costs (24% of UT5 forecast) were based on FY2016 cost allocations of all resurfacing fixed assets, including the five high output resurfacing machines recently purchased.

GHD identified that Aurizon Network's bottom-up costing model was based on inefficient operating practices. For example, GHD found that the UT5 resurfacing program is based on new

¹⁰⁰¹ GHD assessed Aurizon Network's average hourly rate was below GHD's estimate of an industry average hourly rate. GHD does not reference the industry benchmark it applied to determine the average on-costs and overheads used to generate an hourly rate for rail workers.

¹⁰⁰² GHD 2017, Appendix C: 7, 42.

¹⁰⁰³ GHD 2017, Appendix C: 6.

¹⁰⁰⁴ Referred to as maintenance access windows.

¹⁰⁰⁵ Aurizon Network advised GHD that resurfacing works are also conducted during train operations.

¹⁰⁰⁶ GHD 2017, Appendix C: 7-8.

resurfacing machines delivering an average resurfacing rate of 900 metres per hour.¹⁰⁰⁷ This means that the productive rate of the new resurfacing machines is equivalent to the productive rate of the life-expired assets that they replaced. GHD also identified that Aurizon Network's original business decision to purchase the new resurfacing machines was based on the machines delivering a productive rate of 1,300 metres per hour.¹⁰⁰⁸

GHD's 'bottom-up' analysis identified that an efficient rail operator applying efficient operating practices would deliver resurfacing works based on a productive rate of 1,200 metres per hour.¹⁰⁰⁹ GHD estimated that maintenance operating practices based on this productive rate would allow Aurizon Network to deliver the forecast UT5 scope using only three of the five new resurfacing machines. Whereas, GHD found that the QCA's draft decision on with forecast UT5 volumes would require Aurizon Network to use four of the new resurfacing machines to deliver the UT5 scope.¹⁰¹⁰

GHD advised that optimising one of the new resurfacing machines would remove \$4,680,690 million in depreciation charges.¹⁰¹¹

Table 85 GHD assessed cost of UT5 scope (\$)¹⁰¹²

<i>Resurfacing category (FY2015)</i>	<i>Aurizon Network</i>	<i>GHD</i>	<i>Efficiency saving</i>
Resurfacing (inclusive of five new machines)	95,627,646	60,445,160	37%

Labour and consumables costs

GHD identified that resurfacing labour costs (40% of UT5 forecast) and consumables (25% of the forecast cost) were based on Aurizon Network's FY2016 average hourly rate. GHD assessed that this average hourly rate was lower than its bottom-up estimate of an industry average hourly rate.¹⁰¹³ But, GHD noted that the application of Aurizon Network's FY2016 hour rate was inconsistent with the forecasting approach embedded in the top down forecast cost of the UT5 resurfacing program.

GHD de-escalated Aurizon Network's FY2016 average hourly rate to be a FY2015 average hourly rate and then calculated the appropriate number of shifts required to deliver the higher productive unit rate using four of the five new resurfacing machines.¹⁰¹⁴ GHD was then able to identify an estimate of the total cost to deliver the scope of the UT5 resurfacing program.¹⁰¹⁵

¹⁰⁰⁷ GHD 2017, Appendix C: 5.

¹⁰⁰⁸ GHD 2017, Appendix C: 5, 32.

¹⁰⁰⁹ For the purposes of this analysis, GHD accepted Aurizon Network's advice that each new machine can deliver an average productive rate of 1,200 metres per hour

¹⁰¹⁰ GHD 2017, Appendix C: 9. GHD notes the deployment of four of the new machines would still include buffer capacity to address downtime to accommodate machine servicing.

¹⁰¹¹ GHD 2017, Appendix C: 9.

¹⁰¹² GHD 2017, Appendix C: 9.

¹⁰¹³ GHD 2017, Appendix B: 35–37. GHD's 'bottom-up' analysis adopted the appropriate time based parameters using Aurizon Network values wherever possible, subject to them being supported by a combination of GHD assumptions and Evans & Peck unit rates taken from the independent cost estimates generated by Aurizon Network in support of its UT4 cost model.

¹⁰¹⁴ GHD 2017, Appendix B: 35—'The basis for the calculation method is converting Aurizon Network's proposed scopes (for mainline and turnouts) into a number of productive and possession hours required, which can then be changed to other time based parameters.'

¹⁰¹⁵ In contrast to Aurizon Network's calculation of average labour rates which were calculated at a rate higher than the rates identified in the EBAs applying to Aurizon Network's workforce.

Grinding

GHD assessed the forecast cost to deliver the scope of the UT5 grinding program to be the equivalent of the cost that would be incurred by a rail operator applying efficient operating practices.

Forecast UT5 grinding unit rate

GHD assessed the forecast UT5 mainline rail grinding unit rate to be prudent.¹⁰¹⁶ GHD advised there was no evidence to suggest that the UT5 forecast cost of rail grinding was not efficient.

However, GHD did note that some of the grinding cost items may change in UT5 because of the likely efficiencies accruing from the new EBAs applying to Aurizon Operations grinding personnel.

Operating practices

GHD advised that Aurizon Operations' planned use of possession time was prudent.¹⁰¹⁷ At the same time, GHD identified inefficiencies related to Aurizon Network's possession management practices¹⁰¹⁸ rather than Aurizon Operations operating practices. For example:

- Aurizon Operations UT4 cost data identified that 8 hours of a 12-hour shift¹⁰¹⁹ are available to deliver on-site grinding services.¹⁰²⁰
- Aurizon Network's UT4 cost data identified that Aurizon Operations was only given an average of 6 hours' possession time per 12-hour shift.¹⁰²¹
- Based on Aurizon Network's UT4 data, Aurizon Operation's grinding services only delivered an average of 2 hours productive time undertaking grinding works on track. This only averages to 30 per cent grinding productivity per shift.¹⁰²²

GHD did not estimate the potential scope and cost savings that would accrue if Aurizon Network implemented efficient possession management practices.

General maintenance

GHD assessed the forecast cost to deliver the scope of the basket of UT5 general maintenance sub-categories to be 12 per cent higher than GHD's best estimate of efficient cost¹⁰²³

¹⁰¹⁶ GHD noted that UT5 rail grinding services were delivered by Aurizon Operations, via an internal services contract. GHD did not review the new services contract. GHD's analysis of the efficiency of the new services contract cost is based on Aurizon Network's RFI responses.

¹⁰¹⁷ GHD 2017, Appendix D: 7.

¹⁰¹⁸ GHD 2017: 16-18.

¹⁰¹⁹ GHD 2017, Appendix D: 10. This is based on Aurizon Network identifying 15% of shift time to road travel and 17% to track travel.

¹⁰²⁰ This is reflected in Aurizon Operations' planning documents, with Aurizon Network given a 3-month notice of 8-hour planned possessions.

¹⁰²¹ GHD 2017, Appendix D: 9–11. Aurizon Operations advised that while it gave Aurizon Network a 3-month notice of its planned 8-hour possession requirements to deliver rail grinding services, this was usually reduced to planned possession of only 4 hours when the ITP and DTP for that time period were released. However, Aurizon Network actual data suggests that on average 6 hours on track is delivered to Aurizon Operations. GHD has concluded the efficiency of rail grinding services is dependent on Aurizon Network's efficiency in managing possessions in the network planning and operations division.

¹⁰²² GHD 2017, Appendix D: 11.

¹⁰²³ GHD 2017, Appendix E: 3.

Inefficient operating practices

GHD considered the failure of Aurizon Network to capture historic information on the scope and cost of general maintenance sub-categories delivered prior to UT4 to be indicative of an inefficient rail operator.¹⁰²⁴ Reviewing historic scope and cost information would provide an efficient rail operator with more transparency on the productive efficiency of labour, plant, materials, changes in work practices/technologies and material changes in network infrastructure.¹⁰²⁵

GHD recommended that Aurizon Network should capture the UT5 data on the amount of work undertaken and the cost of all of general maintenance sub-categories to provide for the measurement of the actual performance and cost against the UT5 forecast performance and costs.

In relation to the track inspection sub-category, GHD identified that Aurizon Network's forecast UT5 cost for track inspections had been based on the outdated 96-hour inspection cycle. Aurizon Network's stated position in the UT5 maintenance cost proposal was that it would conduct UT5 track inspections based on a 192-hour track inspection cycle.¹⁰²⁶ Aurizon Network did not provide an explanation for this costing anomaly.¹⁰²⁷

UT4 annual average actual cost

GHD advised that it had undertaken a top down assessment of the UT5 cost of the basket of general maintenance sub-categories by comparing it to the UT4 average annual cost (in FY2015 dollars) for that same basket of sub-categories¹⁰²⁸ (in FY2015 dollars).

Based on internal engineering and rail experience, GHD considered the best estimate of the UT5 cost of the remaining general maintenance sub-categories (not including track inspections and rail stress adjustments) would be the annual average UT4 cost (in FY2015 dollars) of these sub-categories.¹⁰²⁹

In relation to the track inspection sub-category, GHD identified the best estimate of the cost of track inspections would be based on a 192-hour track inspection cycle.

In relation to the rail stress adjustment sub-category, GHD noted the costs had increased year on year in the UT4 period and that it was forecast to continue in UT5. In the absence of any detailed information, GHD gave Aurizon Network the benefit of doubt and assumed the increased rail stress adjustment costs resulted from changes in work practices. Accordingly GHD deemed the forecast cost of UT5 rail stress adjustments to be efficient.

Signalling

GHD assessed the forecast headline cost to deliver the UT5 signalling sub-categories to be efficient.

¹⁰²⁴ GHD 2017, Appendix E: 2.

¹⁰²⁵ GHD 2017, Appendix E: 2.

¹⁰²⁶ The 192-hour inspection cycle was approved by the Office of National Rail Safety Regulator in 2015.

¹⁰²⁷ Aurizon Network's forecast UT5 track inspection cost is based on a 96-hour inspection cycle.

¹⁰²⁸ Note, GHD did not have access to actual FY2017 actual cost data and instead had to rely on Aurizon Network's Corporate Plan forecast cost for general maintenance sub-categories in FY2017.

¹⁰²⁹ GHD 2017, Appendix E: 2.

UT4 annual average actual cost

GHD benchmarked the UT5 signalling costs against the average UT4 annual cost (in FY2015 dollars) of signalling activities.¹⁰³⁰ GHD noted that the headline costs for signalling maintenance between UT4 and UT5 were similar, but that the allocation of costs between the labour and consumables had changed with contract labour costs being treated as a consumable cost in UT5. GHD also noted that Aurizon Network had incorporated a 2 per cent real price increase in total cost without providing any substantiating evidence.¹⁰³¹

GHD assessed that the scale of signalling works had not changed between UT4 and UT5¹⁰³², but recommended that the 2 per cent real price increase in the UT5 forecast was efficient due to the increased proportion of preventative level crossing works¹⁰³³ being delivered in UT5.

Maintenance planning and support

GHD assessed the forecast cost to deliver the UT5 maintenance planning and support program to be 20 per cent higher than GHD's best estimate of an efficient cost.¹⁰³⁴

Inefficient accounting treatment

The maintenance planning and support category was included as a new line item in the UT5 maintenance cost proposal. Aurizon Network was only able to provide GHD with a copy of its completed UT4 timesheets to demonstrate the quantum of maintenance planning and support activities delivered during UT4.¹⁰³⁵

GHD was unable to determine whether Aurizon Network had double counted the costs of these categories. GHD rejected the forecast cost claim for fuel, consumables and depreciation costs in the maintenance planning and support category. This is because these costs have been separately costed in all of the other maintenance categories proposed in the UT5 maintenance cost proposal.¹⁰³⁶

Labour, travel and accommodation costs

GHD used Aurizon Network's timesheets as an efficiency benchmark and assessed the labour costs to be appropriate.

GHD assessed the travel and accommodation forecast UT5 cost to be appropriate, largely due to the relatively small quantum of costs.¹⁰³⁷

QCA considerations

The QCA has taken independent advice on the quality of the information provided by Aurizon Network. While the QCA has concentrated its discussion on the key findings in relation to the prudence and efficiency of Aurizon Network's maintenance cost proposal, it was difficult to assess the efficiency of the following:

¹⁰³⁰ GHD 2017, Appendix F: 1.

¹⁰³¹ GHD 2017, Appendix F: 10–11.

¹⁰³² GHD has determined that there is no declared change in the kilometres of CQCN signalled track between UT4 and UT5 and there is no evidence of any change in signalling technology that would increase the efficiency of maintenance outcomes.

¹⁰³³ However, GHD did not assess this cost item and it was not included in the agreed basket of UT5 direct costs.

¹⁰³⁴ GHD 2017, Appendix G: 4.

¹⁰³⁵ GHD 2017, Appendix G: 1-2.

¹⁰³⁶ GHD 2017, Appendix G: 3.

¹⁰³⁷ GHD 2017, Appendix G: 3.

- Non-mechanised maintenance expenditure broken down into individual scope and cost maintenance activities. Aurizon Network justified the efficiency of scope and cost by reference to its reported FY2015 actual costs in those maintenance categories.
- Labour costs (including contract labour), asset hire costs, consumables, travel and accommodation expenses and fuel costs. Aurizon Network individually identified these costs by reference to the cost information by maintenance category as contained in the reported FY2015 actual costs. While Aurizon Network identified that labour cost savings had been factored into its labour costs, Aurizon Network was not able to demonstrate the quantum of those cost savings by reference to actual cost data.
- Allocation of costs to individual systems due to lack of granularity at system-by-system level which results in the application of a single cost across all systems.

GHD identified a range of inefficiencies in the way in which Aurizon Network developed its forecast maintenance allowance. The QCA considers the issues raised by GHD warrant further consideration by Aurizon Network. Importantly, GHD has raised significant concerns regarding the low levels of productivity currently derived from the:

- fleet of maintenance track assets
- deployment of labour resources based on the inefficient utilisation of its mechanised track assets.

The GHD report is informative of the primary cost drivers fuelling the rising cost trend across Aurizon Network's maintenance business operations. For example, GHD has identified:

- Maintenance access windows are not tightly managed and as a result the productive time per shift is not maximised.
- Aurizon Network's information management systems do not readily provide information which would be expected of an organisation that was monitoring its costs in order to effectively manage and inform trade-offs between the cost of maintenance and the performance of the network.
- Some maintenance practices (such as the inspection schedule) have not been varied to take account of changes to regulatory requirements.
- The management and operation of both the new resurfacing and new ballast undercutting machines are not expected to be able to achieve the productive capacity that the machines are capable of, based on the specifications detailed in their business cases.

These factors are informative for the purposes of this investigation process.

That said, the QCA accepts that the information deficiencies identified by GHD means it is not appropriate for the QCA to propose a UT5 maintenance allowance by applying a bottom up maintenance allowance for Aurizon Network. Instead, the QCA has sought to leverage off GHD's analysis in forming its view on the appropriate maintenance allowance to approve in UT5.

8.7 Alternative estimate—FY2017 base year approach

The QCA has developed an alternative estimate using a base year methodology that is considered to be a reasonable approach. The estimate was derived by:

- selecting a suitable base year of actual maintenance costs
- recognising reasonable adjustments in scope and costs

- considering the rate of change for costs over the period, including MCI and productivity opportunities.

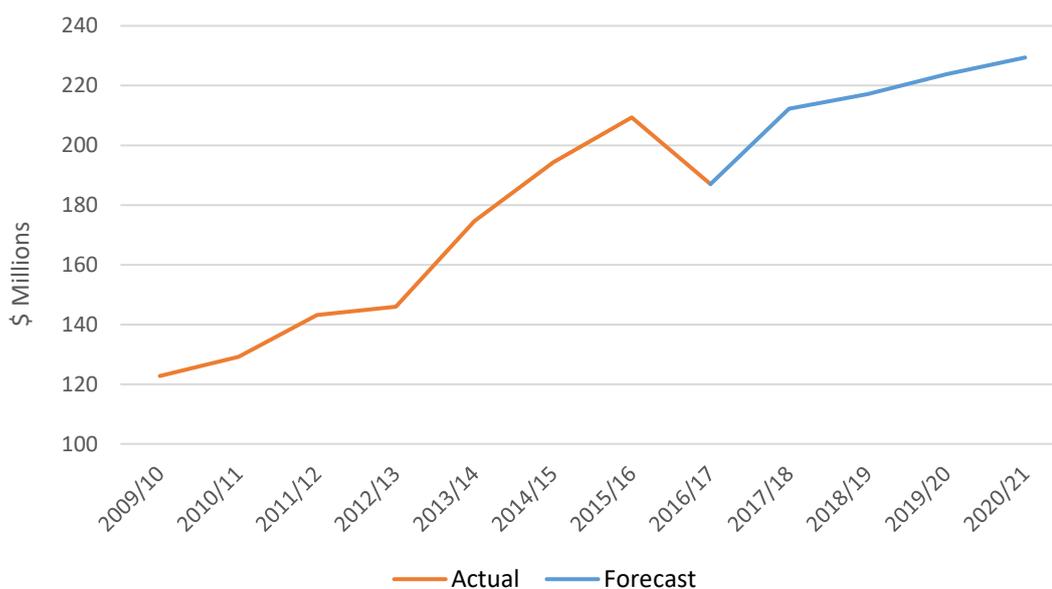
8.7.1 Selection of an appropriate base year

Aurizon Network's proposal is generally based on FY2015, but during the course of the QCA's investigation FY2017 actual maintenance information became available. As the most recent available data, the QCA has considered this information in assessing the reasonableness of Aurizon Network's UT5 proposed allowance.

Aurizon Network's FY2017 Maintenance Cost Report¹⁰³⁸ summarises the actual scope and cost of maintenance works performed on the network in FY2017 and compares these with the FY2017 maintenance budget that was approved in UT4.

As illustrated below, total maintenance expenditure fell in FY2017 and was lower than Aurizon Network's UT4 forecast cost. The report also revealed that Aurizon Network's maintenance expenditure was also below its Corporate Plan estimate that had been provided by Aurizon Network to the QCA. The FY2017 Corporate Plan number was used by GHD in its final report to establish an average UT4 cost trend for non-mechanised maintenance categories.

Figure 25 Total reported direct costs¹⁰³⁹ maintenance spend, 2009/10—2016/17



The FY2017 maintenance spend was 11 per cent less than the FY2016 spend but importantly 5 per cent less than the FY2015 maintenance spend which was used as a base by Aurizon Network when developing its proposed maintenance allowance forecast.

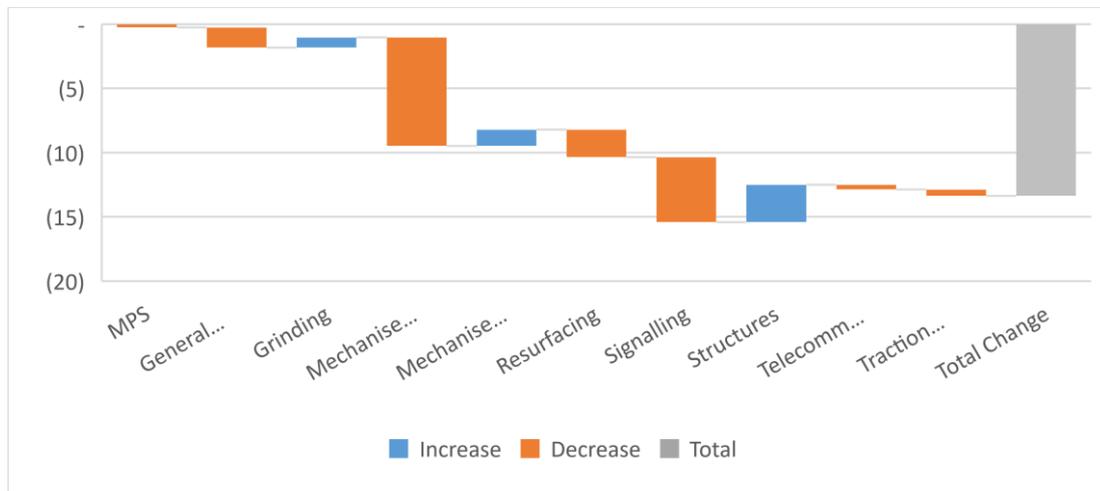
As illustrated in the figure below the reduced spend was driven by significant reductions in the cost of mechanised ballast undercutting and signalling and moderate reductions in the costs of general track maintenance, resurfacing, telecommunications and traction power. The report

¹⁰³⁸ Aurizon Network 2017f.

¹⁰³⁹ Excludes return on asset charges.

also noted that grinding and signalling costs were higher than the approved maintenance cost allowance.

Figure 26 Difference in reported direct cost maintenance spend, FY2015 and FY2017



QCA considerations on base year

The FY2017 maintenance costs have a number of implications for Aurizon Network's proposed maintenance costs because they provide evidence of the actual financial implications of some of the changes foreshadowed and estimated by Aurizon Network in its submission.

Mainline and turnout resurfacing

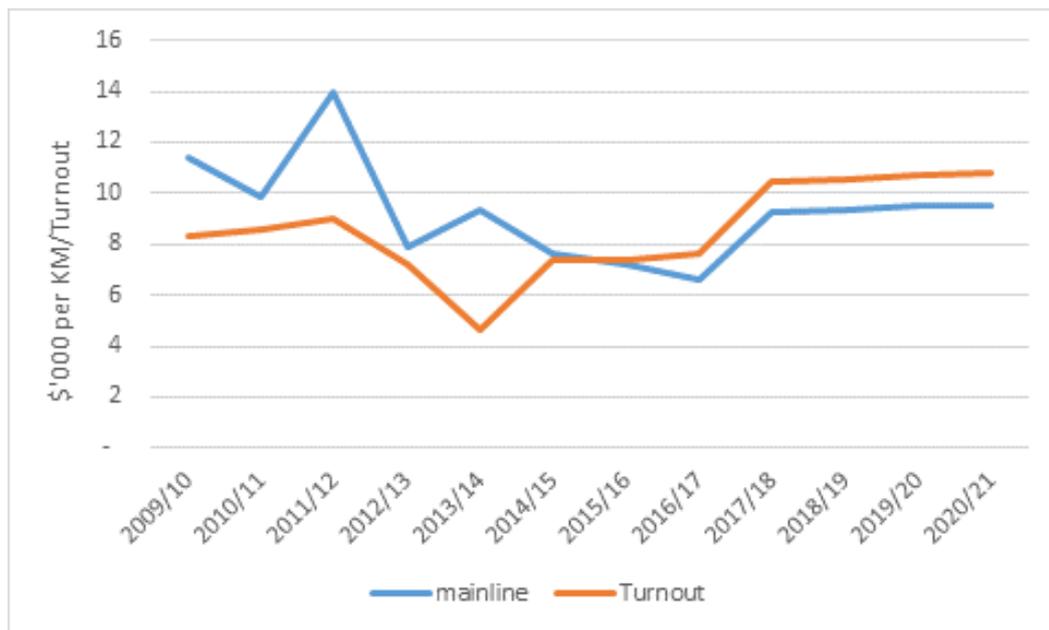
The new resurfacing fleet was not fully operational in FY2015 and Aurizon estimated the net change in depreciation and operating costs of the new fleet and, as illustrated in **Figure 27**, the net impact of Aurizon Network's assumption was an increase in average resurfacing costs per km / per turnout in UT5.

The new fleet was fully operational during FY2017 and the total mainline resurfacing cost was over \$3 million less than the UT4 budget in FY2017 despite achieving more than the forecast scope. Aurizon Network attributed this to 'the change in the operating / maintaining model for the resurfacing plant'.¹⁰⁴⁰ Importantly this saving was achieved with an output of 2,404 km of mainline resurfaced, well above the forecast scope requirement of 2,084 km in FY2018.

The average cost per turnout was also below the UT5 forecast cost. The actual FY2017 mainline resurfacing data is therefore considered to be a more reliable estimate of the impact of the new resurfacing machines on resurfacing costs.

¹⁰⁴⁰ Aurizon Network 2017f: 11.

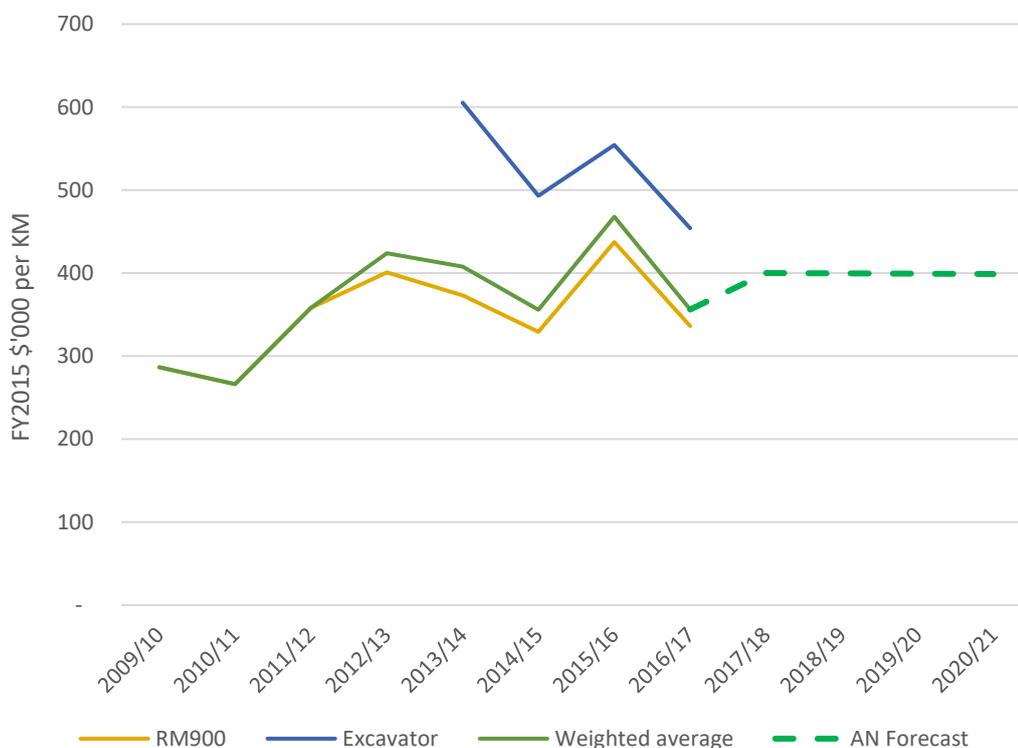
Figure 27 Mainline and turnout resurfacing costs



Mainline Ballast Undercutting

While the total cost of mainline ballast undercutting in FY2017 is around \$6 million lower than in FY2015 this is primarily because of a reduction in scope achieved from 152 km in FY2015 to 135km in FY2017. The average mainline ballast undercutting the cost per km in FY2017 is consistent with the FY2015 cost (see **Figure 28** below).

Figure 28 Mainline ballast undercutting cost per km



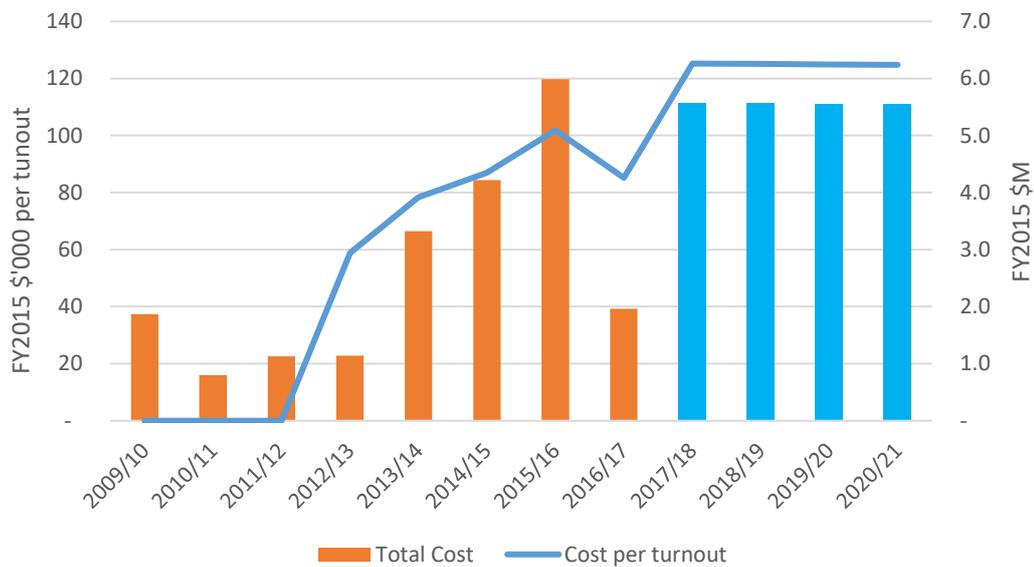
While Aurizon Network stated that efficiencies were achieved in the undercutting program, these efficiencies only appear to have only benefited the excavator team as the average cost per km of the mainline ballast undercutting operations in FY2017 was slightly higher than that that achieved FY2015.

The fall in the cost of excavator work is, however, important. The cost per km of the excavator is significantly higher than the cost per km of the mainline ballast undercutting operations, but, as evidenced by the actual FY2017 data, has reduced over the period of UT4. For UT5 Aurizon used an average cost of \$400,000 per km to produce their forecast but did not provide an estimate of the number of km that the excavator is expected to complete. Assuming excavating costs achieved in FY2017 and 110 / 30 km split¹⁰⁴¹ between the mainline ballast undercutting operations and the excavator, the average cost per km for UT5 reduces from \$400,000 to \$360,000 per mainline km completed.

Turnout ballast undercutting

Turnout ballast undercutting costs reduced in aggregate in FY2017 but the average cost per turnout was higher than the average cost achieved in FY2015 (see **Figure 29**). Aurizon’s UT5 forecast assumes a significant increase in the average cost per turnout which is higher than that achieved in FY2017 and higher than the average cost per turnout achieved over the UT4 period. Evidence from FY2017 provides no justification for the proposed increase in costs in UT5 and actual FY2017 costs are considered to be a better guide to UT5 expenditure than Aurizon Network's forecast prepared from the FY2015 data

Figure 29 Ballast undercutting cost per turnout



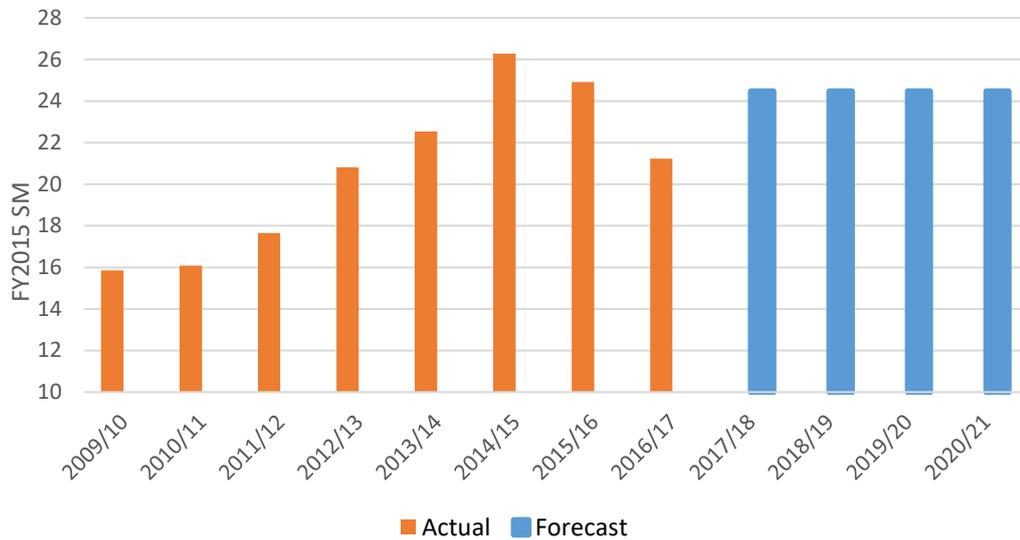
Signalling

Aurizon developed its UT5 signalling cost estimate by adjusting the actual FY2015 signalling costs by an estimate of the change in labour costs that would result from its new enterprise bargaining agreement. Evidence from the FY2017 actual maintenance cost suggests that the impact of these changes appears to have been larger than forecast since total signalling

¹⁰⁴¹ Based on the average km completed per year by the RM900 in UT4.

maintenance cost in FY2017 were \$3 million below Aurizon’s UT5 annual cost estimate (**Figure 30**). The FY2017 actual signalling cost spend would therefore appear to be a better guide to UT5 expenditure than Aurizon Network's forecast prepared from the FY2015 data.

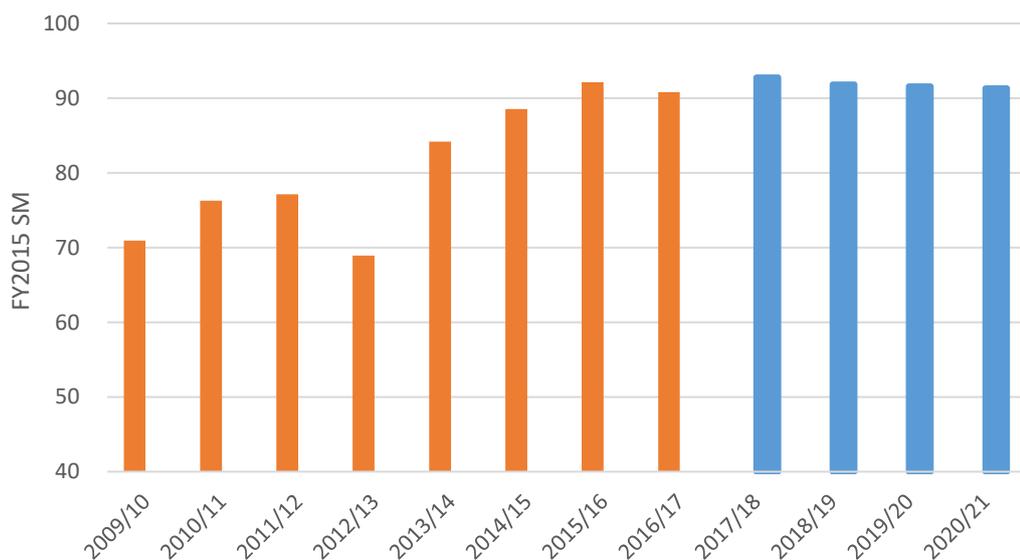
Figure 30 Signalling costs, forecast and actual (FY2015 \$)



Other maintenance products

FY2017 expenditure on other maintenance products¹⁰⁴² was slightly above FY2015 actual costs and slightly below UT5 forecasts (see **Figure 31** below). After having risen sharply in FY2014 and FY2015 these costs have stabilised.

Figure 31 Total actual and forecast expenditure, other maintenance products



¹⁰⁴² Including general track, grinding, structures, telecommunications, traction power, structures, grinding, asset management.

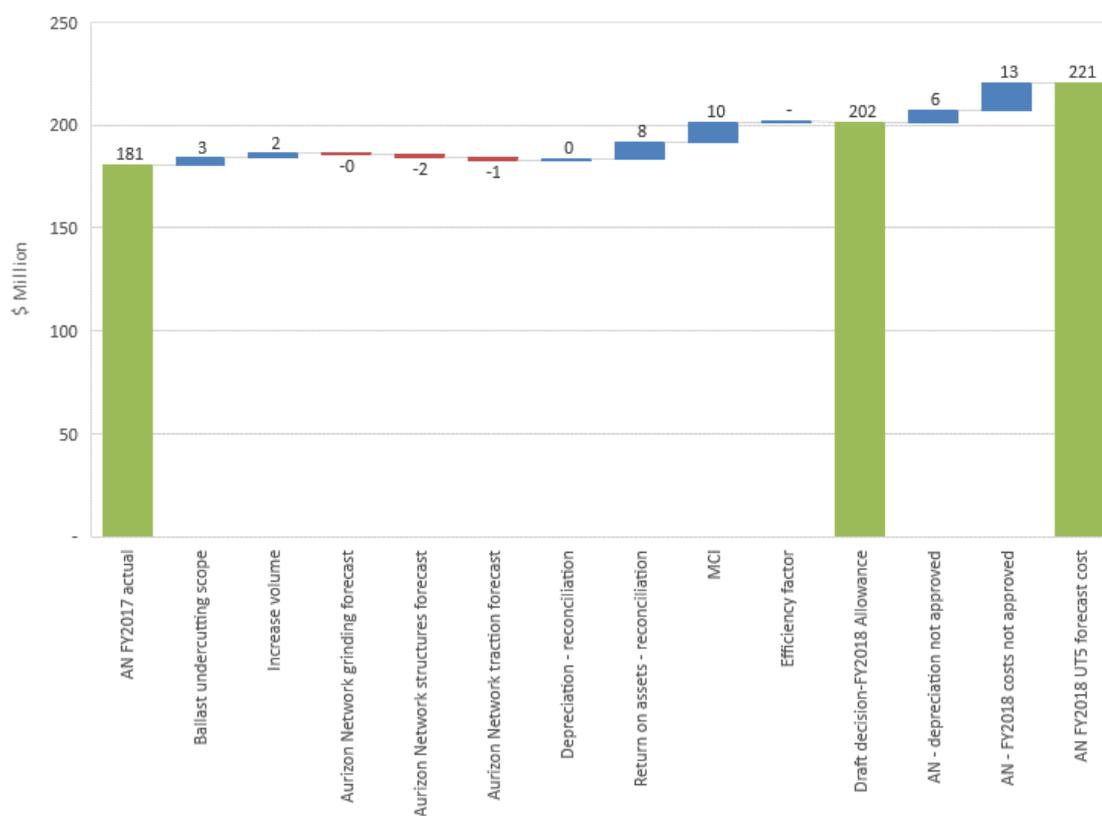
For these products the FY2015 data appears to have been a reasonable guide to expenditure in FY2017 but there is some variation within individual categories. FY2017 expenditure on structures in particular is significantly higher than in FY2015, consistent with Aurizon Network's comments on the impact on Cyclone Debbie.

QCA conclusion on an appropriate base year

The QCA proposes to apply the FY2017 actual expenditure to be the baseline annual expenditure in UT5 for all but three of the maintenance categories. This is appropriate because the FY2017 actual costs reflect the most up-to-date information and provide direct evidence that some of the UT4 productivity improvements have already started to flow through to Aurizon Network's bottom-line.

The QCA's three exceptions to its FY2017 base year forecast approach are:

- Rail grinding—Aurizon Network has stated that its UT5 forecast cost reflects the terms of a new grinding contract that has been negotiated with Aurizon Operations and which commenced on 1 July 2017. The QCA has therefore accepted Aurizon Network's forecast UT5 cost for this maintenance category.
- Structures—Aurizon Network has stated that its FY2017 expenditure on structures was inflated by the one-off impact of cyclone Debbie. The QCA has therefore accepted Aurizon Network's forecast UT5 cost for this maintenance category.
- Traction power—Aurizon Network has stated that costs have been shifted from traction to signalling for UT5 and this may not be reflected in its FY2017 figures. In addition, the FY2017 split between Blackwater and Goonyella electric maintenance is significantly different to Aurizon Network's forecast split for UT5. The QCA has therefore accepted Aurizon Network's forecast UT5 cost for this maintenance category.

Figure 32 Summary of cost changes FY2017 actuals to FY2018 forecasts

8.7.2 Efficient adjustments to the base year

Following selection of a base year cost, the QCA has considered the need for incremental adjustments to costs over the period. The adjustments described below represent incremental increases or decreases in expenditure from the base year costs.

Updated UT5 coal volume forecast

The QCA has increased the general maintenance category to account for the QCA's draft decision on forecast coal volumes during the UT5 undertaking period. To do this, we have increased the proposed allowance for general maintenance by assuming that 50 per cent of costs as measured on a \$/GTK basis are variable.

The QCA has not made adjustments for volumes forecast in the remaining maintenance categories.

- The resurfacing allowance in FY2017 as Aurizon Network was able to achieve 20 per cent above their estimated scope requirements in FY2018 and we expect that any increase in resurfacing requirements above the Aurizon Network forecast to be well within this capacity.
- The rail grinding budget is also considered sufficient given then historical variation between forecast and actual rail grinding output.
- The maintenance cost categories, signalling, structures, telecommunications, traction power and maintenance planning and support are driven by the geography of the network rather than the volumes carried across the network.

UT5 ballast undercutting scope and cost

The QCA has proposed the maintenance allowance be adjusted for ballast undercutting. For the purpose of developing the UT5 maintenance cost allowance it is proposed to use the weighted average unit rates achieved by Aurizon Network for the RM900 and excavator mainline ballast undercutting and turnout ballast undercutting in FY2017. They have been applied to the mainline and turnout scope proposed by Aurizon for FY2018 and FY2019 (140km and 42 turnouts per year) for all years of the undertaking. The QCA does not consider that Aurizon Network has provided sufficient rationale for the additional scope 9km proposed in FY2020 and FY2021. As they indicated in their submission¹⁰⁴³ Aurizon Network may seek to vary the ballast undercutting scope on the basis their improved understanding of the network condition, following their analysis of the 2017 GPR data if required during UT5.

Ground penetrating radar (GPR)

Aurizon Network has included the cost of two GPR runs in its forecast maintenance budget for FY2019 and FY2021, each at a cost of approximately \$1.5M per run. However the QCA proposes the maintenance allowance be adjusted to provide for the costs associated with only one GPR run.

Previous GPR runs were completed in 2012, 2014 and 2016. No evidence was provided by Aurizon Network to justify why GPR runs are now required on a two year schedule, rather than the three year schedule adopted in UT4.

Since Aurizon Network submitted its UT5 proposal, the 2016 GPR has been completed and the proposed cost (\$1.3m) was reviewed by the QCA's consultant. This review identified significant inefficiencies in Aurizon Network's approach to tendering the work required to external consultants and a lack of evidence that the expense is justified. The consultant recommended that an efficient cost of the GPR program would be around \$0.9 million.

The QCA considers that Aurizon Network's proposed maintenance allowance should be based on the cost of a single GPR run at \$0.9 million.

8.7.3 Expected changes in costs and productivity - efficiency factor

The QCA's forecasting approach requires an estimate of the rate of change in Aurizon Network's maintenance costs over the UT5 period. This has involved examining the underlying drivers of cost escalation (see section 8.9) and adjustments for expected productivity improvements.

Addressing identified inefficiencies within actual costs

Setting the base year as the benchmark from which to forecast a reasonable maintenance allowance does not mean that we accept that Aurizon Network's maintenance expenditure in FY2017 to be efficient.

Assessing the efficiency of the FY2017 benchmark costs would require an assessment of whether the maintenance activities delivered in FY2017 could have been delivered at a lower cost. And in this context, GHD has provided evidence of the inefficiencies in Aurizon Network's operating work practices, including the utilisation of fixed assets and labour resources, and possession management practices.

The QCA does not consider that the selection of the FY2017 base year, with proposed adjustments alone, is sufficient to address the inefficiencies that were identified by GHD.

¹⁰⁴³ Aurizon Network, sub. 1: 169.

For example, GHD reported an average 16 per cent cost inefficiency in the forecast cost of the basket of Aurizon Network's UT5 maintenance activities.¹⁰⁴⁴ However, given the deficiencies evident in the information provided by Aurizon Network and the qualified nature of the GHD report, the QCA was reluctant to lock in an average 16 per cent efficiency improvement across all of Aurizon Network's proposed UT5 maintenance program.

In order to determine a reasonable efficiency benchmark to apply to the QCA's proposed forecast of the UT5 maintenance allowance, the QCA engaged a second independent engineering firm, B&H Strategic Services, to peer review the findings that had emerged in this investigation and to report on the cost effectiveness of Aurizon Network's maintenance proposal—consistent with that expected of a 'well run railway'. B&H Strategic Services note that the term "well run" is a subjective term except that various attributes can be given that provide some qualitative evidence. In particular, a "well run" railway is one that embarks upon continuous improvement brought on through economies of scale, new technology, equipment investment and growth of knowledge.¹⁰⁴⁵ The B&H Strategic Services report is available on the QCA's website.

The conclusion of B&H Strategic Services analysis is that Aurizon Network has not been able to demonstrate that it has the attributes of a 'well run' railway, specifically:

- Aurizon Network's information systems do not appear to be tailored to providing management or stakeholders with the information that allows them to understand the cost drivers of key activities. For example, the labour and plant rates include both costs which are fixed independent of use (such as depreciation, overheads, shutdown costs) and variable costs (such as travel and accommodation allowances and direct plant consumables). Given this information it is unclear how the marginal cost of alternative activities can be judged or how a decision whether or not to outsource a service is made.
- Aurizon Network's process for forecasting the scope and cost of key activities is not clearly evidence based. Ballast undercutting is the most significant individual element of the maintenance cost build up, yet Aurizon Network has prepared a forecast based on a scope that was set as a compromise for the last three years of UT4 and a unit rate that is inconsistent with the current and historical cost of their operations.
- Aurizon Network has not been able to demonstrate that it has a robust, evidenced-based approach to assessing whether or not to implement proposed changes to its operations. Their proposal includes a number of initiatives such as depot consolidation, changes to rail stress management and culvert upgrades which are highlighted as evidence of proactive network management but, these initiatives appear to have come at some cost and it is unclear how they were justified.
- Aurizon Network's costs have risen consistently on a per gross tonne basis and are forecast to continue to increase over UT5. This increase may be justified by improved performance over time (e.g. faster response times, reduction rail failures and derailments etc), but Aurizon Network has not been able demonstrate where and why it has made trade-offs between increased cost and performance.

B&H Strategic Services advised that the absence of many of the features expected of a well-run railway combined with evidence that Aurizon Network's costs continue to rise significantly more quickly than network activity, suggested that further productivity improvements were possible

¹⁰⁴⁴ GHD's specified basket comprised 77% of Aurizon Network's forecast UT5 CQCN maintenance program.

¹⁰⁴⁵ B&H Strategic Services 2017.

beyond those captured in Aurizon Network's FY2017 reported actuals. B&H Strategic Services' justifies this conclusion by reference to GHD's bottom up costing of ballast undercutting and resurfacing which identified a number of way in which productivity could be improved by implementing more efficient operating work practices.

To capture some of the potential efficiencies identified by GHD, B&H Strategic Services recommended the QCA adopt the 2017 annual maintenance spend as the base year estimate and then apply an annual 3 per cent cumulative 'efficiency factor' to derive the maintenance allowance for UT5. B & H Strategic Services recommended that the cumulative 3 per cent efficiency factor be applied at an aggregate level from FY2017 onwards, rather than individually setting efficiency factors at a category level. An aggregate average efficiency factor allows Aurizon Network to retain control over how and when it might implement the required reform initiatives to drive down costs and improve the productivity of its maintenance services in UT5.

B&H Strategic Services' recommended that the QCA adopt the FY2017 annual maintenance spend as the UT5 base year forecast for FY2018 and then apply a cumulative 3 per cent efficiency factor for each subsequent year in UT5 would equate to a 14 per cent reduction on Aurizon Network's forecast UT5 maintenance allowance.

It is not unreasonable based on [GHD] results to suggest that at least a 15% reduction in costs could be achieved by [Aurizon Network], without altering scope, just on GHD analysis.¹⁰⁴⁶

QCA conclusion on productivity and efficiency gains

The QCA has considered the advice from GHD and B&H Strategic Services in determining an appropriate level of efficient maintenance costs for the regulatory period. Using this information the QCA proposes an efficiency factor for a target level of annual maintenance cost reduction while also providing an incentive for Aurizon Network to outperform and retain some benefit from productivity gains.

Setting a regulatory efficiency factor involves balancing between the interests of the service provider and customers.¹⁰⁴⁷ If the target efficiency factor is too low, the service provider may not have a meaningful incentive to reduce costs.¹⁰⁴⁸ If the efficiency target is set too high, efficiency improvements may be achieved at the expense of service quality.

GHD and B&H Strategic Services' analyses provide compelling evidence based on a bottom-up and top down assessment that efficiency gains of 3 per cent per annum are achievable by Aurizon Network in UT5. Taking a conservative approach, the QCA considers that a 2 per cent cumulative efficiency factor is appropriate to implement from FY2019 through to FY2021. The QCA's proposed approach provides a transition period to allow Aurizon Network time to implement the initiatives that are required to bring its CQCN asset maintenance program towards an efficient level. Aurizon Network will also benefit from a productivity incentive by retaining the rewards from any efficiency gains above the 2 per cent target level.

¹⁰⁴⁶ B&H Strategic Services 2017: 19.

¹⁰⁴⁷ Efficiency factors were applied to Aurizon Network's approved maintenance allowance in UT1 and UT3. In UT1, the QCA approved an annual maintenance allowance with an efficiency factor which reduced the annual allowance in real terms by 15% over the UT1 period. In UT3, the QCA applied a MCI-25% efficiency factor to reduce the annual revenue adjustment for the annual maintenance allowance. However, in UT2, Aurizon Network under-recovered its maintenance expenditure by 25% in the first two years and obtained QCA approval to increase the maintenance allowance by 25% in the last two years of UT2 (this equated to a 12.5% reduction factor being applied to Aurizon Network's maintenance expenditure in UT2).

¹⁰⁴⁸ In UT4, the QCA approved the maintenance allowance as reasonable and did not apply an efficiency factor to incentivise Aurizon Network to reduce its maintenance expenditure.

An efficiency gain of 2 per cent or more is reflected in recent regulatory decisions. For example, IPART set efficiency targets for operating expenditure of 0.7 to 2.25 per cent per year for Sydney water businesses.¹⁰⁴⁹ In 2016, the Office of Rail and Road (ORR), the economic regulator for rail in the UK, determined aggregate efficiency savings of 19.4 per cent over the 5 year regulatory period for Network Rail through a review of bottom-up calculation supported by benchmarking against overseas rail regulators. These savings are equivalent to a 4.2 per cent compound annual efficiency target.¹⁰⁵⁰

The QCA considers that, by providing an incentive framework with potential benefits for all parties, a 2 per cent efficiency factor appropriately balances the legitimate business interests of Aurizon Network (s.138(2)(b)), and the interests of access seekers and access holders (s. 138(2)(e) and (h)).

8.8 Indirect costs and related matters

Aurizon Network's proposed indirect maintenance costs and depreciation of maintenance assets account for 11 per cent of the total maintenance allowance.

Indirect costs include:

- return on the forecast UT5 maintenance fixed assets¹⁰⁵¹
- return on inventory held for maintenance purposes

While we note Aurizon Network included depreciation in direct maintenance costs, it is discussed here due to the link with Aurizon Network's fixed maintenance asset register.

Aurizon Network's proposed inclusion of forecast indirect maintenance costs in nominal dollar terms. However, in a few areas, the QCA has had to specifically reference UT5 forecast indirect costs in real FY2015 dollar terms to enable a like for like comparison to Aurizon Network's reported FY2015 actual costs.

8.8.1 Depreciation

Aurizon Network's submission did not provide detail on the value of depreciation associated with maintenance assets in their proposal. Although, Aurizon Network noted that depreciation is captured within the proposed direct costs for each maintenance discipline.

In supporting documentation, the QCA identified that Aurizon Network had embedded depreciation in its direct maintenance cost categories.

QCA Analysis

The QCA separately identified Aurizon Network's forecast depreciation charges that had been included as a direct cost in each maintenance category. By separately identifying the UT5 forecast of depreciation from Aurizon Network's maintenance fixed asset register, the QCA has been able to determine the accuracy of Aurizon Network's proposed treatment of these costs in its maintenance proposal.

¹⁰⁴⁹ IPART 2016: 16, 110.

¹⁰⁵⁰ Office of Rail Regulation 2013: 153. In CP3 (control period 3), Network rail (NR) achieved an efficiency improvement of 27%, 4% below the target of 31%. In CP4 NR accomplished gains of 18%, just shy of a 21% target.

¹⁰⁵¹ This is referred to as return on plant in Aurizon Network's proposal

Aurizon Network provided the QCA with its maintenance related fixed asset register from which depreciation charges for each maintenance category could be derived. The QCA identified data discrepancies in the maintenance of the fixed asset register. The QCA and Aurizon Network worked to address these issues. In reviewing Aurizon Network's updated UT5 maintenance fixed asset register, the QCA was able to confirm:

- Aurizon Network planned to use all of the fixed assets identified in the maintenance asset register
- the commissioning dates for all fixed assets in the maintenance register
- the written-down value of all assets in the maintenance register.

The UT4 maintenance allowance applied a CPI escalation to depreciation charges for maintenance assets. The QCA's approach was to encourage Aurizon Network to include its maintenance plant assets into the RAB, rather than by separately accounting for it in the forecast UT5 maintenance allowance.

The QCA previously considered the inclusion of the maintenance plant assets into the RAB would provide greater transparency and accountability on Aurizon Network's business decisions to balance the service quality trade-offs between investing in new CQCN infrastructure assets versus increasing expenditure on its CQCN maintenance program.

The QCA acknowledges that the UT4 treatment of depreciation costs for maintenance assets did not have its intended effect. That is, Aurizon Network has not sought approval to include maintenance assets within its RAB, nor achieved greater transparency and accountability with respect to business decisions relating to the procurement of maintenance plant and equipment.

Moreover, the previous approach of escalating depreciation costs by CPI should be netted off in the form of net depreciation (i.e. less indexation).

Accordingly, the QCA considers it is not reasonable to include CPI escalation in the calculation of depreciation costs associated with the maintenance fixed asset register. The QCA's position is to not approve the CPI escalation that has been included in Aurizon Network's forecast UT5 depreciation cost claim.

The QCA considers that an efficient rail operator would apply a return on and return of the fixed asset register being calculated by applying a written-down value approach. The QCA notes that this approach is conservative, given the QCA has not sought to exclude any assets from the fixed asset register for the purposes of this draft decision.

The QCA draft decision is that the depreciation costs associated with Aurizon Network's maintenance-related fixed assets should be calculated using written-down value for the UT5 period.

These conservative calculations were also used by GHD for the purposes of its recommendations.

Table 86 Depreciation charges for maintenance fixed asset register

<i>Asset type</i>	<i>2017/18</i>	<i>2018/19</i>	<i>2019/20</i>	<i>2020/21</i>
QCA estimate	11.1	12.2	14.5	14.6

8.8.2 Asset Optimisation

In making this draft decision, the QCA has not optimised any excess capacity arising from Aurizon Network's investment in new maintenance fleet. Given the large and lumpy nature of

these assets, the QCA did not consider it appropriate to determine whether it reflected the optimal configuration required for Aurizon Network's maintenance needs. Rather, the QCA has taken a conservative approach at this time. The extent of this issue will be monitored.

8.8.3 Return on Assets

Aurizon Network proposed to increase its return on the fixed maintenance asset register over the UT5 period from a FY2018 forecast of \$6.8m in nominal dollars and increasing to \$9.6m FY2020 nominal dollars.

Aurizon Network defined its proposed return on its maintenance related fixed assets as efficient because it was calculated based on the:

- written down value of Aurizon Network's maintenance related assets
- procurement of a new fleet of undercutting and resurfacing track machines
- application of a proposed pre-tax real WACC of 6.7%.

QCA Analysis

The QCA has determined that the rate of return to apply to the Aurizon Network's maintenance fixed asset register should be consistent with the draft decision on the post-tax nominal WACC. This decision is made on the basis that no tax is paid on the return earned, as it is treated as a tax deductible cost in the allowable revenue calculation and no attempt has been made to optimise the maintenance asset base. This rate of return has been applied to the written-down value of the asset in each year.

Table 87 Maintenance-related return on asset charges

<i>Asset type</i>	<i>2017/18</i>	<i>2018/19</i>	<i>2019/20</i>	<i>2020/21</i>
Ballast undercutting	3.6	4.1	5.5	5.0
Resurfacing	3.5	3.3	3.0	2.7
Other	0.6	0.8	0.9	1.0
Total	7.7	8.1	9.4	8.8

8.8.4 Return on maintenance inventory

Aurizon Network embedded a return on inventory cost claim in the forecast UT5 maintenance allowance in recognition that it must invest, procure and store an appropriate level of maintenance inventory to deliver its UT5 maintenance program in an effective and efficient manner.

Aurizon Network has forecast that its return on inventory in FY2018 is \$1.7 million in nominal dollars, reducing to \$1.5 million nominal dollars in FY2020 and FY2021.¹⁰⁵² In determining its proposed return on inventory, Aurizon Network has:

- applied a real pre-tax WACC of 6.7%
- determined the level of inventory at Aurizon's mixed depots and held for maintenance purposes.¹⁰⁵³

¹⁰⁵² Aurizon Network, sub. 1: 191.

Aurizon Network identified that its proposed return on inventory cost claim was efficient because it was lower than the equivalent FY2017 cost (in nominal dollars) that was approved in the UT4 maintenance allowance.

QCA analysis

The QCA considers that maintaining a level of inventory is necessary and should allow Aurizon Network to procure goods at least cost. We have rejected Aurizon Network's proposed return on inventory on the basis that

- the allowance included asset and inventory management costs which were not justified in their submission
- a pre-tax nominal WACC rather than a post-tax nominal WACC was utilised.

Aurizon has highlighted that a portion of their inventory is obsolete, but not detailed why their targeted inventory levels (inclusive of obsolete inventory) should be considered efficient and provided insufficient justification for the proportion of their inventory that is maintenance related.

As an alternative, an estimate of the inventory assets required for maintenance activities has been developed based on the detail provided in the UT3 submission which detailed the inventory asset required for maintenance activities (such as rail, ballast, spare turnouts etc.). The QCA considers that the appropriate return on inventory is calculated applying the QCA's post tax nominal WACC.

Table 88 details the return on assets for maintenance related inventory.

Table 88 Return on Maintenance Inventory

<i>Asset type</i>	<i>2017/18</i>	<i>2018/19</i>	<i>2019/20</i>	<i>2020/21</i>
Inventory	0.8	0.7	0.7	0.7

8.9 Maintenance cost index

Aurizon Network's maintenance cost index (MCI) is a composite index used to escalate its approved maintenance allowance. Introduced in 2010, the MCI was proposed and approved following a period during which unit maintenance costs were increasing at a faster rate than the consumer price index (CPI).¹⁰⁵⁴ Compared to CPI, the MCI seeks to better reflect Aurizon Network's underlying cost drivers for the range of materials and resources required in completing maintenance work.

The first step in calculating the MCI is to determine the key costs required in performing Aurizon Network's maintenance activities. These costs are then categorised and assigned related sub-indices, which are forecasted for the undertaking period. Cost categories are assigned weightings to reflect their relative contribution to maintenance spend. By applying these weightings, the composite index is calculated.

¹⁰⁵³ In the information gathering process, Aurizon Network provided detailed information on the maintenance inventory held in the mixed depots and spreadsheets detailing the in FY2015 actual mix of labour hours booked to inventory cost items.

¹⁰⁵⁴ QCA 2009: 182

8.9.1 Aurizon Network's proposal

Aurizon Network proposes to use the MCI to escalate certain costs elements of its UT5 maintenance cost proposal, including the forecast base unit rates (in FY2015 dollars) for all direct maintenance costs¹⁰⁵⁵ and the various categories of its self-insurance claim. Aurizon Network's proposed MCI rates are shown in Table 89 below. Aurizon Network state that the methodology used to construct its proposed MCI is consistent with the QCA's UT4 final decision.¹⁰⁵⁶

Table 89 Aurizon Network's Proposed MCI

<i>Year</i>	<i>MCI - % compared to FY2015</i>	<i>MCI annual forecast</i>
FY2018	5.3%	1.82%
FY2019	7.3%	1.91%
FY2020	9.4%	1.92%
FY2021	11.5%	1.93%

Source: Aurizon Network, sub. 1: 164.

Aurizon Network proposes to align the annual growth rate of labour sub-indices to the wage price index (WPI) and use CPI to estimate annual growth of consumables, fuel, accommodation, and CPI sub-indices. Table 90 outlines the components required for calculation of the MCI.

Table 90 Aurizon Network's proposed components of the MCI

<i>Cost category</i>	<i>Weighting</i>	<i>Sub-index</i>	<i>Sub-index weightings</i>	<i>Forecast rates</i>
Labour	33.4%	ABS Wage Price Index: National Construction (A2705076L)	33.3%	WPI: Qld Treasury and Trade MYFER 2015–16
		ABS Wage Price Index: National Mining (A2705060V)	33.3%	WPI: Qld Treasury and Trade MYFER 2015–16
		ABS Wage Price Index: Queensland, all industries (A2704548F)	33.3%	WPI: Qld Treasury and Trade MYFER 2015–16
Consumables	54.6%	ABS Producer Price Index: Fabricated metal (A2305805K)	34.8%	Proposed forecast rate of inflation: 1.22%
		ABS Producer Price Index: Transport Equipment & Parts (A2305907X)	19.6%	Proposed forecast rate of inflation: 1.22%
		ABS Producer Price Index: Mining/Construction Machinery Manufacturing (A2307785X)	45.6%	Proposed forecast rate of inflation: 1.22%
Fuel	2.9%	AIP: Diesel Terminal Gate Prices, Brisbane	100%	Proposed forecast rate of inflation:

¹⁰⁵⁵ The MCI is to apply to all cost categories within each maintenance activity, excluding depreciation (Aurizon Network, sub. 1: 165).

¹⁰⁵⁶ Aurizon Network, sub. 1: 164.

<i>Cost category</i>	<i>Weighting</i>	<i>Sub-index</i>	<i>Sub-index weightings</i>	<i>Forecast rates</i>
		(aip.com.au/pricing/tgp.htm)		1.22%
Accommodation	1.7%	ABS Producer Price Index: Accommodation (A4406608F)	100%	Proposed forecast rate of inflation: 1.22%
CPI	7.4%	ABS Consumer Price Index: All groups, Brisbane (A2325816R)	100%	Proposed forecast rate of inflation: 1.22%

Source: Aurizon Network, sub. 1: 164.

As part of the annual revenue cap process, the MCI is adjusted to account for differentials between actual and forecasted inflationary pressure.¹⁰⁵⁷ The approved weightings and sub-indices, however, remain fixed over the regulatory period.

Aurizon Network is proposing to annually report the actual MCI and the approved forecast MCI for each year.¹⁰⁵⁸

8.9.2 QCA analysis and draft decision

Summary of draft decision 8.2

- **The QCA considers the appropriate way for Aurizon Network to amend its 2017 DAU is to revise its proposed allowable revenues and reference tariffs to reflect Aurizon Network's proposed MCI forecasts (updated for actual FY2017 sub-indices), but not Aurizon Network's methodology used to reach its proposed MCI.**
- **The QCA's draft decision is to apply the following annual MCI forecasts**
 - (a) **FY2018 - 1.81 per cent**
 - (b) **FY2019 - 1.91 per cent**
 - (c) **FY2020 - 1.92 per cent**
 - (d) **FY2021 - 1.92 per cent**
- **For *ex post* reconciliation of forecast MCI to actual MCI, the QCA requires Aurizon Network to amend the weightings so that:**
 - (a) **weightings are consistent with efficient maintenance costs**
 - (b) **weightings reflect an accurate allocation of costs among cost categories**
 - (c) **depreciation costs are removed from calculation of the MCI weightings.**
- **The QCA considers that the *ex post* reconciliation of forecast to actual inflation (Schedule F, cls. 4.3(c)(i) and 4.4(a)(ii)), insulates Aurizon Network from cost escalation within its maintenance cost forecasts.**

The purpose of the MCI is to provide a reasonable reflection of the inflationary pressures Aurizon Network's maintenance costs will experience during the 2017 DAU period. If this is not achieved, the MCI cannot be considered appropriate. In assessing whether Aurizon Network's proposed MCI is appropriate, amongst other things, we have assessed the following:

- the proposed annual MCI indexation rates
- construction of the proposed MCI

¹⁰⁵⁷ See Schedule F, cls. 4.3(c)(i) and 4.4(a)(ii) of the 2017 DAU.

¹⁰⁵⁸ See cl. 10.3.3(c)(iv) of the 2017 DAU.

By separating the analysis of the proposed annual MCI indexation rate from the construction of the MCI, we have considered the proposed MCI against actual movements in the escalation of maintenance costs. This allows for an informed decision when determining the appropriateness of Aurizon Network's proposed MCI.

8.9.3 Stakeholder submissions

The QRC did not consider the MCI an appropriate methodology for measuring the change in maintenance costs, because it may no longer properly reflect changes in real terms of Aurizon Network's cost base.¹⁰⁵⁹

The QRC also noted Aurizon Network's substantial escalation based on CPI appeared:¹⁰⁶⁰

- contrary to the experiences of QRC members who have experienced dropping or stable construction or maintenance costs
- contrary to Aurizon Network's claims about its productivity initiatives (including actual costs of labour reducing, when labour costs are supposed to represent 33% of the MCI)
- not appropriate for cost categories which would not be anticipated to have any close connection or correlation to the MCI (this includes GPR costs, traction power, telecommunications and other direct miscellaneous costs).
- Contrary to regulatory precedent as MCI was not approved on the basis that it would be applied across regulatory periods.¹⁰⁶¹

8.9.4 Proposed annual MCI indexation rate

Since submitting the 2017 DAU, actual sub-index values have become available for FY2017. This removes the need to forecast these numbers in determining the MCI for the UT5 period. Updating Aurizon Network's proposed MCI to reflect actual FY2017 sub-indices leads to a slight change in in the proposed annual MCI indexation rate, as is demonstrated below.

Table 91 Proposed Annual MCI forecast accounting for FY2017 actuals

<i>Year</i>	<i>MCI annual forecast</i>
FY2018	1.81%
FY2019	1.91%
FY2020	1.92%
FY2021	1.92%

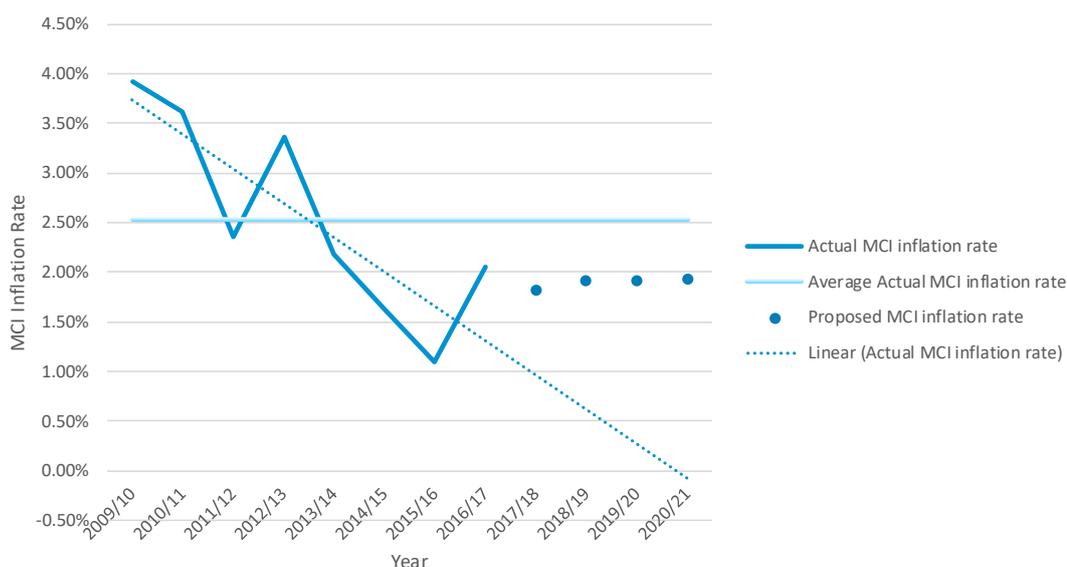
We have compared the proposed annual MCI indexation rate (updated for actual FY2017 sub-indices) against actual MCI values. This indicates where Aurizon Network's proposed escalation sits in comparison to inflationary pressures on maintenance costs in the past. Comparison of actual MCI inflation rate values (2009–10 to 2016–17) and the proposed annual MCI rates are provided in Figure 33 .

¹⁰⁵⁹ QRC, sub. 21: 46.

¹⁰⁶⁰ QRC, sub. 21: 42, 44, 45.

¹⁰⁶¹ QRC, sub. 21: 43.

Figure 33 Actual MCI inflation rate time series



Source: QCA analysis.

While the actual MCI increased from 1.10 per cent in FY2016 to 2.05 per cent in FY2017, there has been a downward trend in the MCI. While extrapolating a simple linear trend with a small number of observations may reflect only part of an expected cyclical pattern over time, it provides a reasonable basis to forecast a lower bound for the forecast MCI.

The average of the actual MCI over the history of the index is 2.53 per cent. There is no information available at this time to suggest the MCI will increase considerably beyond this level over the UT5 period.

Even though analysis of historical movements in the actual MCI inflation rate provides only guidance on future outcomes, the MCI values as proposed by Aurizon Network (updated for actual FY2017 sub-indices) appear reasonable. The proposed forecasts are within the trend and average, and we expect these values will minimise the variance between forecast and observed indexation.

8.9.5 Construction of the proposed MCI

The QCA considers that for the MCI to remain an appropriate methodology for measuring change in Aurizon Network's maintenance costs, it must be constructed as follows:

- Sub-indices should provide a reasonable reflection of the inputs required to perform Aurizon Network's maintenance activities.
- Weightings should accurately represent the cost composition of approved maintenance spend.
- Forecasting methods should provide a reasonable estimation of sub-index growth.

Adjustments to the MCI as part of the annual revenue cap process will account for differences between actual and forecasted sub-index growth. While this places less importance on the accuracy of the forecasting method, the QCA is mindful of the cash-flow implications and has therefore given great attention to the best forecast method available.

Sub-Indices

The QCA considers that the MCI should have a strong correlation with Aurizon Network's maintenance costs to ensure the index rises and falls in line with the costs faced by Aurizon Network. In order to achieve this, sub-indices should reflect the inputs required to perform Aurizon Network's maintenance activities. The choice of sub-indices remains fixed over the regulatory period.

Aurizon Network proposes sub-indices which are consistent with those approved in UT4. The QCA does not consider that the inputs required to perform Aurizon Network's maintenance activities have varied significantly since UT4 and therefore consider the proposed sub-indices appropriate. The QCA notes the QRC's concerns regarding correlation of the MCI with maintenance costs. It is unlikely that the method of applying sub-indices can completely reflect the set of inputs required to perform the wide array of maintenance activities undertaken by Aurizon Network, but the proposed sub-indices should provide a reasonable reflection of Aurizon Network's cost base.

Cost category weightings

Cost category weightings are a key component of the MCI. As the MCI is a composite index, weightings are applied to reflect the relative contribution of different cost categories to Aurizon Network's maintenance spend. MCI weightings will remain fixed over the regulatory period.

The proposed weightings have been updated after an initial review of Aurizon Network's proposed MCI revealed a calculation error in determining fuel and accommodation weightings. In addition, rail grinding costs applied to determine the MCI weightings were inconsistent with the real rail grinding costs in Aurizon Network's maintenance cost submission. Updated weightings are provided in **Table 92** below.

Table 92 Updated 2017 DAU weightings

<i>Cost category</i>	<i>Aurizon Network 2017 DAU weighting, updated</i>
Labour	33.1%
Consumables	55.0%
Fuel	1.4%
Accommodation	3.1%
CPI	7.4%

Source: QCA analysis.

The MCI needs to apply weightings consistent with the composition of approved maintenance spend. However for the purposes of this draft decision, the MCI has been constructed with reference Aurizon Network's submitted maintenance spend.

Concerns among stakeholders and/or the QCA about Aurizon Network's proposed weightings revolve around consistency with productivity and cost saving initiatives; determination of

consumable sub-index weightings; allocation of maintenance costs between cost categories; and the use of depreciation costs to determine CPI cost category weighting.¹⁰⁶²

Consistency with productivity and cost saving initiatives

The QRC stated that substantial escalation based on inflation appeared 'contrary to Aurizon Network's claims about its productivity initiatives and cost saving initiatives.'¹⁰⁶³

The QCA considers that productivity and cost saving initiatives have been appropriately accounted for through Aurizon Network's proposed weightings. For example, Aurizon Network's claimed labour cost savings of up to \$3.6 million per annum (associated with the removal of premiums paid to skilled personnel including telecommunications and signalling electricians) are factored into the labour cost figures prior to deriving the weighting assigned to the labour cost category. Savings are also factored into costs escalated by the MCI.

Determination of consumable sub-index weightings

There was concern that weightings assigned to consumable sub-indices (heavy plant and equipment; track components; and transportation equipment and parts) were not based on the split of consumable costs proposed in UT5 (this was not provided). Responding to this concern, Aurizon Network provided the breakdown of consumable costs, split into the relevant sub-indices for the UT4 regulatory period, and stated that this was appropriate to apply in UT5, given they were based on actual costs booked to Aurizon Network's accounting system.

The costs booked to each consumable sub-index have remained relatively stable across the UT4 regulatory period and there is no indication they will vary significantly in UT5. Therefore, the QCA considers applying these proportions in UT5 appropriate.

Allocation of maintenance costs between cost categories

For the purpose of calculating MCI weightings, Aurizon Network proposes to allocate total rail grinding costs to the consumables cost category. Aurizon Network has stated that because rail grinding is provided by an external provider, Aurizon Network is not subject to fluctuations in categories such as labour and fuel, as it does not employ staff or own the equipment required to perform this activity. The QCA does not consider that Aurizon Network is exempt from fluctuations in these costs; instead, these fluctuations would be passed on through the contract with the external provider.

For the purposes of this draft decision, the allocation of rail grinding costs amongst cost categories has been constructed with reference to Aurizon Network's proposed maintenance expenditure and detail provided through the request for information process.

Use of depreciation costs to determine CPI cost category weighting

Aurizon Network's proposed MCI uses depreciation costs to determine the weighting assigned to the CPI cost category. The QCA notes that the MCI is not applied to depreciation¹⁰⁶⁴; therefore, it is not appropriate for depreciation costs to be included in the MCI calculation.

¹⁰⁶² The QCA notes GHD (engaged maintenance consultant) expressed concern regarding Aurizon Network's proposed allocation of costs between MCI cost categories, particularly in regards to labour and consumables (see for example GHD, 2017, Appendix F: 13.). While the QCA's proposed weightings in this draft decision are reflective of information submitted by Aurizon Network, these may be updated before the Final Decision, following the provision of new information.

¹⁰⁶³ QRC, sub. 21: 42.

¹⁰⁶⁴ Escalation of depreciation costs is discussed in section 8.8.1.

In the approved UT4 approach, the weighting assigned to the CPI cost category was based on a balance of costs, including office-related costs, utility charges, other hire costs, freight charges, safety equipment including personal protective equipment (PPE), security, license fees, and more. As these costs have not been isolated in UT5, the QCA considers it appropriate to remove the CPI cost category from the MCI and update weightings assigned to the remaining cost categories accordingly.

Forecast approach

Aurizon Network's proposed MCI applies forecast escalation rates to each sub-index to estimate index values for the years 2017–18 to 2020–21.¹⁰⁶⁵

The proposed MCI forecasts 66.6 per cent of sub-indices, using Aurizon Network's proposed CPI inflation rate of 1.22 per cent.¹⁰⁶⁶ Labour sub-indices, reflecting 33.4% of maintenance costs in Aurizon Network's proposal, are escalated by WPI forecasts from Queensland Treasury and Trade.

The annual revenue cap process adjusts revenues to account for differentials between actual and forecasted MCI. Therefore the QCA's role is to set escalation rates that best match expected cash-flows to the expected escalation in costs over the regulatory period. Doing so minimises cash-flow variations for Aurizon Network and price instability for its customers. For this reason, the QCA considers Aurizon Network's proposed forecast escalation rates of CPI and WPI for maintenance costs unreasonable.

While forecast CPI is a widely accepted proxy to estimate movements in general prices, Aurizon Network's proposal applies forecast CPI to specific costs such as consumables, fuel, travel and accommodation. The purpose of the MCI is to provide a better reflection than CPI of the movements in maintenance costs over time. The QCA does not consider that forecast CPI will provide a reasonable estimate of movements in these specific maintenance prices.

The WPI forecast from the Queensland Treasury and Trade is a forecast of state-wide, all-industries wage price inflation. The MCI however, is designed to reflect changes in the costs of specific classes of specialised labour such as construction and mining. In this regard, the QCA does not consider that the Qld Treasury and Trade WPI forecasts are the best estimate of labour cost escalation for the purposes of the MCI.

MCI forecasts should reflect the expected movements in maintenance specific prices. Therefore, the QCA considers analysis of historical movements in the actual MCI provides for the best MCI forecast available.

8.9.6 Summary analysis

The QCA has accepted Aurizon Network's forecast UT5 MCI annual rates (updated for actual FY2017 sub-indices), as proposed in the UT5 maintenance allowance. However, the QCA's acceptance of the forecast MCI rates does not equate to the approval of Aurizon Network's methodology underpinning its proposed construction of the forecast UT5 MCI rates. The QCA has determined that Aurizon Network's proposed MCI forecasting approach and proposed cost category weightings are unreasonable.

¹⁰⁶⁵ While Aurizon Network's proposed MCI also required forecast escalation rates for 2016–17, actual sub-index values have since become available.

¹⁰⁶⁶ The QCA has not approved Aurizon Network's proposed CPI inflation rate of 1.22 per cent. The QCA considers 2.27 per cent an appropriate forecast rate of inflation.

The QCA's draft decision is to approve the proposed UT5 MCI annual rates in the forecast UT5 maintenance allowance on the basis that the forecasts are reflective of the historical movements in the actual MCI (since FY2010). QCA considers the approved UT5 MCI rates should minimise the variance between actual and forecast indexation for maintenance expenditure in UT5.

Adjustments to account for differences between actual and forecasted MCI is to continue as part of the annual revenue cap process. This adjustment is to be applied only to maintenance costs escalated using forecast MCI.

While the QCA accepts Aurizon Network's proposed annual MCI forecasts (updated for actual FY2017 sub-indices), we require Aurizon Network to amend its proposed construction of the MCI, for the annual revenue cap adjustment process. The QCA considers that the weightings as set out in Table 93, provide the best available reflection of Aurizon Network's maintenance cost base. These weightings reflect adjustments to consumable sub-index weightings, improved allocation of costs amongst cost categories and the removal of the depreciation costs from the construction of the MCI.

The QCA considers this decision satisfies the interests of Aurizon Network, access seekers and access holders (ss. 138(2)(b),(e),(h)). This approach has addressed stakeholder concerns regarding excessive escalation of maintenance expenditure due to inflation, and should ensure Aurizon Network generates an expected revenue that is at least enough to meet the efficient costs of providing access to the service (s. 138(2)(g)).

Table 93 Amended construction of the MCI

<i>Cost category</i>	<i>Weighting</i>	<i>Sub-Index</i>	<i>Sub-Index weighting</i>
Labour	38.9%	WPI; Construction; National	33.3%
		WPI: Mining; National	33.3%
		WPI: Queensland	33.3%
Consumables	54.9%	Fabricated Metal PPI	25%
		Transport, Equipment and Parts PPI	8%
		Mining Construction and Machinery Manufacturing PPI	68%
Fuel	1.9%	AIP TPG Diesel; Brisbane	100%
Accommodation	4.3%	Accommodation and Food Services PPI	100%

Source: QCA analysis. Note: due to rounding the sum of weightings may not equal 100%. Note: Refer to Annexure 1 (UT5 allowable revenue inputs - Excel Format) for the QCA's draft decision weightings.

9 SCHEDULE F - REFERENCE TARIFFS AND TAKE-OR-PAY

9.1 Aurizon Network's 2017 DAU proposal

Schedule F of Aurizon Network's 2017 DAU sets out reference tariffs and related revenue-cap arrangements for the calculation and recovery of Aurizon Network's allowable revenue for coal-carrying train services. It also defines the characteristics of reference train services¹⁰⁶⁷ to which reference tariffs and the application of certain take-or-pay arrangements apply.

Aurizon Network's 2017 DAU framework consists of provisions related to:

- defining the reference train service for the purposes of a reference tariff (cls. 1.3, 7–11)¹⁰⁶⁸
- the structure and calculation of a reference tariff (cls. 2, 7–11)
- take-or-pay arrangements (cl. 3)
- reviews of, and variations to, reference tariffs, including adjustments in relation to Aurizon Network's allowable revenue (cls. 4–6).

Key issues identified during the QCA's investigation

The QCA has considered all elements of Schedule F of Aurizon Network's 2017 DAU proposal in making this draft decision. The following issues attracted comment from stakeholders, or have been identified for further consideration.

- The determination of reference tariffs (see section 9.2)
- Processes for the review and variation of reference tariffs, including treatment of access facilitation rebates, electric energy charges (EC component of reference tariffs) and the review event mechanism (see section 9.3)
- Take or pay arrangements, including differences in take or pay treatment between different generations of Access Agreements, as well as related pooling and deeming mechanisms (see section 9.4)
- Price of access to the overhead power systems (see section 9.5)
- Volume forecasts (see section 9.6).

9.2 Determination of reference tariffs

Aurizon Network's proposal

Aurizon Network's 2017 DAU has proposed reference tariffs for coal-carrying train services, based on a reference train service (cl. 1.2). The reference train service is a notional train service defined by a set of characteristics under cl. 1.3, which include carrying only bulk coal, meeting specified operational characteristics (such as complying with applicable rollingstock interface standards) and operating in accordance with an access agreement on substantially the same terms as a standard access agreement. In addition to these general reference train service characteristics, there are also further system-specific reference train service criteria for

¹⁰⁶⁷ This includes the system operational characteristics and parameters for a reference train service.

¹⁰⁶⁸ In this chapter, clause numbers refer to the clauses within Schedule F of Aurizon Network's 2017 DAU (unless otherwise indicated).

reference tariffs.¹⁰⁶⁹ These include system-specific operational characteristics, such as maximum train lengths, and loading and unloading facilities and times within each system.

A reference tariff will apply to a train service that is consistent with the characteristics of the relevant reference train service, in which case access charges will be calculated in accordance with the reference tariff.¹⁰⁷⁰

A reference tariff is made up of the following components (cl. 2.2):

- AT₁—the incremental maintenance tariff, levied on a gross tonne kilometre (gtk) basis
- AT₂—the incremental capacity tariff, levied on a reference train path (rtp) basis
- AT₃—an allocative tariff, levied on a net tonne kilometre (ntk) basis
- AT₄—an allocative, levied on a net tonne (nt) basis
- AT₅—the electric access tariff, levied on an electric gross tonne kilometre (egtk) basis
- other components—the EC component (which is the electric energy charge, levied on an egtk basis); the QCA Levy (the fees imposed by the QCA on beneficiaries of its regulatory services, levied on a net tonne basis); and any applicable adjustment charges (see section 9.3 for further details on adjustment charges).

Aurizon Network's 2017 DAU specifies the inputs for these tariff components for each coal system and, where applicable, the calculated premium/discount¹⁰⁷¹, as well as the system gtk forecasts and allowable revenues.¹⁰⁷² The 2017 DAU indicates these are to be updated upon the QCA's approval of the 2015–16 revenue cap. There are also specific provisions to determine how to calculate each tariff component for cross-system train services (cl. 2.3).

The 2017 DAU also includes monthly system gtk forecasts for the Blackwater and Newlands Systems, as Access Agreements executed or renewed during the term of the 2001 Undertaking (the UT1 period) rely on such forecasts.¹⁰⁷³

QCA analysis and draft decision

Summary of draft decision 9.1

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU Schedule F provisions that relate to the determination of reference tariffs.**

The QCA notes that Aurizon Network has included transitional provisions for monthly system forecasts for the Blackwater and Newlands Systems, as there are no longer any UT1 Access Agreements to which these transitional provisions apply.¹⁰⁷⁴ We have not been informed of any renewals or extensions of those Access Agreements, so we consider it appropriate to approve

¹⁰⁶⁹ See the following clauses: Blackwater System, cl. 7.1; the Goonyella System, cl. 8.1; the Moura System, cl. 9.1; the Newlands System, cl. 10.1; the Goonyella to Abbot Point System, cl. 11.1.

¹⁰⁷⁰ See Chapter 15 for further details on circumstances where price differentiation may occur.

¹⁰⁷¹ A premium/discount is the addition/reduction applied on a \$/ntk basis when revenue from the application of a system reference tariff is required to be adjusted for certain train services.

¹⁰⁷² See the following clauses: the Blackwater System reference tariffs, cls. 7.2–7.3; the Goonyella System reference tariffs, cls. 8.2–8.3; the Moura System reference tariffs, cls. 9.2–9.3; the Newlands System reference tariffs, cls. 10.2–10.3; the Goonyella to Abbot Point System reference tariffs, cls. 11.2–11.3.

¹⁰⁷³ Clause 12 accounts for the circumstance where access rights under an Access Agreement (old access agreement) are transferred to another Access Agreement (new access agreement).

¹⁰⁷⁴ Aurizon Network, sub. 1, Appendix P.1: 29.

Aurizon Network's proposal. The QCA accepts that transitional provisions are only required to specify a monthly system gvk forecast where Access Agreements executed or renewed during the term of the 2001 Access Undertaking (UT1) are in operation (see cl. 12).

The QCA considers that the Schedule F provisions relating to the determination of reference tariffs provide an appropriate framework for the various reference tariffs that Aurizon Network proposes to apply to coal-carrying train services during the UT5 period.

These provisions provide relevant information about the reference train service characteristics, so that an access holder can have certainty that it will pay the reference tariff if it meets the reference train service characteristics; the provisions also provide important information to access seekers. The QCA considers that these provisions are appropriate to approve as they are in the interests of Aurizon Network and access seekers and access holders under s. 138(2)(b),(e) and (h) of the QCA Act.

9.3 Processes for the review and variation of reference tariffs

Aurizon Network's proposal

The allowable revenue Aurizon Network is entitled to earn from the AT₂₋₄ (or AT₅, where applicable) tariff components for a year is specified in the 2017 DAU¹⁰⁷⁵, these are adjusted in accordance with the approved undertaking. The 2017 DAU also provides for the calculation of allowable revenue in relation to cross-system train services (cl. 4.2).

After the end of each year, Aurizon Network must calculate an AT₂₋₄ (and AT₅, where applicable) revenue adjustment amount for each reference tariff for that year (cl. 4.3). This calculation is made by subtracting the adjusted allowable revenue from the total actual revenue for these tariff components.

The calculation of the adjusted allowable revenue for a reference tariff involves making adjustments based on various specified components (cl. 4.3(c)). For example, the recovery of Aurizon Network's maintenance allowance being adjusted to reflect the difference between the relevant actual and forecast maintenance cost index (MCI) values for the year.

The calculation of total actual revenue for AT₂₋₄ for a reference tariff is set out under cl. 4.3(d)–(f). It includes particular deeming provisions, including that relevant take-or-pay, and transfer and relinquishment fees are calculated on the basis that Aurizon Network is deemed to have contracted on the terms of the relevant standard access agreement that applied on the date of execution or renewal of an Access Agreement, subject to particular exceptions (cl. 4.3(d)(ii)). The calculation of total actual revenue for AT₅ is set out in cl. 4.3(g).

The 2017 DAU includes processes by which reference tariffs are reviewed and varied during the regulatory period. Any reviews and variations to reference tariffs must be approved by the QCA.

The 2017 DAU requires an annual review of reference tariffs (cl. 4.1). Prior to the beginning of each year (except the first year) during the regulatory period, each reference tariff will be adjusted to reflect the variations to the applicable allowable revenue due to an:

¹⁰⁷⁵ See the following clauses: the Blackwater System reference tariffs, cl. 7.3; the Goonyella System reference tariffs, cl. 8.3; the Moura System reference tariffs, cl. 9.3; the Newlands System reference tariffs, cl. 10.3; the Goonyella to Abbot Point System reference tariffs, cl. 11.3.

- over- or under-recovery of allowable revenue for AT₂₋₄ (or AT₅ where applicable) from two years ago¹⁰⁷⁶ (as set out under cl. 4.4(a)(i)), including the return on capital on this amount (cl. 4.4(b)). How the revenue adjustment amount is calculated is set out under cls. 4.3–4.4 (as discussed above), while the process for the QCA to approve revenue adjustment amounts is set out in cl. 4.3(h)–(q).
- adjustment to next year's allowable revenue and the reference tariff due to a revised gtk forecast (the process for this type of adjustment is set out under cl. 4.1(b)–(e)).

Clause 5 sets out the process for Aurizon Network to submit reference tariff variations and the QCA's approval process for such submissions. In addition to the annual review of reference tariffs outlined above, a reference tariff variation:

- may be submitted if Aurizon Network considers that the variation will promote efficient investment by either Aurizon Network or another person in the supply chain
- must be submitted, following:
 - an endorsed variation event (as defined in cl. 5.2), which includes a change in law or relevant taxes that would cause a change in the costs reflected in the AT₃, AT₄ or AT₅ reference tariff inputs of greater than 2.5 per cent
 - a review event (as defined in cl. 5.3), which is the occurrence of particular defined force majeure events (such as an act of god, fire or flood) affecting Aurizon Network to the extent it incurs additional incremental costs of greater than \$1 million.

Aurizon Network's 2017 DAU also includes provisions for adjustment charges (cl. 6). These apply if a reference tariff (or variation to a reference tariff) is applicable or effective from a date prior to the date it was approved by the QCA. These charges are, in essence, intended to allow Aurizon Network to recover from, or reimburse to, an access holder the difference between the access charges that would have been payable had the access charges been calculated in accordance with the approved reference tariff (or approved variation) and the access charges actually paid.

QCA analysis and draft decision

Summary of draft decision 9.2

- **The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to revise:**
 - the process for the annual approval of the EC component of reference tariffs in cl. 2.2 and require that the process for QCA approval is clarified**
 - the calculation of adjusted allowable revenue in clause 4.3(c)(ii). In addition to adjustments to reflect differences between actual and forecast CPI, the QCA's draft decision is to require that cl. 4.3(c)(ii) include adjustments to reflect differences between actual and forecast WPI**
 - cl. 4.4(a)(ii) to include the WPI.**

With the exception of the matters noted below, the QCA considers that these provisions are appropriate to approve under s. 138(2) of the QCA Act. As part of the 2016 Undertaking

¹⁰⁷⁶ Under the adjustment process, an under- or over-recovery of allowable revenue will effectively be rectified two years after it occurs.

process, they were thoroughly reviewed and considered and Aurizon Network did not propose any changes to these provisions. We have reviewed and considered the provisions afresh and remain of the opinion that, the provisions are appropriate to approve, with the exception of the following two matters:

- we do not consider it is appropriate to approve the provisions relating to the approval of the EC component of reference tariffs and require amendments to ensure that there is clarity around the process; and
- we do not consider it appropriate to adjust allowable revenue in relation to operating costs solely by CPI (see Chapter 7) and require amendments to include adjustments for WPI.

Our reasons for reaching this draft decision are set below. Two additional issues have been raised by stakeholders which are also discussed below. These relate to access facilitation agreements and rebates; and, the handling of flood review events.

9.3.2 Electric energy charge (EC component)

Aurizon Network supplies electricity to electric traction train operators through its overhead distribution network on the Goonyella and Blackwater Systems. Aurizon Network procures electricity through a supply agreement with an electricity retailer, and recovers the cost of providing this service through the EC component of reference tariffs.

Clause 2.2 of Schedule F sets out the various inputs for the calculation of access charges, including the EC component.

Aurizon Network said that the distribution of electricity does not form part of the declared service and that Aurizon Network provides the service (distribution of electricity) at cost.¹⁰⁷⁷ In any event, we are statutorily required to consider whether the 2017 DAU is appropriate after having regard to the s. 138(2) factors.

Our decision in relation to the calculation and approval of the EC component of reference tariffs is contained in Chapter 7. This chapter considers the process for review of the EC component contained in Schedule F.

The initial EC component is specified in relation to each relevant reference tariff in Schedule F.¹⁰⁷⁸ However, we are concerned that there is a lack of clarity regarding the process for seeking QCA approval of annual changes to the EC component outlined in cl. 2.2. Aurizon Network's current drafting provides that Aurizon Network will publish the applicable EC component on or about 31 May each year during the term after it has sought and obtained the QCA's approval. There are no parameters guiding this approval process either for Aurizon Network or the QCA. This lack of parameters leaves the QCA with wide discretion as to its approval and may lead to unnecessary uncertainty in the future. For example, there are no criteria against which the QCA should assess the EC component and process for doing so; therefore, there is no way to evaluate whether any QCA assessment is appropriate.

Including some criteria and parameters is in the interests of Aurizon Network as well as all users and access holders, as it will provide greater certainty, will make the process more efficient and help to minimise the possibility of disputes. It will also provide guidance to the QCA. Noting Aurizon Network's submission that the EC component is effectively a pass-through at cost, we do not consider that the approval process or criteria should be overly prescriptive. Rather, we

¹⁰⁷⁷ Aurizon Network, sub. 1: 241.

¹⁰⁷⁸ See cls. 7.2, 8.2.

consider it is appropriate that the input for the EC component in cl. 2.2 makes reference to approval by the QCA as if cl. 4.1(d) applied to the proposed adjustment. That is, the QCA may approve the revised EC component if it considers that the revised EC component is reasonable and any consequential adjustments to allowable revenue (if any) are calculated properly.

This proposed amendment appropriately balances Aurizon Network's and users' rights and interests (s. 138(2)(b), (e) and (h) of the QCA Act).

9.3.3 Calculation of adjusted allowable revenue for operating costs

Chapter 7 of this draft decision includes our consideration of Aurizon Network's proposed operating costs. However, in Aurizon Network's 2017 DAU, cl. 4.3(c)(ii) of Schedule F provides for an annual adjustment to the operating costs component of allowable revenue to account for the difference between the actual CPI for the relevant year and the forecast CPI value that was used for the purposes of determining the relevant reference tariff for that year.

For the reasons discussed in Chapter 7, we consider it appropriate to include an additional adjustment for the Wage Price Index (WPI). Clause 4.3(c)(ii) should be amended to include adjustments to reflect the difference between the actual WPI value for the relevant year and the forecast WPI value that was used to determine the relevant reference tariff for that year.

In addition, we require that cl. 4.4(a)(ii) be amended to include the term WPI, so that the allowable revenue for all subsequent years be adjusted to reflect the actual change in the WPI as used in the calculation of the approved revenue adjustment amount. The relevant definition of WPI would read as 'The Wage Price Index: Queensland, Private, All Industries (Australian Bureau of Statistics Publication No. 6345.0)'.

9.3.4 Access facilitation rebates

Pacific National raised concern that rebates received by access holders who are parties to access facilitation deeds are commercial arrangements separate from the regulatory process and questioned circumstances where rebates paid by Aurizon Network to an access holder are socialised amongst other access holders via the regulatory adjustment processes.¹⁰⁷⁹

The QCA notes that since the 2001 Undertaking such rebate arrangements were contemplated within the regulatory framework.¹⁰⁸⁰ We also note that Aurizon Network's 2016 Undertaking and 2017 DAU provide for variations between actual and forecast payments of such rebates to be included within adjusted allowable revenues (see for example, cl.4.3(c)(vii) of Schedule F).

In this context, we do not consider the issues raised by Pacific National mean that it is not appropriate to approve the 2017 DAU with respect to rebate arrangements. To the extent that agreements underpinning the access facilitation rebates reflect the approved regulatory arrangements, then the regulatory adjustment processes provide a means for such payments to integrate within the overall revenue-cap framework.

For the reasons outlined above, we consider that it is appropriate to approve these aspects of Aurizon Network's 2017 DAU. We also consider that the rest of the revenue adjustment mechanisms are appropriate to approve because they provide for an appropriate balance between the interests of access seekers, access holders and Aurizon Network (s. 138(2)(b), (e) and (h) of the QCA Act).

¹⁰⁷⁹ Pacific National, sub. 19: 19.

¹⁰⁸⁰ For example, see cl. 6.4(b) of the 2001 Undertaking; cl. 6.5.2(f) of the 2006 Undertaking; and cl. 6.5.2(d) of the 2010 Undertaking.

9.3.5 Review event mechanism for floods

Anglo American has raised a number of concerns in relation to flood review events and the recovery of Aurizon Network's costs in repairing and maintaining affected track. Anglo American maintained that the review event process is not appropriate for addressing flood damage. It noted:¹⁰⁸¹

- Aurizon Network does not proactively include users in its recovery/repair process and cost build-up leading up to a review event claim.
- Repair costs are not transparent.
- There is no strict rule for classification of costs.
- The application of Aurizon Network's insurance coverage is never clear.
- Review event recovery becomes an un-budgeted cost for users and the timing of recovery becomes a significant 'price-shock' for users.
- Aurizon Network makes a windfall gain by escalating recovery costs at WACC rather than a normal holding cost of debt making a review event a revenue raising exercise not a cost pass-through mechanism.

Moreover, Anglo American claimed that Aurizon Network is not incentivised to process and seek approval of review events quickly. It suggested that review event costs should be capitalised and:

included in the tariffs from the time of approval (and not retrospectively) to be reconciled in the annual revenue reconciliation process until recovered based on usage not 'Take or Pay'.¹⁰⁸²

The QCA has stated in previous decisions that we do not consider escalation provides double-recovery or escalates payments already made. Escalation does not reflect a return on the repair costs, but rather compensation for the fact that recovery of the passed-through costs is delayed by virtue of the application and approval processes.¹⁰⁸³ We have not changed our understanding of the characterisation of this escalation and note that our approach is supported by other regulatory precedents.¹⁰⁸⁴

We also note that the review event provisions provide that Aurizon Network must lodge a review event within 60 days of the event.¹⁰⁸⁵ These timeframes provide for a structured timeframe for Aurizon Network to operate within. We consider that these timeframes are reasonable, given the often significant amount of work it takes to create a review event submission.

During the 2016 Undertaking approval process additional reporting criteria for self-insurance was included (now contained in cl. 3.7.2 of the 2016 Undertaking).¹⁰⁸⁶ The information required by the additional criteria is yet to be published so we do not consider it appropriate to require

¹⁰⁸¹ Anglo American, sub. 18: 23–24.

¹⁰⁸² Anglo American, sub. 18: 24.

¹⁰⁸³ QCA 2016e: 10.

¹⁰⁸⁴ See, for example the National Electricity Rules, cls. 6.6.1(j), 6A.7.3(j)(4), 6A.7.2(i)(4); Western Power, *Amended proposed revisions to the Access Arrangement for the Western Power Network*, June 2015: cl. 7.13; Utilities Commission, *2014 Network Price Determination*, final determination, Part B – Network price determination, April 2014: cl. 3.1.7(a)(v); Independent Pricing and Regulatory Tribunal, *Changes in regulated electricity retail prices from 1 July 2012*, final report, June 2012: 52.

¹⁰⁸⁵ These timeframes are subject to Aurizon Network seeking an extension (cl. 5.6).

¹⁰⁸⁶ QCA 2014b: 159.

amendments in this regard at least until the relevant information has been made public. Once more information has been provided, all parties concerned will have more information upon which to base their assessment.

For further discussion regarding the interaction between self-insurance and review events see Chapter 7.

Finally, the process for and the fairness of any review event adjustment are considered in-depth by the QCA when Aurizon Network submits a review event claim for approval. For example, recent review events in relation to floods in the Moura System have been approved on the basis that those parties who benefit from the required maintenance costs cover that aspect of recovery and those parties (including future users) who will benefit from the required capital costs cover that aspect.¹⁰⁸⁷

For these reasons, we consider it appropriate to approve this aspect of the 2017 DAU. The proposed drafting strikes an appropriate balance between the interests of users, access seekers and Aurizon Network by allowing a detailed consideration of the fairness and equity of each particular review event rather than mandating a rule which may or may not be appropriate in differing circumstances (ss. 138(2)(b), (e) and (h)).

9.4 Take-or-pay arrangements

Aurizon Network's proposal

Take-or-pay charges are an amount payable by an access holder for not using contracted train service entitlements in a year. They enable Aurizon Network to recover revenue that would otherwise be foregone, and are intended to provide a price signal to customers about efficient contracting and reduce the incentive to over-contract.

The take-or-pay arrangements for Access Agreements that were entered into since 1 October 2010 (i.e. during the 2010 Undertaking, 2016 Undertaking or the proposed 2017 DAU) are set out in cl. 3.3 (referred to as 'new take-or-pay arrangements'). Different take-or-pay arrangements apply to access agreements executed or renewed prior to this point-in-time (discussed further below).

Broadly, the calculation of take-or-pay for Access Agreements that were entered into since 1 October 2010 follows a three-stage process as outlined in the table below.

¹⁰⁸⁷ QCA 2017d.

Table 94 Take-or-pay arrangements in the 2017 DAU

<p>Calculation of maximum potential take-or-pay</p> <p>The maximum potential take-or-pay is calculated on the basis of the difference between the access holder's contracted train services for a year and the number of train services operated that year (excluding train services not operated due to an Aurizon Network cause). The applicable tariff components for take-or-pay purposes are 100% of AT₂, AT₃ and AT₄.</p> <p>The detailed provisions for determining this calculation are set out in cl. 3.3(d) to (g).</p>
<p>Application of the take-or-pay trigger</p> <p>Once the access holder's maximum potential take-or-pay has been calculated, the take-or-pay trigger is applied to determine whether any take-or-pay liability exists in relation to a particular reference tariff (see cl. 3.3(h)).</p> <p>Take-or-pay for a tariff will not be payable for a year where the aggregate of the gtk for all coal carrying train services operated for that year (to the extent the access charges for those train services are set by reference to the relevant reference tariff) exceeds 100% of the gtk forecast identified for that year for that reference tariff (excluding the gtk not achieved due to an Aurizon Network cause).</p>
<p>Application of 'capping' mechanisms</p> <p>If take-or-pay is still payable following application of the take-or-pay trigger, the following capping mechanisms are applied (in order) to determine any reductions to an access holder's take-or-pay liability.</p> <p>First, mine capping is applied (see cl. 3.3(j)).</p> <ul style="list-style-type: none"> • This applies if there are multiple access agreements with Aurizon Network in respect of an end user for the same origin–destination pair (i.e. the end user may be the access holder under one access agreement or the customer of a train operator that is the access holder under another access agreement). • If train services operated under one access agreement exceed the train service entitlement for a year, mine capping enables the additional AT₂₋₄ revenue from that agreement to be offset against take-or-pay liability in another agreement¹⁰⁸⁸ for that year (to the extent both are set by reference to the same reference tariff). <p>Second, tariff capping is applied (see cl. 3.3(k)–(m)).</p> <ul style="list-style-type: none"> • Tariff capping may result in an exemption or a reduction of take-or-pay liability on the basis that Aurizon Network's total revenue for AT₂₋₄ in relation to the reference tariff will exceed Aurizon Network's relevant allowable revenue. • If total revenue¹⁰⁸⁹ is: <ul style="list-style-type: none"> – greater than or equal to the allowable revenue for AT₂₋₄ in relation to the relevant reference tariff, tariff take-or-pay is not payable for that year under those access agreements – less than the allowable revenue for AT₂₋₄ in relation to the relevant reference tariff, Aurizon Network will calculate the aggregate amount of take-or-pay it is entitled to earn from all full take-or-pay agreements and if that exceeds the allowable revenue for AT₂₋₄, then it will reduce each access holder's take-or-pay liability by that access holder's proportion of the maximum take-or-pay amount. • In determining what Aurizon Network would be entitled to earn, Aurizon Network is deemed to have contacted on the terms of the relevant standard access agreement that applied on the date of execution or renewal of an access agreement, subject to particular exceptions (see cl. 3.3(m)).

Specific take-or-pay arrangements apply to expansion tariffs.¹⁰⁹⁰ Broadly, these use the same calculations to determine the maximum potential take-or-pay (Table 94), although with the inclusion of an additional tariff component (AT₅) (cl. 3.3(n)). However, unlike the arrangements outlined above, there is no take-or-pay trigger test or no capping mechanisms to remove or reduce an access holder's take-or-pay liability in respect of an expansion tariff.

¹⁰⁸⁸ Excluding access agreements executed or renewed prior to 1 October 2010.

¹⁰⁸⁹ For the purposes of this provision, total revenue is the total actual revenue for AT₂₋₄ in relation to access charges set by reference to the relevant reference tariff (less the aggregate of tariff take-or-pay that Aurizon Network is entitled to earn from all access agreements executed or renewed prior to 30 June 2006).

¹⁰⁹⁰ Chapter 15 provides further details on expansion tariffs.

Historical take-or-pay arrangements

Clause 3.2 describes the historical take-or-pay arrangements that apply to the UT1 and UT2 access agreements, including references to the relevant clauses of the applicable access undertaking. The following table provides a summary of the take-or-pay arrangements across these access undertakings.

Table 95 Historical take-or-pay arrangements

<i>Element</i>	<i>UT1</i>	<i>UT2</i>
Applicable tariff components	30% of AT ₃ 30% of AT ₄	100% of AT ₂ 100% of AT ₃ 100% of AT ₄
Take or pay volumes	Take-or-pay applicable to shortfall against 100% of contract volume for annual component and shortfall against 90% of contracted volume for variable component (excluding train services not operated due to Aurizon Network cause).	Applicable to shortfall against 100% of contract volume (excluding train services not operated due to Aurizon Network cause)
Take or pay trigger test	Annual component: <ul style="list-style-type: none"> 100% of system forecast gtk less Aurizon Network cause gtk Variable component: <ul style="list-style-type: none"> 90% of access holder's contracted gtk, less Aurizon Network cause gtk; and for the last 3 months the actual (mine-level) volume is less than or equal to 90% of contract volume less Aurizon Network cause gtk. 	Annual component: <ul style="list-style-type: none"> 100% of system forecast gtk less Aurizon Network cause gtk.
Capping provisions	None	Mine capping Tariff capping

QCA analysis and draft decision

Summary of draft decision 9.3

- The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to revise cl. 3.3(e) to:
 - clarify that the calculation of nt and ntk in that clause is for the purpose of cl. 3.3(d)(iii)(B) (1) and (2)
 - provide that the nt and ntk will be calculated using a 'train payload as reasonably determined by Aurizon Network'.

The QCA has some concerns in relation to the calculation of nt and ntk for the purposes of calculating take-or-pay. Stakeholders also raised concerns regarding the ongoing impact of UT1

access agreements and requested mechanisms to allow for pooling of take-or-pay by system.¹⁰⁹¹

nt and ntk calculations

Stakeholders and Aurizon Network have pointed to the fact that parties are contemplating the introduction of longer trains to the CQCN. The QCA wants to ensure that all parties consider how such innovations will have an impact on or be impacted by the terms of the 2017 DAU.

To this end, we consider that the provisions that provide the processes for reviewing and varying reference tariffs are, for the most part, appropriate, subject to the matters identified below. However, we welcome any further submissions on the matter in response to this draft decision.

Clause 3.3 may require amendment to clarify the operation of these provisions under different circumstances. That is, in the event that actual train payloads differ significantly from the relevant nominal train payload. For example, if longer trains are introduced without a concomitant change in the nominal train payload, the calculations of take or pay in cl. 3.3(d) may not reflect the intended liability.

We note that under the 2010 Undertaking, the equivalent provisions provided that the calculation of nt and ntk was to be determined using a nominal payload ‘as reasonably determined’. Phrasing the provision in this way provides some flexibility (albeit constrained by what is reasonable in the circumstances) for calculations where the actual payload differs from the relevant nominal payload.

Because of the prospect of this provision operating to distort the calculation of take-or-pay in the future should there be changes to the length of trains or other innovations, we consider that it is important to clarify the operation of the provision and provide some flexibility to account for possible future scenarios.

Therefore, we require that cl. 3.3(e) be amended so that it is specified that the calculation of nt and ntk is for use in respect of cl. 3.3(d)(iii)(B) (1) and (2) but not (3). Also, the words at the end of cl. 3.3(e) should be amended to provide that the nt and ntk will be calculated using a ‘train payload as reasonably determined by Aurizon Network’. We consider that these amendments will clarify the operation of the calculation and provide some flexibility, which is in the interests of Aurizon Network, access holders and the public interest. Aurizon Network’s choice of nominal payload must always be reasonable; and in the circumstances where a standard reference train is utilised, the most reasonable choice would be the relevant nominal train payload (NTP) for the applicable reference tariff. However, if particular trains are introduced so that the relevant NTP no longer matches (or is significantly different from) the actual payloads being used, it would arguably no longer be reasonable to utilise the NTP.

UT1 take-or-pay arrangements

Pacific National has raised a concern that the impact of the remaining UT1 access agreement take-or-pay obligations may be socialised across access holders who hold access agreements signed under later access undertakings.¹⁰⁹² Pacific National said that, at some point in the future, the differences in take-or-pay treatment for access agreements from different periods need to be addressed.¹⁰⁹³

¹⁰⁹¹ Pacific National, sub. 19: 17, 19; Dalrymple Bay Coal Chain Coordinator, sub. 17.

¹⁰⁹² Pacific National, sub. 19: 19.

¹⁰⁹³ Pacific National, sub. 19: 19.

Other stakeholders did not comment on this issue.

We have previously said that it is a long-term objective to harmonise take-or-pay from different periods.¹⁰⁹⁴ However, we have also noted, in relation to possible inequities the other way, that access holders who are currently parties to a UT1 access agreement could agree with Aurizon Network to transit to the current access agreements at any time.¹⁰⁹⁵ Aurizon Network has also previously said that, as UT1 access agreements do not benefit from any capping arrangements, it is more likely that take-or-pay liabilities will be disproportionately allocated to UT1 access agreements.¹⁰⁹⁶ Based on this statement, UT1 access holders may be incentivised to transfer to the more recent access agreement arrangements.

However, there are also aspects of UT1 access agreements which may make it beneficial for access holders to remain under UT1 access agreement arrangements. For example, if annual take-or-pay is triggered, take-or-pay on UT1 agreements is only 30 per cent on the AT₃ and AT₄ components under these arrangements, as opposed to 100 per cent under the access agreements entered into from UT2 onwards. Similarly, under the UT1 arrangements there is no AT₂ component payable for take-or-pay.

In any event, we note that Aurizon Network has also previously stated that most UT1 access agreements will expire during the UT4 period. Given this statement by Aurizon Network, most existing UT1 access agreements may become standard access agreements during the UT4/UT5 period due to the operation of the renewal provisions in the 2017 DAU or via the renegotiation of new access agreements.

As noted above, we understand the imperatives for harmonising take-or-pay arrangements across different generations of access agreements. However, to effect changes to these matters requires extensive consultation with all stakeholders, especially those with existing UT1 access agreements. Only Pacific National has commented on this aspect of the 2017 DAU, and we therefore invite additional submissions on this matter.

We believe that the current arrangements are appropriate in the circumstances and strike a balance between Aurizon Network's interests, current access holders' interests and the interests of access seekers (s. 138(2)(h)(b),(e),(h)). However, as noted above, we will consider any additional submissions on this matter which we receive during the draft decision consultation period.

Take-or-pay pooling

The Dalrymple Bay Coal Chain Coordinator (DCCC) has submitted a proposal to adopt a take-or-pay pooling mechanism on a system basis.¹⁰⁹⁷ At a high-level, the proposal would provide that excess train service entitlements from one 'origin to destination' pairing in an access agreement could be used to offset underutilised train service entitlements from a different origin and destination pairing (within the same access agreement).¹⁰⁹⁸ The DCCC's submission outlines a number of purported benefits including:

- increased flexibility in the utilisation of access rights

¹⁰⁹⁴ QCA 2016c, Volume III — Pricing & tariffs: 268.

¹⁰⁹⁵ QCA 2016c Volume III — Pricing & tariffs: 267.

¹⁰⁹⁶ See Aurizon Network, 2013 DAU sub. 2: 267–69.

¹⁰⁹⁷ Pacific National (a member of the DCCC) also separately supported the implementation of take-or-pay pooling; see Pacific National, sub. 19: 17.

¹⁰⁹⁸ Dalrymple Bay Coal Chain Coordinator, sub. 17: 2.

- realising greater throughput and efficiencies in the Goonyella System
- encouraging access holders to work together to maximise system throughput
- no adverse impacts on system users who choose not to adopt take or pay pooling
- take-or-pay variances as a result of a pooling arrangement are expected to be minimal, as only AT₃ is based on distance, and assuming both pairings use the same train consist, there will be no difference in the AT₂ and AT₄ tariff components
- the pooling mechanism is supported by Schedule G of the 2016 Undertaking (Scheduling Principles) which can facilitate short-term transfers and will overcome complicated and impractical limitations contained in the approved short-term transfer provisions.

Our draft decision is that it is not appropriate to include a take-or-pay pooling regime should be included in Aurizon Network's 2017 DAU. We note that the short-term transfer provisions have only been operating for a relatively short-period of time and are subject to ongoing improvements. It is not appropriate to bypass these provisions without giving them a chance to be incrementally improved and made more efficient over time.

In addition, we have a number of concerns with the proposed pooling regime:

- We do not consider that the proposed arrangement necessarily provides a greater incentive for users to maximise throughput. In the usual course, if an access holder meets its contracted train service entitlements, it would not be subject to take-or-pay even in the event that take-or-pay is triggered generally. That is, access holders are incentivised mainly by their own self-interest. Therefore, we do not see that the proposed arrangement is either more or less likely to maximise throughput.
- The proposed arrangements would reduce the take-or-pay of those users that choose to be in the pool. However, if total actual revenue is less than the system allowable revenue, the reduction in take-or-pay enjoyed by those in the pool will be accompanied by an increase in the amount to be recovered through the annual revenue cap adjustment mechanism borne by all system users. The impacts of the proposed arrangement will be distributed equally across all users only if all users are included in the pooling arrangements.
- Differences between offset pairings in relation to the AT₃ component will not necessarily be immaterial.
- As noted above, stakeholders are collaboratively working toward incremental improvements in the current short-term transfer process to assist access holders to adopt and expedite that process.¹⁰⁹⁹
- The proposed arrangement appears to require administration of the process to lie with the relevant access holders. Above-rail matters are not part of a declared service; therefore, regulatory oversight would be difficult.

For these reasons, we are not minded to require the inclusion of take-or-pay pooling arrangements in the 2017 DAU. We consider there are too many outstanding issues with the proposal and there is already a mechanism within Aurizon Network's 2017 DAU to allow for the short-term transfer of access rights which can be utilised to address the same problem identified. We consider that, after having regard to all of the factors in s. 138(2) of the QCA Act, maintaining the take-or-pay provisions as they are in this regard is the most balanced and

¹⁰⁹⁹ See, for example, QRC, sub. 29: 2; Aurizon Network, sub. 26: 6–7.

otherwise appropriate position. It strikes a balance between incentivising efficiencies in the system and the interests of access holders, access seekers and Aurizon Network (s. 138(2)(b),(e),(h)).

We also note that Aurizon Network agrees to address take-or-pay pooling arrangements as part of a future DAAU.¹¹⁰⁰ We will of course consider all submissions on the matter afresh if a DAAU is submitted. Pacific National also strongly supported a review of take-or-pay pooling arrangements during the term of Aurizon Network's 2017 DAU.¹¹⁰¹

9.5 Form of regulation and pricing of overhead power

9.5.1 Aurizon Network's proposal

Aurizon Network's proposal for the form of regulation and the access charge (AT₅) of the overhead power system remains unchanged from the 2016 Undertaking.¹¹⁰² Despite this, Aurizon Operations submitted a number of concerns with the form of regulation and the pricing of overhead power.¹¹⁰³

QCA analysis and draft decision

Summary of draft decision 9.4

- **The QCA's draft decision is to approve the form of regulation and pricing process of the AT₅ component.**

Generally speaking, the AT₅ component of the applicable reference tariffs operates by taking the cost to Aurizon Network of distributing and maintaining the electric system and then averaging those costs out across all electric train operators in that system. Therefore, the more electric train operators using a given system, the lower the AT₅ tariff component for each operator (and vice versa).

Aurizon Operations' views included:

- The current level of cost input relativity between electric and diesel locomotives incentivises the use of diesel over electric locomotives.
- Under the current form of regulation, and because of the incentives to utilise diesel, the increased bypass of the electric system results in increased costs transferred to users of the electric system.
- The cost associated with the access price for the electric system (AT₅) for an individual access holder should not be dependent on the traction choice of other users.
- Because of the above, the AT₅ rate is not representative of an efficient price associated with the costs of use of an individual service.

¹¹⁰⁰ Aurizon Network, sub. 26: 4.

¹¹⁰¹ Pacific National, sub. 28: 2.

¹¹⁰² Note this statement excludes any changes in the actual amount of the AT₅ charge but rather refers only to the form and regulation of that charge.

¹¹⁰³ Aurizon Operations, sub. 15.

Aurizon Operations said that there should therefore be an obligation, included in the 2017 DAU, to complete an assessment on the form of regulation and pricing of the overhead power system and implement appropriate reforms no later than 31 December 2017.¹¹⁰⁴

Other stakeholders did not comment on this aspect of Aurizon Network's 2017 DAU. Aurizon Network said that the distribution of electricity does not form part of the declared service and that Aurizon Network provides the service (distribution of electricity) at cost.¹¹⁰⁵ However, Aurizon Network did not otherwise comment on the form of regulation and Aurizon Operation's comments regarding the operation of the AT₅ component.

In any event, Aurizon Operations, in its collaborative submission, made plain that it wishes to withdraw its initial submission, given concerns that the issue may substantially delay the approval of the 2017 DAU.¹¹⁰⁶

Aurizon Network said in its collaborative submission that it will continue working with stakeholders in relation to AT₅, with an aim to submit a DAAU by 31 July 2017 (or sooner).¹¹⁰⁷

On 1 December 2017, Aurizon Network submitted its proposed 2017 Electric Traction DAAU that proposed pricing reform for the electric traction component of reference tariffs (AT₅).

We consider that the request to withdraw the submission and the agreement by Aurizon Network to submit a DAAU are matters that are relevant to our decision as to whether this aspect of the 2017 DAU should be approved (s. 138(2)(h)).

On balance, the QCA considers it is appropriate to approve the current provisions on the whole, at this stage. This approval is predicated on the fact that Aurizon Network has submitted a DAAU on this issue. We consider that reviewing these arrangements separately to Aurizon Network's 2017 DAU as a whole will be more efficient by allowing all interested parties to concentrate on that issue properly. Approving the current provisions whilst allowing Aurizon Network time to prepare a DAAU on the matter appropriately balances the interests of all parties concerned and will eventually allow a more detailed discussion and considered decision (s. 138(2)(b),(e),(h)).

9.6 System forecasts

9.6.1 Aurizon Network proposal

Volume forecasts (Chapter 6) are fundamental to the calculation of allowable revenues and reference tariffs within Aurizon Network's 2017 DAU. Aurizon Network proposed that forecasts for each system are approved and set at the start of each approved undertaking period. The initial forecasts proposed by Aurizon Network are set out in Schedule F for each system respectively. Aurizon Network's 2017 DAU then provides a mechanism to adjust the forecasts (and the resulting tariffs) annually (cl. 4.1) (see section 9.2 for more detail).

¹¹⁰⁴ Aurizon Operations, sub. 15: 3.

¹¹⁰⁵ Aurizon Network, sub. 1: 241.

¹¹⁰⁶ Aurizon Operations, sub. 27: 1.

¹¹⁰⁷ Aurizon Network, sub. 26: 4.

QCA analysis and draft decision

Summary of draft decision 9.5

- **The QCA considers the appropriate way for Aurizon Network to amend its draft access undertaking is to revise Schedule F to include the QCA's system forecasts for gtps.**

Pacific National said in its submission that Aurizon Network has assumed no growth in setting its volume forecasts.¹¹⁰⁸ Pacific National also said that it was not consulted by Aurizon Network in relation to the volume forecasts and that the QCA should seek an independent review of Aurizon Network's volume forecasts.¹¹⁰⁹

The QCA reviews Aurizon Network's submitted forecasts and also engages experts to undertake an independent review of them. This is an important aspect of the 2017 DAU review and approval process. Moreover, via the revenue adjustment process in cl. 4 of Schedule F, the QCA may only approve revised annual forecasts if it considers that the forecasts submitted by Aurizon Network are reasonable (and any consequential adjustments to tariffs are calculated properly).

The QCA requires Aurizon Network to include system forecasts (system gtps) consistent with the volume forecasts outlined in Chapter 6.

¹¹⁰⁸ Pacific National, sub. 19: 11.

¹¹⁰⁹ Pacific National, sub. 19: 11.

10 PART B: DRAFT ACCESS UNDERTAKING PROVISIONS - OVERVIEW

Aurizon Network's 2017 DAU sets out the proposed terms and conditions under which Aurizon Network will provide access to its rail infrastructure that are covered by its UT5 undertaking.¹¹¹⁰

Part B of this draft decision considers Aurizon Network's 2017 DAU provisions including:

- Part 1: Preamble (Chapter 11) - states the high-level context for Aurizon Network's 2017 DAU
- Part 2: Intent and Scope (Chapter 11) - covers a range of matters relevant to the overall operation of Aurizon Network's proposed UT5 undertaking - such as the objective of the undertaking, behavioural obligations, and obligations in relation to the sale and supply of electricity.
- Part 3: Ring-fencing (Chapter 12) - contains Aurizon Network's proposed ring-fencing arrangements, functional responsibilities within the Aurizon Group and the below-rail services it provides; sets out the relevant statutory obligations under the Transport Infrastructure Act and the QCA Act; requires that Aurizon Network is managed independently from its related parties; provisions regarding the handling and sharing of confidential information that Aurizon Network may obtain through its dealings with related parties and customers; proposed processes for handling complaints regarding potential breaches of Aurizon Network's obligations under Part 3 or the Ultimate Holding Company Support Deed (Schedule D).
- Part 4: Negotiation Framework (Chapter 13) - provides a framework for the negotiation of access rights. It outlines key steps in the negotiation process and the information access seekers and Aurizon Network may be required to provide as part of these negotiations. Related Schedules of the 2017 DAU include A, B, C, H, and I.
- Part 5: Access Agreements (Chapter 14) - sets out provisions for the development of access agreements, which form the contractual basis for the grant of access rights to the CQCN. The 2017 DAU includes a standard pair of documents, comprising of an Access Agreement and Train Operations Deed, which together set out the standard terms on which Aurizon Network will provide access to its network.
- Part 6: Pricing principles (Chapter 15) - sets out the pricing principles Aurizon Network proposes to apply when developing access charges and reference tariffs. These include principles to limit price differentiation between users, principles for setting pricing limits, and principles to apply where there is an expansion of the network. Part 6 requires that the regulatory asset base (RAB) be maintained in accordance with Schedule E. Part 6 also deals with access conditions that provide a framework for Aurizon Network to mitigate its additional costs or risks in providing access.
- Part 7: Available capacity allocation and management (Chapter 16) - outlines the procedures for allocating and managing capacity available on the network. The procedures incorporate

¹¹¹⁰ The QCA's draft decision on Schedule F of Aurizon Network's 2017 DAU are considered within Chapter 9.

capacity management principles relating to the transfer, relinquishment and resumption of capacity.

- Part 7A: Capacity and supply chain management (Chapter 17) - outlines arrangements for dealing with the higher level framework for supply chain coordination and capacity assessments are set out in Part 7A. Also included are the proposed development, review and application of System Rules, system operating parameters (SOPs), their use and the processes; Aurizon Network's proposed role with regards to coal supply chain coordination and related participation. Schedule G sets out the network management principles obligations in relation to scheduling, network control and associated services.
- Part 8: Network development and Expansions (Chapter 18) - provides a framework for development and funding of new rail infrastructure. It provides a sequence of stages for development, from demand assessment to feasibility studies and construction. There is also a framework for funding of expansions by Aurizon Network or by users.
- Part 9: Connecting Private Infrastructure (Chapter 19) - sets out the process for the connection of private infrastructure to the CQCN. The 2017 DAU also includes a standard rail connection agreement (SRCA) which sets out standard terms and conditions for connecting infrastructure. Schedule J of Aurizon Network's 2017 DAU contains the coal loss mitigation provisions (CLMPs).
- Part 10: Reporting, compliance and audits (Chapter 20) - sets out the proposed framework for information reporting and demonstrating compliance with the undertaking.
- Part 11: Dispute Resolution and Decision Making (Chapter 21) - establishes a dispute resolution mechanism and sets out the requirements to apply to the QCA when it makes decisions under the undertaking that may affect Aurizon Network.

11 PREAMBLE AND INTENT & SCOPE

11.1 Aurizon Network's 2017 DAU proposal (Part 1)

Part 1 of the 2017 DAU states the high-level context for Aurizon Network's 2017 DAU, including:

- Aurizon Network is part of the Aurizon Group, which is responsible for managing and maintaining the rail infrastructure and access to it.
- The UT5 undertaking, when ultimately approved by the QCA, will govern the negotiation and provision of access by Aurizon Network.
- Aurizon Network developed the proposed UT5 undertaking in accordance with s. 136 of the QCA Act.

QCA analysis and draft decision

Summary of draft decision 11.1

- **The QCA considers the appropriate way for Aurizon Network to amend its 2017 DAU is to revise the Preamble to reflect the statutory circumstances in which the UT5 undertaking was submitted and approved.**

Aurizon Network's development of the 2017 DAU

Aurizon Network's 2017 DAU was submitted in response to an initial undertaking notice that required Aurizon Network to give the QCA a draft access undertaking under s. 133 of the QCA Act. It was not submitted in accordance with s. 136 of the QCA Act, and therefore cannot be approved under that section of the QCA Act.

The QCA considers that cl. 1.4 of Aurizon Network's 2017 DAU should be amended to reflect the circumstances in which it was submitted prior to its approval.

11.2 Aurizon Network's 2017 DAU proposal (Part 2)

Part 2 of the 2017 DAU covers the following matters that are relevant to the overall operation of Aurizon Network's proposed UT5 undertaking:

- the term of the undertaking and requirements relating to the calculation and payment of adjustment charges (cl. 2.1)
- the objective of the undertaking (cl. 2.2) and Aurizon Network's behavioural obligations (cl. 2.3)
- the scope of the undertaking (cl. 2.4), which provides that the UT5 undertaking will only apply to the negotiation and provision of access
- Aurizon Network's obligations in relation to obtaining, or failing to obtain, the ultimate holding company support deed from Aurizon Holdings (cl. 2.5)
- Aurizon Network's obligations in relation to the sale and supply of electricity (cl. 2.6).

Aurizon Network's 2017 DAU proposals in Part 2 are broadly consistent with its 2016 Undertaking, aside from the proposed definition of the terminating date of the UT5 undertaking.

Key issues identified during the QCA's investigation

The QCA has considered all elements of Part 2 of Aurizon Network's 2017 DAU proposal in making this draft decision. The following issues attracted comment from stakeholders or have been identified for further consideration:

- the term of the undertaking and requirements relating to adjustment charges (see section 11.3)
- provisions covering the objective of the undertaking and Aurizon Network's behavioural obligations (see section 11.4)
- provisions covering the scope of the undertaking (see section 11.5)
- provisions relating to the ultimate holding company support deed (see section 11.6)
- Aurizon Network's obligations regarding the sale and supply of electricity (see section 11.7).

11.3 Term of the undertaking and adjustment charges

Aurizon Network's proposal

Clause 2.1 covers the term of the UT5 undertaking and requirements relating to the calculation and payment of adjustment charges.

Aurizon Network proposes that the UT5 undertaking will apply from the date of its approval by the QCA until the earlier of:

- 30 June 2021
- the date on which the service to which the undertaking relates, ceases to be a declared service for the purposes of Part 5 of the QCA Act
- the date the undertaking is withdrawn in accordance with the QCA Act.

Aurizon Network also proposes that adjustment charges will be calculated for the period between 1 July 2015 and the date the UT5 undertaking is approved.¹¹¹¹

¹¹¹¹ Schedule F of the 2017 DAU contains the requirements relating to the calculation and payment of adjustment charges (Chapter 9).

QCA analysis and draft decision

Summary of draft decision 11.2

- **The QCA considers the appropriate way for Aurizon Network to amend its 2017 DAU is to:**
 - (a) **revise the proposed definition of the 'Terminating Date' so that it is clear that the UT5 undertaking will continue to apply if the Minister makes a new declaration in relation to all, or part, of the relevant service.**
 - (b) **include a new cl. 12.5 to address the potential situation whereby references in Aurizon Network's 2017 DAU to the phrase 'service taken to be declared under s. 250(1)(a) of the Act' may not be accurate if a new declaration in respect of the service is made by the Minister under Part 5 of the QCA Act.**
 - (c) **revise the proposed definition of 'Adjustment Date' to reflect the commencement of the UT5 pricing term (that is, 1 July 2017).**

See Appendix H for the QCA's proposed amendments to Part 2 of Aurizon Network's 2017 DAU

Terminating date

The QCA understands that Aurizon Network's proposed definition of 'Terminating Date' is intended to mean that the UT5 undertaking applies to the extent that the service, or part thereof, is a declared service under the QCA Act.¹¹¹² Otherwise, the UT5 undertaking would apply until 30 June 2021, unless withdrawn in accordance with the QCA Act.

Aurizon Network said that the rationale for including the alternative basis for termination of the UT5 undertaking is to ensure consistency with the timeframe, or continuation of, any applicable declaration or replacement declaration, as the existing declaration of the declared service will expire in September 2020.¹¹¹³ The QRC agreed with Aurizon Network's reasoning for the proposed definition.¹¹¹⁴ However, the QCA considers that the proposed definition should be amended to permit the continuation of the UT5 undertaking if the Minister makes a new declaration in relation to all or part of the relevant service.

The QCA considers that it is appropriate that an undertaking provides for expiration in the event that the relevant service is no longer a declared service. The proposed definition removes any uncertainty as to whether or not the UT5 undertaking would automatically cease to apply on the date the service ceases to be declared, as termination in these circumstances is proposed to be made explicit in the terms of the UT5 undertaking. This is in the interests of Aurizon Network, users and persons who may seek access to the service. However, the QCA is of the view that the proposed drafting does not clearly address the circumstances where s. 250(1)(a) of the QCA Act ceases to operate and a new declaration in respect of the service is made by the Minister under Part 5 of the QCA Act.¹¹¹⁵ The QCA considers that it is in the interests of all parties for the drafting to clearly provide for the continuation of the UT5 undertaking in circumstances where a new declaration is made (ss. 138(2)(b), (d) and (e) of the QCA Act).

¹¹¹² Decisions with respect to declared services under Part 5 are for the relevant Minister.

¹¹¹³ Aurizon Network, sub. 1, Appendix P-1: 25.

¹¹¹⁴ QRC, sub. 20, Annexure 1: 25.

¹¹¹⁵ The process under subdivision 4 and 4A of Part 5 of the QCA Act involves the Minister making a new declaration.

The QCA also notes that pursuant to s. 84 of the QCA Act, the Minister may make a new declaration relating to the relevant service, or declare part of the service that is itself a service, while Aurizon Network's 2017 DAU is directly linked to s. 250(1)(a) of the QCA Act in a number of instances. This discrepancy may cause unforeseen issues with the operation of the UT5 undertaking.

In considering appropriate drafting, the QCA has considered the current provisions of the QCA Act and accounted for the circumstances where a new declaration, if any, would start from expiry of the service currently taken to be declared. Whilst not seeking to limit the discretion of the Minister, the QCA believes this is a reasonable position to take at this time.

For the above reasons, the QCA considers that it is not appropriate to approve Aurizon Network's definition of 'Terminating Date' in the 2017 DAU.

The amendments to the definition of 'Terminating Date' that the QCA considers appropriate are set out in Appendix H.

Moreover, references in the 2017 DAU that refer to the 'service taken to be declared under s. 250(1)(a)' may not be appropriate if a new declaration is made under a different provision of the QCA Act.¹¹¹⁶ Therefore, the QCA considers that it is appropriate to amend Aurizon Network's 2017 DAU to include a new cl. 12.5 that refers to any declaration by the Minister under Part 5 of the QCA Act (see Appendix H).

Adjustment date

Aurizon Network has proposed the definition of 'Adjustment Date', the date on which any adjustments to access charges are required to be applied due to differences in the approved UT5 undertaking reference tariffs and transitional reference tariffs, to be 1 July 2015.

The QCA does not consider it appropriate in these circumstances that there should be amounts payable under the UT5 undertaking that are calculated by reference to a time before the date on which reference tariffs are proposed to commence.¹¹¹⁷ It is appropriate that there is a mechanism to make adjustments in access charges to account for any lag between the UT5 undertaking approval date and the date on which reference tariffs are proposed to commence.

The QCA considers that it is in the interests of all parties¹¹¹⁸ that the date from which adjustments are calculated should be the date at which the pricing period of the UT5 undertaking commences. This date should be 1 July 2017.

11.4 Objective of the undertaking and behavioural obligations

Aurizon Network's proposal

Clauses 2.2 and 2.3 cover the objective of the UT5 undertaking and Aurizon Network's behavioural obligations.

Aurizon Network's proposed objective includes (cl. 2.2):

- facilitating the negotiation of access agreements between Aurizon Network and access seekers

¹¹¹⁶ This phrase appears throughout the 2017 DAU (for example, cls. 2.2(a), 2.2(b) and 2.4(a)).

¹¹¹⁷ This being the period commencing from 1 July 2017.

¹¹¹⁸ Sections 138(2)(b), (d) and (e) of the QCA Act.

- ensuring the declared service is provided in a manner that does not unfairly differentiate in a material way between access seekers and/or access holders
- preventing Aurizon Network from recovering, through the price of access to the declared service, any costs that are not reasonably attributable to the provision of that service.

Aurizon Network also proposed a list of behavioural obligations it would be required to comply with when negotiating and providing access (cl. 2.3(a)–(f)). These obligations include:

- taking certain actions to demonstrate compliance with the unfair differentiation obligations under ss. 100(2)–(4) and 168C of the QCA Act
- not engaging in conduct for the purpose of preventing or hindering an access seeker's access to the declared service within the meaning of s. 104 or s. 125 of the QCA Act
- not engaging in conduct that results in anti-competitive cost shifting, anti-competitive cross-subsidies, or anti-competitive price or margin squeezing.

There are provisions for access seekers and access holders to lodge a complaint if they consider Aurizon Network has failed to comply with these behavioural obligations (cl. 2.3(g)–(k)).

QCA analysis and draft decision

Summary of draft decision 11.3

- **The QCA's draft decision is to approve Aurizon Network's proposals in respect of the objective of the UT5 undertaking and Aurizon Network's behavioural obligations (cls. 2.2 and 2.3).**

Pacific National supported the ongoing inclusion of behavioural obligations in cl. 2.3 of the 2017 DAU as they assist in avoiding inefficient and anti-competitive behaviour.¹¹¹⁹

Upon review, the QCA considers that the provisions proposed by Aurizon Network are appropriate. The QCA Act requires provisions of this nature to be included in an undertaking.¹¹²⁰

11.5 Scope of the undertaking

Aurizon Network's proposal

Clause 2.4 covers the scope of the UT5 undertaking. Aurizon Network proposes that the UT5 undertaking will only apply to the negotiation and provision of access, including all aspects of access to the declared service (cl. 2.4(a)). The clause also deals with matters relating to the responsibilities of Aurizon Network and other parties to obtain legal rights to access land, and limitations on the applicability of the UT5 undertaking when it conflicts with other legal instruments (cl. 2.4(b)–(g)).

¹¹¹⁹ Pacific National, sub. 19: 5.

¹¹²⁰ See, for example, s. 137 of the QCA Act.

QCA analysis and draft decision

Summary of draft decision 11.4

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in respect of the scope of the 2017 DAU (cl. 2.4), subject to the QCA's draft decision with respect to the term of the undertaking.**

Subject to the QCA's proposed amendments outlined in section 11.3, the QCA considers that the provisions proposed by Aurizon Network are appropriate. In particular, the QCA considers Aurizon Network's cl. 2.4(a) appropriate, as it permits the UT5 undertaking to deal with the declared service, in the event that this differs from the definition of 'Access' provided in the 2017 DAU.

11.6 Ultimate holding company support deed

Aurizon Network's proposal

Clause 2.5 specifies Aurizon Network's obligations in relation to obtaining the Ultimate Holding Company Support Deed (support deed) from Aurizon Holdings.

Aurizon Network has proposed in the terms of its support deed (see Schedule D to the 2017 DAU) that Aurizon Holdings agree to provide support to Aurizon Network to enable Aurizon Network to comply with the UT5 undertaking, as well as to protect confidential information¹¹²¹ received from Aurizon Network in accordance with the requirements of the UT5 undertaking.

Aurizon Network has proposed that if:

- Aurizon Network fails to obtain the support deed in the form set out in Schedule D,
- the support deed is not maintained in force, or
- the requirements of the support deed are not complied with,

then Aurizon Network will conduct quarterly audits of the confidential information register, and half-yearly training sessions for high-risk personnel on Aurizon Network's obligations under the QCA Act and Part 3 of the 2017 DAU. These additional obligations are proposed to apply until the relevant matter is rectified. Similarly, under the support deed itself, the consequences for breaching the support deed are limited to those outlined in cl. 2.5 of the 2017 DAU.

QCA analysis and draft decision

Summary of draft decision 11.5

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in relation to obtaining, maintaining and complying with the proposed the Ultimate Holding Company Support Deed (support deed) and the proposed terms of the support deed (cl. 2.5 and Schedule D).**

Pacific National said the consequences that apply to Aurizon Holdings for breaching the support deed are weak and unlikely to act as a deterrent.¹¹²²

¹¹²¹ Chapter 12 discusses Aurizon Network's obligations in relation to confidential information.

¹¹²² Pacific National, sub. 19: 19.

The QCA considers that the relevant provisions of the 2017 DAU and the proposed support deed itself set out appropriate remedies. The remedies proposed by Aurizon Network, for example, require regular audits of the confidential information register and increased training requirements. These impose a level of responsibility on Aurizon Network (while not hindering information flows) and also incentivise Aurizon Network to procure the execution of the support deed.

In response to Pacific National's request to impose liability on Aurizon Holdings for consequential losses, the QCA does not consider it necessary to strengthen the provisions of cl. 2.5. While neither the QCA nor Aurizon Network can compel Aurizon Holdings to execute the proposed support deed, it is noted that similar deeds have been executed in the past without issue or concern. In the event that the QCA became concerned that the support deed had not been executed in the past, or was not proposed to be executed in the future, then such obligations could warrant further consideration.

The QCA considers that cl. 2.5 of the 2017 DAU and the associated support deed (Schedule D) are appropriate. The 2017 DAU provisions and support deed strike a balance between the interests of Aurizon Network, access holders and access seekers (ss. 138(2)(b), (d), (e) and (h) of the QCA Act).

11.7 Sale and supply of electricity

Aurizon Network's proposal

Clause 2.6 covers Aurizon Network's proposed obligations regarding the sale and supply of electricity. Aurizon Network has proposed that it be prevented from refusing to supply electricity to a third party access seeker or access holder if it supplies electricity to a related operator (cl. 2.6(a)).

Disputes about Aurizon Network's refusal to sell or supply electricity or about the terms of supply can be resolved in accordance with the dispute resolution mechanism in Part 11 (cl. 2.6(c)). However, Aurizon Network cannot be obliged to sell or supply electricity on unreasonable or uncommercial terms, or if it is not legally able to do so (cl. 2.6(b)).

QCA analysis and draft decision

Summary of draft decision 11.6

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposed obligations regarding the sale and supply of electricity (cl. 2.6).**

The provisions in relation to the supply and sale of electricity are unchanged from Aurizon Network's 2016 Undertaking.

The QCA notes Aurizon Network's contention that the supply and sale of electricity does not form part of the declared service.¹¹²³ In any event, the QCA is required to consider the appropriateness of the provisions as submitted in accordance with the QCA Act. And, after reviewing Aurizon Network's proposal on this matter, the provisions are considered appropriate.

¹¹²³ Aurizon Network, sub. 1: 241.

The QCA considers that the 2017 DAU provides adequate protection for third party operators in respect of the supply and sale of electricity and Aurizon Network is incentivised to continue to supply electricity for access holders to utilise in the CQCN.

12 RING-FENCING

12.1 Aurizon Network's 2017 DAU proposal

Part 3 of the 2017 DAU contains the ring-fencing arrangements that Aurizon Network, being a related access provider,¹¹²⁴ is proposing. Part 3 of the 2017 DAU also outlines Aurizon Network's statutory obligations under the *Transport Infrastructure Act 1994* and the QCA Act that relate to its monopoly and vertically integrated structure.¹¹²⁵

The proposed ring-fencing framework in the 2017 DAU includes provisions for:

- compliance declarations and reporting (cl. 3.3)
- functional separation (cls. 3.4 and 3.5)
- employee separation (cl. 3.6)
- accounting separation (cl. 3.7)
- management structure and separation (cl. 3.8)
- control and disclosure of confidential information (cls. 3.9–3.19)
- complaint handling procedures (cl. 3.20)
- responsibility for rail infrastructure – line diagrams (cl. 3.21).

12.2 General provisions and Aurizon Network's functional responsibilities—Sections A and B

Section A of Part 3 sets out the organisational structure of the Aurizon Group and the purpose of this part of the 2017 DAU. Section A also includes provisions intended to promote compliance with Aurizon Network's relevant statutory obligations under the *Transport Infrastructure Act 1994* and the QCA Act.

Aurizon Network proposes to submit, as part of its reporting obligations under Part 10, a declaration of compliance with its ring-fencing provisions for the preceding 12 months, including details of any breaches (cl. 3.3).

Section B outlines Aurizon Network's functional responsibilities within the Aurizon Group and the below-rail services it provides. Under cl. 3.4, Aurizon Network must not undertake any above-rail services, except for providing declared services or providing services in respect of private infrastructure (cl. 3.4(d)).

As part of its reporting obligations under Part 10, Aurizon Network must also advise the QCA if it acquires an interest in any port, mine, or coal extraction project connected to the CQCN, and if it provides any services associated with the loading of vessels at a port connected to the CQCN (cl. 3.4(e)).

¹¹²⁴ As defined in Schedule 2 of the QCA Act.

¹¹²⁵ For example, s. 438H of the *Transport Infrastructure Act 1994* requires Aurizon Network to maintain an independent board of directors, which supervises arm's-length dealings in respect of access between Aurizon Network and any related operators. Additionally, s. 137(1A) of the QCA Act requires that provisions to protect against unfair differentiation are included in an undertaking.

Other key elements of Section B include:

- restrictions on Aurizon Network transferring, delegating or contracting out the provision of below-rail services on the QCCN to any related operator (cl. 3.5)
- restrictions on sharing staff between Aurizon Network and its related parties, and the control of staff access to confidential information (cl. 3.6)
- requirements for accounting separation between the supply of declared services and other business functions, and requirements regarding the preparation of financial statements (cl. 3.7).

12.3 Management of Aurizon Network—Section C

Section C requires that Aurizon Network is managed independently from its related parties. It also requires that related parties are not involved in the appointment or supervision of the executive management of Aurizon Network (cl. 3.8(a)).

Clause 3.8(c) also restricts Aurizon Network from acting on directions from related parties with regard to the granting of access or exercise of access rights, for the benefit of a related operator or another third party.

12.4 Confidential information—Section D

Section D sets out provisions regarding the handling and sharing of confidential information that Aurizon Network may obtain through its dealings with related parties and its customers. Key provisions proposed by Aurizon Network include:

- Aurizon Network must not request, require or agree to the exclusion or waiver of any provision of Part 3 during access negotiations. However, a voluntary agreement may impose ring-fencing standards that are more stringent than the Part 3 requirements (cl. 3.9).
- During access negotiations, either party to the negotiation may require the other party to enter into a confidentiality agreement (cl. 3.10).
- Aurizon Network must keep confidential information secure and not disclose it, unless the disclosure is in accordance with the undertaking. Aurizon Network must not use or disclose confidential information in a way that breaches its obligations under any of ss. 100, 104, 125 or 168C of the QCA Act (cl. 3.11).
- Aurizon Network must follow detailed processes for the disclosure of confidential information, where permitted (cls. 3.12–3.13).
- Aurizon Network must maintain a ‘Confidential Information Register’ of people who have had access to confidential information (cl. 3.14). Aurizon Network must also maintain a ‘High-risk Personnel Register’ (cl. 3.16) of people in a position to access and use confidential information for purposes other than providing below-rail services, or to influence decisions of other Aurizon Group companies (for example, Aurizon Network’s Executive Officer and Chief Financial Officer).
- Relevant staff of Aurizon Network and the Aurizon Group must receive mandatory training in confidential information handling and ring-fencing obligations (cl. 3.15).
- Upon ending their employment with Aurizon Network, staff who have had access to confidential information are to be de-briefed and reminded of their ongoing obligations (cl. 3.17).

- Adequate measures must be in place to maintain the security of confidential information (cl. 3.18).
- Aurizon Network must adhere to defined procedures for making and documenting decisions that adversely affect the rights of a customer under the UT5 undertaking (cl. 3.19).

Aurizon Network's proposed cl. 3.14(b) removes any direct QCA role in approving the structure and detail of the Confidential Information Register, if the QCA has already approved a format under the 2016 Undertaking.

12.5 Complaint handling—Section E

Section E sets out the proposed processes for handling complaints regarding potential breaches of Aurizon Network's obligations under Part 3 or the support deed (Schedule D); and potential breaches of confidentiality provisions in other agreements that Aurizon Network has with its customers.

Where a party considers that Aurizon Network has breached its obligations, it may lodge a complaint with Aurizon Network, which must then be investigated (cl. 3.20(a)). Where complainants are not satisfied with the outcome of Aurizon Network's investigation, they may apply to the QCA for an audit of the matter (cl. 3.20(e)).

12.6 Responsibility for rail infrastructure—Section F

Section F includes provisions that require Aurizon Network to maintain line diagrams indicating the parts of the rail network that are used to provide declared services. Line diagrams depict the boundaries of the CQCN, and therefore the assets that are subject to the UT5 undertaking.

Line diagrams must be updated and published at least every six months to reflect any changes that have been made to the configuration or ownership of the CQCN rail assets (cl. 3.21(b)).

If Aurizon Network transfers ownership of any part of the CQCN to a related party, or part of the rail infrastructure is removed, the undertaking ceases to apply to those assets (cl. 3.21(c)).

Section F allows access seekers, access holders or the QCA to request amendments to the line diagrams if it is suspected they are inaccurate (cls. 3.21(d)–(f)).

QCA analysis and draft decision

Summary of draft decision 12.1

- **The QCA's draft decision is to approve Part 3 of Aurizon Network's 2017 DAU.**

Aurizon Network is part of a vertically integrated group of companies, which includes the dominant supplier of above-rail services in the CQCN. For this reason, a ring-fencing regime is necessary so that Aurizon Network cannot use its position or confidential information to favour its—or the Aurizon Group's—strategic intent, to the detriment of competition in upstream or downstream markets.

The QCA received a number of submissions on Aurizon Network's proposed Part 3. The QRC accepted Aurizon Network's cl. 3.14(b), which removes any direct QCA role in approving the

structure and detail of the Confidential Information Register, if the QCA has already approved a format under the 2016 Undertaking.¹¹²⁶

Pacific National supported the continued inclusion of ring-fencing provisions. However, it submitted that provisions regarding management separation, and treatment of confidential information ought to be strengthened.

First, Pacific National said that strengthening the management separation obligations of Part 3 to increase the independence and separation of the Aurizon Network board and management would:

provide more effective governance in relation to the separation and ring fencing of Aurizon Network from Aurizon Holdings.¹¹²⁷

Second, Pacific National expressed concern that the current confidentiality and ring-fencing provisions may not be sufficient to protect confidential information. Pacific National requested that extra protection be established to ensure this information cannot be used by Aurizon's above-rail operations.¹¹²⁸ Specifically, Pacific National said:

in relation to section 3.13 (c) Pacific National believes that Aurizon Network[s] disclosure of confidential information to a third party should be on terms which are enforceable by the owner of the confidential information.

...

in relation to section 3.13 (h) Pacific National believes that the wording contained in the 2017 DAU allows Aurizon Network to disclose confidential information to Aurizon Network's related operator's employees involved in corporate governance, accounting, taxation, risk assessment, financing and similar functions. Pacific National is concerned that given this broad exemption the employees of Aurizon Network's related operator may receive this confidential information regardless of whether they are required to have the information to perform their activities.¹¹²⁹

Aurizon Network noted that the Part 3 framework was considered at length during the UT4 process, and additional ring-fencing measures have been implemented. Aurizon Network said that the current arrangements should stay in place for longer to permit an informed assessment of these controls, before considering further change.¹¹³⁰ No other stakeholders commented on these issues.

The QCA does not consider Pacific National's proposals should be included, as we are not convinced that the specific issues raised by Pacific National, when considered amongst the Part 3 framework as a whole, are sufficient to render the proposed ring-fencing arrangements inappropriate.

After having regard to each of the factors in s. 138(2) of the QCA Act, the QCA considers it is appropriate to approve Aurizon Network's 2017 DAU Part 3. In particular:

- The object of Part 5 of the QCA Act (138(2)(a)). Our assessment is that the provisions proposed in Part 3 appropriately seek to limit the ability of Aurizon Network to take advantage of its position and information available to it to favour its related parties, promoting the economically efficient operation of, use of and investment in significant

¹¹²⁶ QRC, sub. 20, Annexure 1: 1.

¹¹²⁷ Pacific National, sub. 19: 5.

¹¹²⁸ Pacific National, sub. 19: 16.

¹¹²⁹ Pacific National, sub. 19: 21.

¹¹³⁰ Aurizon Network, sub. 26: 8.

infrastructure by which services are provided, with the effect of promoting effective competition in upstream and downstream markets.

- Whether the proposed provisions in Part 3 provide an appropriate balance between the legitimate business interests of Aurizon Network and the interests of access seekers and access holders (ss. 138(2)(b), (e) and (h)). Our assessment is that the proposed provisions strike the right balance between ensuring Aurizon Network cannot use its position or confidential information to favour its related parties (in the interests of access seekers and access holders) and imposing obligations that are too onerous and costly to comply with.
- Whether the provisions are in the public interest, in particular in having competition in markets (s. 138(2)(d)). The proposed provisions advance the public interest as they mitigate against behaviour likely to adversely affect competition in upstream and downstream markets.
- The pricing principles set out in s. 168A of the QCA Act. In particular, it is considered that the provisions are appropriate, as they seek to address circumstances where the access provider sets terms and conditions that discriminate in favour of downstream operations of the access provider or a related body corporate of the access provider (ss. 138(2)(g) and 168A(c)).

In light of the above, the QCA shares Aurizon Network's view on this matter and considers that revising or implementing any additional ring-fencing obligations would require a reasonable demonstration that:

- the existing ring-fencing arrangements are ineffective or otherwise deficient in preventing the misuse of Aurizon Network's monopoly power for its own benefit, or the benefit of its related parties, or to the detriment of other market participants
- revising the ring-fencing arrangements is likely to deliver materially better outcomes and protections
- the benefits of more rigorous ring-fencing provisions would materially outweigh any incremental compliance costs, which are ultimately passed through to access holders.

Therefore, the QCA is not aware of any other evidence to suggest that the proposed arrangements do not remain appropriate for the UT5 undertaking period, as proposed by Aurizon Network.

The QCA notes it will continue to monitor Aurizon Network's compliance with its obligations under Part 3 through annual compliance reporting (cl. 10.5.2), breach reporting (cl. 10.5.3) and annual ring-fencing audits (cl. 10.6.2). Clause 3.20 of the 2017 DAU also provides a framework for Aurizon Network customers to raise complaints about suspected breaches by Aurizon Network of its Part 3 obligations, and to escalate these matters to the QCA if necessary. If the Part 3 provisions are deficient in any way, these processes will likely reveal these deficiencies.

After considering stakeholder submissions and our assessment of the factors in s. 138(2) of the QCA Act, the QCA considers it is appropriate to approve Part 3 of the 2017 DAU as proposed by Aurizon Network. The provisions are also suitable for approval when considered with other parts of the QCA Act the QCA considers relevant, including s. 137(1A).

13 NEGOTIATION FRAMEWORK

Aurizon Network's 2017 DAU proposal

Part 4 of Aurizon Network's 2017 DAU provides a framework for the negotiation of access rights. It outlines key steps in the negotiation process and the information access seekers and Aurizon Network may be required to provide as part of these negotiations.

The 2017 DAU negotiation framework consists of principles and procedures for:

- the making of an access application by an access seeker, and Aurizon Network's rights and obligations in respect of such applications, including the development of an Indicative Access Proposal (cls. 4.3–4.6)
- dealing with access applications that involve expansions (cl. 4.8)
- dealing with multiple access applications for the same access rights (cl. 4.9)
- the negotiation process, including the time period for negotiations, matters that must be addressed during negotiations and the circumstances in which negotiations will cease (cls. 4.10–4.13).

The negotiation framework proposed in Aurizon Network's 2017 DAU is largely unchanged from Aurizon Network's existing arrangements. Changes from the 2016 Undertaking are:

- clarification that the process under cl. 4.8(d) (i.e. suspension of the negotiation process pending negotiation of an expansion) applies to all access applications for access rights that can only be provided by an expansion
- providing for a customer access seeker to nominate a railway operator to take over their access application and replace them as the access seeker (see cl. 4.10(1)(c))
- correcting various clause cross-references (see cl. 4.5 and 4.6).

Overview of Part 4 and its relationship with other parts of the 2017 DAU

Part 4 of the 2017 DAU is the starting point for an access seeker to seek to obtain access rights to the network and has a number of important linkages to other parts of the UT5 undertaking.

Essentially, Part 4 establishes a framework for parties to exchange information required to assess the access rights sought and, ultimately, successfully negotiate the terms of access. As set out in Part 5 of the 2017 DAU (Access Agreements), the terms of access comprise of an Access Agreement and a Train Operations Deed (these are discussed in detail in Chapter 14).

Aurizon Network's 2017 DAU contemplates an access seeker may be either of the following:

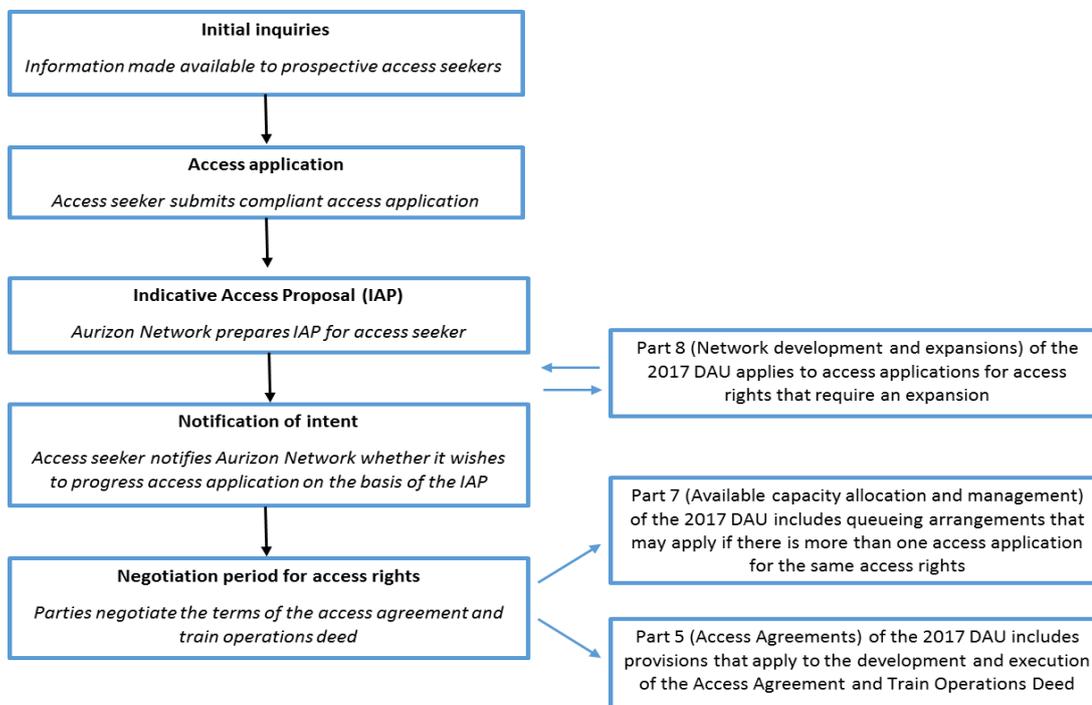
- a railway operator seeking to obtain access rights on behalf of a customer
- a customer seeking to obtain access rights for themselves, with the customer nominating a train operator to operate train services utilising those access rights on their behalf (alternatively, a customer who is also an accredited railway operator may operate train services themselves).

If there are multiple access applications for the same access rights, Part 7 of the 2017 DAU (Available Capacity Allocation and Management) sets out a queuing mechanism which determines how access applications will be prioritised. Further, the access rights being sought

may require an expansion, in which case Part 8 of the 2017 DAU (Network Development and Expansions) will apply for the development of that expansion.

The following diagram provides an overview of the key stages of the Part 4 negotiation process and the linkages to other parts of the 2017 DAU. Aurizon Network has indicated it will include a diagram that clearly and accurately reflects the Part 4 processes in the 2017 DAU.¹¹³¹

Figure 34 Overview of Part 4 of Aurizon Network's 2017 DAU



Key issues identified during the QCA's investigation

The QCA has considered all elements of Part 4 of Aurizon Network's 2017 DAU in making this draft decision. The following issues attracted comment from stakeholders or have been identified for further consideration:

- process and requirements for applying for access (see section 13.1)
- variations to access applications (see section 13.2)
- applications for access rights that require expansions (see section 13.3)
- the negotiation process (see section 13.4).

The QCA did not receive any proposed amendments or submissions in relation to Part 4 of the 2017 DAU during the collaborative submission process.

13.1 Process and requirements for applying for access

Aurizon Network's proposal

Part 4 of the 2017 DAU requires that requests for access be submitted to Aurizon Network in the form of an access application (cl. 4.3(a)). To assist prospective access seekers in preparing an access application, Aurizon Network is required to make available the preliminary and

¹¹³¹ See drafting note in Schedule H of Aurizon Network's 2017 DAU.

capacity information outlined in Schedule A of the 2017 DAU (this includes information on interface requirements, maps and drawings, and the master and daily train plans). Aurizon Network can also be required to meet with a prospective access seeker to discuss the access application process (cl. 4.2).

An access application must satisfy particular information requirements set out in Schedule B of the 2017 DAU. These include information describing the train services (e.g. train service description and timetabling requirements) and information needed to assess the ability of the access seeker to use the access rights. However, an access seeker may be excused from providing particular required information if ‘non-availability circumstances’ apply. That is, the information cannot reasonably be produced or obtained, and Aurizon Network is satisfied this inability to provide the information does not indicate a lack of genuine intention to obtain the requested access rights.

Aurizon Network will issue an acknowledgement notice to a prospective access seeker, acknowledging a properly completed access application and confirming it will prepare an Indicative Access Proposal (IAP) for the requested access (cl. 4.4). However, Aurizon Network may reject an access application for access rights commencing more than five years in advance, unless the access rights require an expansion (cl. 4.4(d)).

At any point until negotiations cease, an access seeker, train operator or Aurizon Network may be required to enter into a confidentiality agreement in the form set out in Schedule I of the 2017 DAU (cl. 3.10). This agreement sets out a party’s obligations for the protection of confidential information (as defined under the 2017 DAU).¹¹³²

Indicative Access Proposal (IAP)

Following acknowledgement of a properly completed access application, Aurizon Network will develop an IAP for the access rights sought (cl. 4.6). The IAP will outline, among other things, an initial capacity assessment, the existence of any other requests for access that would affect Aurizon Network’s ability to grant the access rights sought, and an initial estimate of the access charge (see cl. 4.6(c)).

If an access seeker intends to progress its access application on the basis of the arrangements in the IAP, they must notify Aurizon Network of its intention prior to expiry of the IAP (being 60 business days, unless agreed otherwise and subject to particular suspensions of the negotiation process or resolution of disputes) (cls. 4.6 and 4.7). Following this notification, the negotiation period will commence (cl. 4.11.1) (the negotiation period is discussed further in section 13.4).

QCA analysis and draft decision

Summary of draft decision 13.1

- **The QCA’s draft decision is to approve Aurizon Network’s 2017 DAU proposals in respect of the process and requirements for applying for access.**

The negotiation framework should provide clear guidance to access seekers on the process for an access application, and the information that is required to support the application. This should enable access seekers to have certainty both about what is required from them in order to apply for access, and the timeframes in which Aurizon Network will act. Ultimately, negotiations are more likely to be effective and able to be concluded in a timely manner when

¹¹³² See Chapter 12 for further details on confidential information for the purposes of Aurizon Network’s 2017 DAU.

Aurizon Network is provided with sufficient information to progress a request for access. Nonetheless, an access seeker should not be obliged to provide any more information than what is reasonably available and necessary, particularly in the earliest stages of the negotiation process.

The QCA considers that the 2017 DAU provides an appropriate balance between the legitimate business interests of Aurizon Network (s. 138(2)(b)) and the interests of access seekers (s. 138(2)(e)) in this regard by:

- setting out reasonably clear information requirements for access applications and IAPs
- providing reasonable flexibility for the provision of information by access seekers, including scope for access seekers to be excused from providing required information where information cannot reasonably be obtained
- providing certainty about the timeframes in which Aurizon Network will assess an access application and prepare an IAP for an access seeker.

The concerns raised by Pacific National regarding the confidentiality agreement set out in Schedule I of the 2017 DAU are noted. Specifically, Pacific National considered:

- the confidentiality agreement should also bind the broader Aurizon Group, rather than only Aurizon Network (see cl. 6 of the confidentiality agreement)
- the penalties on Aurizon Network for any breach of the agreement (see cl. 7 of the confidentiality agreement) are relatively weak and should be strengthened.¹¹³³

However, the QCA considers the confidentiality agreement as set out in Schedule I of the 2017 DAU is appropriate and provides sufficient protection for confidential information disclosed by parties in these circumstances. The QCA does not consider it necessary for the agreement to bind the broader Aurizon group. The ring-fencing arrangements in Part 3 of the 2017 DAU already deal with Aurizon Network's obligations, and the protections it must put in place, in respect of the disclosure of confidential information to its related parties. The QCA also notes the provisions in the 2017 DAU regarding the Ultimate Holding Company Support Deed.¹¹³⁴

The QCA also does not consider it necessary to prescribe particular penalties for a breach of the confidentiality agreement, noting it is within the power of the owner of the confidential information to seek remedies through legal proceedings if there is an actual, threatened or suspected breach of the agreement. The consequences of a breach will vary depending on the damage it may cause the owner of the confidential information and, in this context, we consider the appropriate remedy should be determined by the courts.

The QCA notes that the QRC proposed amendments to the definitions of 'access seeker' and 'prospective access seeker,' which seek to include references to the person acting on a bona fide basis and, in respect of a prospective access seeker, also acting in good faith.¹¹³⁵ It is not apparent to the QCA what issue the proposed amendments are seeking to address. In the absence of further justification, the QCA considers the definitions proposed as part of the 2017 DAU are appropriate to approve.

After considering stakeholder submissions and having regard to the factors set out under s. 138(2) of the QCA Act, the QCA's draft decision is that it is appropriate to approve the 2017

¹¹³³ Pacific National, sub. 19: 23.

¹¹³⁴ See Chapter 12.

¹¹³⁵ QRC, sub. 20, Annexure 3, Part 12.

DAU in respect of the process and requirements for applying for access. The QCA considers that the negotiation process in the 2017 DAU, in the context set out above, strikes an appropriate balance between the interest of all parties (s. 138(2)(b), (e) and (h) of the QCA Act).

13.2 Variations to access applications

Aurizon Network's proposal

The 2017 DAU provides scope for an access seeker to request variations to its access application. A variation may be requested at any time after the access seeker receives an acknowledgement notice from Aurizon Network (cl. 4.5).

If the requested variation is not a material variation,¹¹³⁶ the access application will be varied and the negotiation process will continue, although Aurizon Network may be given a further period of time to prepare an IAP (cl. 4.5(b)). If Aurizon Network considers it is a material variation, it will notify the access seeker and provide details of the implications of the variation, such as whether an expansion is required or available capacity exists to satisfy the access rights sought (cl. 4.5(c)).

The access seeker may then notify Aurizon Network whether or not it wishes to proceed with the material variation or require the access application to be separated (so that one application may proceed without a material variation (cl. 4.5(d)).

Aurizon Network's 2017 DAU includes provisions for progressing the access application depending on the effect of the material variation (see, for example, cls. 4.5(d)–(f)).

If an IAP or revised IAP is issued in response to a material variation, the access seeker must notify Aurizon Network whether it wishes to continue to negotiate on the basis of the material variation. Alternatively, the access seeker may advise that it wishes to proceed without the material variation (cl. 4.5(g)).

QCA analysis and draft decision

Summary of draft decision 13.2

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in respect of the arrangements for variations to access applications.**

The QCA considers it appropriate for access seekers to have the ability to vary access applications. This provides flexibility for access seekers to respond to changed circumstances and ensure its access application reflects an access seeker's up-to-date access requirements or proposed operations.

Aurizon Network's 2017 DAU sets out a comprehensive process for how it will respond to requests for variations to access applications and provides access seekers with choice on how a varied access application should be progressed (depending on the effect the variation has). The QCA considers these arrangements are appropriate and provide sufficient flexibility for an access application to be varied over time and appropriately balances the legitimate interests of Aurizon Network and access seekers (s. 138(2)(b) and (e)).

¹¹³⁶ See definition of 'material variation' in Part 12 of the 2017 DAU. Broadly, there will be a material variation if it results in an increased or changed allocation of capacity, including changes to the origin or destination of the requested access rights.

The QCA notes that QRC¹¹³⁷ did not raise any concerns with these aspects of the 2017 DAU, including corrected cross-references made by Aurizon Network.¹¹³⁸

After considering stakeholder submissions and having regard the factors set out under s. 138(2) of the QCA Act, our draft decision is that it is appropriate to approve the 2017 DAU in respect of the arrangements for variations to access applications. We consider that the arrangements for variations to access applications in the 2017 DAU, as outlined above, provides an appropriate balance between the interest of all parties (s. 138(2)(b), (e) and (h) of the QCA Act).

13.3 Applications for access rights that require expansions

Aurizon Network's proposal

Aurizon Network's 2017 DAU includes provisions for dealing with applications for access rights that can only be provided with an expansion (cl. 4.8).

For applications for access rights that require an expansion, the provisions relating to the development of an expansion apply.¹¹³⁹ These are discussed in detail in Chapter 18. As part of its consideration of the access application, Aurizon Network must notify the access seeker of the portion of access rights (if any) that can be provided without an expansion. The access seeker may then elect to separate the application into two so that an application may be progressed for the portion of access rights that do not require an expansion.

Aurizon Network or the access seeker may suspend negotiations until there is agreement (or resolution of any dispute) about how to fund the expansion, unless the parties agree to continue negotiations for access in parallel with any negotiations about funding the expansion (cl. 4.8(d)). When negotiations are suspended, Aurizon Network may periodically request confirmation (no more than once every six months) from the access seeker (cl. 4.8(e)):

- that there is an ongoing requirement for the access rights
- of the reasonable likelihood that the access seeker will be able to utilise the access rights
- whether there is any material change to the information contained in the access application.

A failure to respond to these requests within twenty business days may result in the access application being deemed withdrawn (cl. 4.8(f)).

Further, there is also scope for Aurizon Network to suspend negotiations with access seekers in circumstances where another access seeker has been granted a provisional capacity allocation.¹¹⁴⁰

¹¹³⁷ QRC, sub. 20, Annexure 1: 1–2.

¹¹³⁸ Aurizon Network has subsequently advised a minor cross reference in cl. 4.6(e) referring to a suspension of the negotiation process under cl 4.5(k), rather than cl. 4.5(l).

¹¹³⁹ See cls. 8.2 - 8.9 of the 2017 DAU.

¹¹⁴⁰ See Chapter 18 and cl. 4.8(g) of the 2017 DAU.

QCA analysis and draft decision

Summary of draft decision 13.3

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in respect of its treatment of access applications for access rights that require expansions.**

The QCA considers Part 4 of the 2017 DAU contains appropriate arrangements for how applications for access rights that require an expansion (either in whole or in part) will be progressed. In particular, we are satisfied with Aurizon Network's clarification that the process in cl. 4.8(d)¹¹⁴¹ also applies to access applications in respect of access rights that can only be provided by an expansion, rather than only those access applications that are separated under cl. 4.8. The QCA also notes stakeholder support for this clarification.¹¹⁴²

The QCA considers the arrangements for an access application to be separated if portions of the relevant access rights can be provided without an expansion are appropriate. We consider the inclusion of these arrangements to be in the interests of all parties as it ensures that negotiations in respect of the portions of access rights that do not require an expansion may proceed and are not unnecessarily held up (s. 138(2)(b) and (e) of the QCA Act). It also promotes the efficient use of the network, furthering the objects of the QCA Act (s. 138(2)(a)).

Further, the QCA is also satisfied with the circumstances in which the negotiation process can be suspended under this clause. Recognising that the development of an expansion involves a range of matters that must be settled, including funding arrangements, and concept and feasibility studies, we consider it reasonable for the negotiation process to be suspended until those matters have been resolved (unless otherwise agreed by the parties). The QCA also considers it reasonable for access seekers to be required to periodically confirm their ongoing requirement for, and likely ability to use, the relevant access rights. These arrangements provide a reasonable balance between the legitimate business interests of Aurizon Network and the interests of access seekers and ensure requests for access remain current and necessary.

After considering stakeholder submissions and having regard to stakeholder submissions and the factors set out under s. 138(2) of the QCA Act, our draft decision is that it is appropriate to approve the 2017 DAU in respect of its treatment of access applications for access rights that require expansions. The QCA considers that treatment of access applications for access rights that require expansions in the 2017 DAU, in the context set out above, provides for an appropriate balance between the interest of all parties (s. 138(2)(b), (e) and (h) of the QCA Act).

13.4 Negotiation process

Aurizon Network's proposal

Clause 4.11.1 of the 2017 DAU defines the start and end date for the negotiation period. This contemplates negotiations in respect of:

- an access seeker's access (including negotiation of an access agreement), in which case the negotiation period commences when the access seeker gives Aurizon Network a notification of intent under cl. 4.7

¹¹⁴¹ That is, the application of particular clauses in Part 8 of the UT5 undertaking that are relevant to the development of expansions and scope for suspension of the negotiation process.

¹¹⁴² QRC, sub. 20, Annexure 1: 2.

- a train operator's train operations deed, in which case the negotiation period commences when the train operator provides Aurizon Network all of the information referred to in cl 4.10.2 (e.g. identifying the relevant access seeker or customer).

The 2017 DAU outlines the issues to be addressed by Aurizon Network and the access seeker or train operator (as applicable) during the negotiation period to facilitate the negotiation of an access agreement or train operations deed (cl. 4.11.2 and 4.12). This includes the information the parties must provide each other and obligations for the development of an operating plan, interface risk management plan and other operational matters. The requirements for these plans are set out in Schedule C of the 2017 DAU.

The 2017 DAU includes various ways in which a railway operator may assist a customer access seeker (i.e. an end user), including being nominated to act on a customer access seeker's behalf in negotiations or to take over its access application and replace the customer as the access seeker (or vice versa) (see cl. 4.10.1).

Generally, the negotiation period will end nine months after commencement, unless the parties agree to extend the period, the negotiation process has been suspended in accordance with the UT5 undertaking (e.g. to negotiate an expansion) or a dispute arises between the parties (cl. 4.11.1(d) and (g)). However, Aurizon Network may end negotiations with an access seeker or train operator earlier in the circumstances set out in cl. 4.13 of the 2017 DAU. These circumstances include there being no genuine intention of the access seeker or train operator to obtain the access rights sought or no reasonable likelihood of utilising access at the level sought.

Negotiations may also cease if Aurizon Network can no longer offer access under the terms of the IAP due to available capacity being reduced or the infrastructure enhancements contemplated by the IAP can no longer be developed. However, if a portion of the access rights sought can still be provided, there is scope for negotiations to continue on the basis of a revised IAP for that portion of access rights (cl. 4.11.1(d)(v) and (e)).

Dealing with multiple applications for the same access

Aurizon Network's 2017 DAU includes arrangements to deal with multiple access applications where there is insufficient available capacity to satisfy more than one access application.

In accordance with Part 7 of the 2017 DAU, Aurizon Network is required to prioritise the allocation of access rights to the access seeker that submits its application first (cl. 7.5.2(b)). A queuing mechanism determines the order in which Aurizon Network is to negotiate with access seekers. Once an access seeker gives a notification of intent under cl. 4.7, they will be deemed to have joined the queue on the date the access seeker submits a properly completed access application that includes all necessary information (cl. 4.4(c)). The queuing mechanism is discussed further in Chapter 16.

The 2017 DAU also includes arrangements for how Aurizon Network will deal with access applications from a customer and/or railway operator(s) for the same access rights. Access applications from railway operators will be disregarded if there is another application from a customer access seeker (or another railway operator nominated by a customer) for those same access rights (cl. 4.9).

QCA analysis and draft decision

Summary of draft decision 13.4

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals for the negotiation process.**

The QCA considers Part 4 of the 2017 DAU provides sufficient clarity for access seekers over the issues that are to be negotiated during access negotiations and the actions Aurizon Network will perform during the negotiation period (e.g. providing a proposed access charge and advice on how that was determined). We consider this important to the interests of access seekers as it provides them with certainty up-front about what must be addressed during the negotiation process. It is also likely to facilitate more efficient negotiations.

The QCA is also satisfied by the circumstances in which access negotiations may end under Part 4 of the 2017 DAU. We consider these arrangements provide access seekers with certainty over the circumstances in which Aurizon Network may end access negotiations.

Part 4 of the 2017 DAU accommodates both railway operators and customers being access seekers and deals with circumstances where there are access applications from a customer and/or railway operator(s) for the same access rights. There is stakeholder support for Aurizon Network's clarifying amendment enabling a customer access seeker to nominate a railway operator to take over a customer's access application and position as access seeker.¹¹⁴³

Nonetheless, the QCA does note Anglo American's objections to the ability of a train operator to hold access rights in its own right and its view that a train operator or other supply chain member should only be able to hold access rights on behalf of, and for the benefit of, an end user. Broadly, Anglo American considered this otherwise could incentivise anti-competitive conduct through a secondary market, including the bundling of supply chain rights at an unregulated price or discrimination between above-rail operators or customers.¹¹⁴⁴

However, the QCA does not consider there is sufficient reason to include the restrictions on access holders suggested by Anglo American. We note Part 4 of the 2017 DAU already includes various obligations on an access seeker to demonstrate an ability to use the requested access rights. In particular, non-customer access seekers (i.e. railway operators) are obliged to identify in their access application a customer or prospective customer for the requested access rights and that the customer or prospective customer has authorised the access seeker to apply for the relevant access rights (see cl. 3(a) of Schedule B of the 2017 DAU). Ultimately, having no reasonable likelihood of having a customer for the relevant access rights is grounds for the cessation of negotiations (see cl. 4.13(c) of the 2017 DAU). The QCA also notes that a customer has the ability to take over an access application and replace their railway operator as the access seeker (cl. 4.10.1(c)(ii)) and, during the term of an access agreement, there is the ability for customer-initiated transfers of access rights (cl. 7.4.2(e)).

More broadly, there are mechanisms in the Aurizon Network's 2017 DAU that guard against the risk of capacity hoarding, such as take-or-pay arrangements and the process for the resumption of access rights. Further, with regard to Anglo American's concerns about discrimination, we note there are arrangements in the QCA Act (and Aurizon Network's 2017 DAU) that protect against unfair differentiation by an access provider (see Chapter 11).

¹¹⁴³ QRC, sub. 20, Annexure 1: 2.

¹¹⁴⁴ Anglo American, sub. 18:14–15.

Overall, the QCA consider these arrangements in respect of railway operators and customers are appropriate and provide flexibility in the scenarios under which access rights can be contracted. We consider these arrangements facilitate competition between railway operators and contain adequate considerations for the efficient use of access rights.

After considering stakeholder submissions and having regard to the factors set out under s. 138(2) of the QCA Act, the QCA's draft decision is that it is appropriate to approve the 2017 DAU in respect of the arrangements for the negotiation process. The QCA considers that the negotiation process in the 2017 DAU, in the context set out above, provides an appropriate balance between the interest of all parties (s. 138(2)(b), (e) and (h) of the QCA Act).

14 ACCESS AGREEMENTS

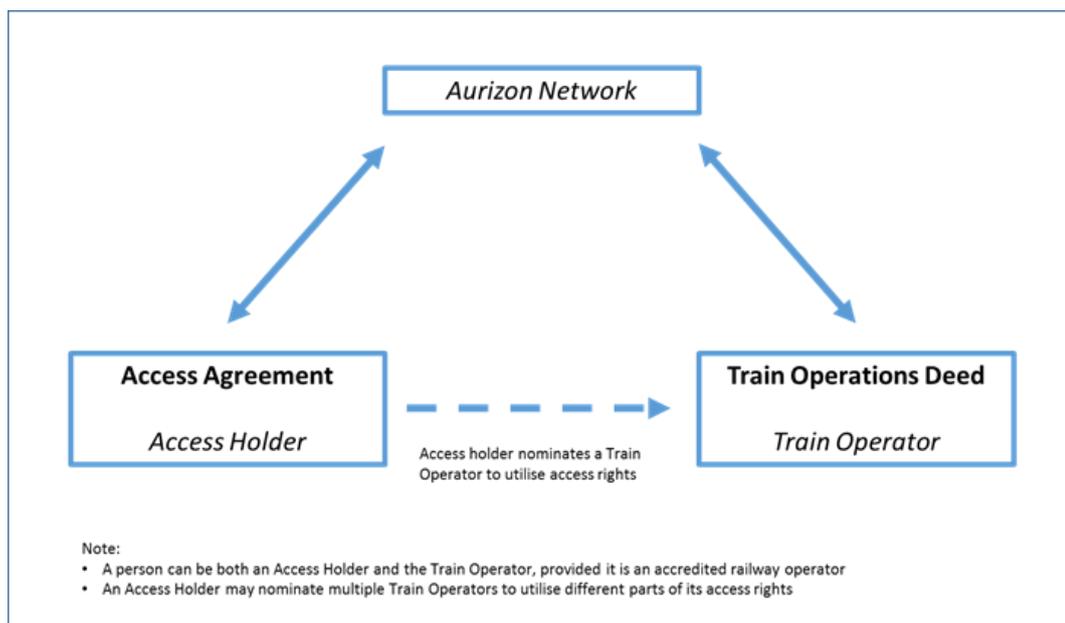
14.1 Aurizon Network's 2017 DAU proposal

Part 5 of Aurizon Network's 2017 DAU sets out provisions for the development of access agreements between Aurizon Network and access seekers. Access agreements form the contractual basis for an access holder's access to the CQCN and are developed following the negotiation of access rights in accordance with the negotiation framework set out under Part 4 of the 2017 DAU (see Chapter 13).

Two documents are necessary for access to the CQCN:

- an Access Agreement —it defines the relevant access rights, sets out various processes for the management of those access rights (e.g. nomination of a train operator to utilise access rights, and transfers, relinquishment and resumption of access rights) and includes provisions for the payment of access charges
- a Train Operations Deed – this allows a train operator to operate train services in connection with the access rights granted under an Access Agreement. The Train Operations Deed deals with matters related to the operation of train services, such as development of operating plans and interface risk management.

Figure 35 Relationship between an Access Agreement and a Train Operations Deed



Aurizon Network's 2017 DAU framework consists of:

- provisions for the development of an Access Agreement and a Train Operations Deed (see cls. 5.1–5.3)

- a Standard Access Agreement and Standard Train Operations Deed (the Standard Agreements). The Standard Agreements are included in Volume 3 of Aurizon Network's 2017 DAU.¹¹⁴⁵

The framework for access agreements proposed in Aurizon Network's 2017 DAU is largely unchanged from Aurizon Network's existing arrangements. The key change from the 2016 Undertaking is the inclusion of processes for the reduction of an access holder's nominated monthly train services based on train payload (see cls. 10–12 of the Standard Access Agreement and cls. 11–12 of the Standard Train Operations Deed).

Key issues identified during the QCA's investigation

The QCA has considered all elements of Part 5, the terms of the Standard Agreements, as well as other relevant aspects of Aurizon Network's 2017 DAU proposal¹¹⁴⁶ in making this draft decision. The following issues attracted comment from stakeholders, or were identified for further consideration:

- provisions relating to the development of an Access Agreement and a Train Operations Deed (see section 14.2)
- the terms of the Standard Agreements (see section 14.3).

During the collaborative submission process, Aurizon Network and other stakeholders requested amendments be made to the 2017 DAU.

14.2 Development and execution of an Access Agreement and/or Train Operations Deed

Aurizon Network's proposal

An Access Agreement and a Train Operations Deed are required to obtain and utilise access rights to the CQCN (cls. 5.1(a) and 5.3(a) of the 2017 DAU).

The terms of an Access Agreement must be the Standard Access Agreement (modified, where required, for non-coal train services) (cl. 5.1(c) of the 2017 DAU). However, it is open for an access seeker to agree with Aurizon Network to vary the terms of the Standard Access Agreement, with any such amendments to be negotiated by the parties acting reasonably and in good faith (cl. 5.1(d) of the 2017 DAU). This includes provisions of the UT5 undertaking to be incorporated by reference into the Standard Access Agreement.¹¹⁴⁷

That said, an Access Agreement must not include a term that limits Aurizon Network's ability to require an access holder to disclose to Aurizon Network all information required to prepare and publish the master train plan (MTP) (cl. 5.1(f) of the 2017 DAU).¹¹⁴⁸ Any disputes about the negotiation of the terms of an Access Agreement will be resolved by completion of the Standard Access Agreement (cl. 5.1(e) of the 2017 DAU).

¹¹⁴⁵ Please note, clause references refer to the relevant Standard Agreement included in Volume 3 of Aurizon Network's 2017 DAU (unless otherwise indicated).

¹¹⁴⁶ See, for example, Part 7, Available capacity allocation & management, of Aurizon Network's 2017 DAU.

¹¹⁴⁷ For the Standard Access Agreement, these 'incorporated provisions' are interface risk, transfer, relinquishment, reduction factor, resumption and conditional access provisions (as defined under the Standard Access Agreement). Interface risk provisions are the only incorporated provisions for the Standard Train Operations Deed. See cl. 3 of the Standard Access Agreement and Standard Train Operations Deed.

¹¹⁴⁸ For more information on the master train plan, see Chapter 17.

Similar provisions apply in respect of the development of a Train Operations Deed (see cl. 5.3 of the 2017 DAU).

QCA analysis and draft decision

Summary of draft decision 14.1

- **The QCA's draft decision is to approve Aurizon Network's proposed framework for the development and execution of an Access Agreement and Train Operations Deed.**

The QCA considers that Part 5 of the 2017 DAU provides an appropriate framework for the development and execution of an Access Agreement and a Train Operations Deed. The QCA proposes amendments to Part 5 that are discussed in Chapter 21 relating to dispute matters.

The QCA considers it appropriate that an access seeker has a clear right to enter into an Access Agreement or Train Operations Deed on the terms of the Standard Agreements. Importantly, this does not prevent access seekers from negotiating alternative terms with Aurizon Network, but it does ensure that the Standard Agreements provide a 'safe harbour' as they are available without the need for further negotiation, or if negotiations subsequently fail. The QCA considers the proposed provisions balance the interests of all parties (ss. 138(2)(b),(e) and (h)), and facilitates the timely development and execution of Access Agreements (s. 138(2)(a)). It will also mean that Aurizon Network will only have to negotiate with access seekers that are willingly and genuinely seeking alternative terms to the Standard Agreements.

'Incorporated' provisions

The QRC and Pacific National proposed the inclusion of additional provisions in the UT5 undertaking that would be incorporated by reference into the Standard Agreements. Specifically, they proposed moving the clauses dealing with the reduction of nominated monthly train service entitlements based on train payload (cls. 10–12 of the Standard Access Agreement and cls. 11–12 of the Standard Train Operations Deed) into the body of the UT5 undertaking and including these as 'incorporated provisions'.¹¹⁴⁹

The QCA's draft decision on the substance of these mechanisms is set out in section 14.3 below.

The QCA notes that relevant provisions of Aurizon Network's 2017 DAU do cross-reference to the Standard Agreements and that the more general provisions for the relinquishment of access rights, including arrangements for the payment and calculation of the relinquishment fee, are proposed to be located within the UT5 undertaking and incorporated by reference into the Standard Agreements.

However, in respect of whether these clauses ought to be incorporated provisions, the QCA considers it appropriate for these clauses to sit within the body of the Standard Agreements and not be incorporated provisions as proposed by Aurizon Network in the 2017 DAU. These mechanisms involve detailed processes for the variation of an access holder's contracted train service entitlements and an operator's operational rights that are defined under the respective agreements. From an operational perspective, the QCA considers, on balance, that it is appropriate that these should be located within the agreements.

Further, we note that, as is the case for any negotiated variations to the Standard Access Agreement, the incorporated provisions are subject to the 'deeming' provisions in Schedule F of the UT5 undertaking with respect to the calculation of Aurizon Network's actual revenues for

¹¹⁴⁹ QRC, sub. 20: 36; Pacific National, sub. 19: 16.

revenue-cap purposes.¹¹⁵⁰ Because of this, we do not consider it appropriate to restrict the ability to negotiate variations of these incorporated provisions in the Standard Agreements, as suggested by Pacific National.¹¹⁵¹

Accordingly, we consider the general structure of Part 5 of the 2017 DAU and Standard Agreements as proposed by Aurizon Network appropriately balances the interests of all parties (ss. 138(2)(b), (e) and (h) of the QCA Act).

14.3 Terms of the Standard Agreements

Aurizon Network's proposal

A Standard Access Agreement and Standard Train Operations Deed are included as part of the 2017 DAU (see Volume 3 of the 2017 DAU). Collectively, these documents set out the standard terms on which Aurizon Network will provide access to the CQCN, including:

- the calculation and payment of access charges
- provisions for the management and use of access rights, such as the nomination of train operators to utilise the access rights
- the allocation of risks and liabilities between the parties, such as security and insurance requirements, and liability and indemnity provisions
- provisions related to the operation of train services, such as processes for the development and approval of operating and interface risk management plans
- dispute resolution.

In addition, there are several provisions of the UT5 undertaking that are incorporated by reference directly into Access Agreements and Train Operations Deeds, including provisions setting out processes for the transfer, relinquishment and resumption of access rights. These Standard Agreements also include a process enabling changes to relevant provisions of the undertaking, as approved over time, to be incorporated in Access Agreements and Train Operations Deeds – that is, Access Agreements and Train Operations Deeds that have been executed and are in force, are effectively updated to account for changes to the incorporated provisions.

The Standard Agreements included as part of the 2017 DAU are largely unchanged from Aurizon Network's 2016 Undertaking. The most significant change is the inclusion of mechanisms for the reduction of an access holder's nominated monthly train services based on train payload. These are discussed in further detail below. Other changes to the terms of the Standard Access Agreements and Train Operations Deed are discussed in section 14.3.2 of this draft decision.

14.3.1 Reduction of nominated monthly train services

Aurizon Network included in its 2017 DAU three circumstances in which an access holder's nominated monthly train services (i.e. train paths) may be reduced during the term of an Access Agreement, based on train payload:

- 'Access holder-initiated reduction' – The access holder may request an increase in the maximum payload for a train service type, with a consequent reduction in the nominated

¹¹⁵⁰ See Chapter 8.

¹¹⁵¹ Pacific National, sub. 19: 21.

monthly train services (cl. 11 of the Standard Access Agreement and cl. 11.2 of the Standard Train Operations Deed).

- ‘Reduction due to exceeding maximum payload’ - Aurizon Network may reduce the train services if, at a point in time, the average annual payload for a train service type has exceeded the maximum payload for that train service type as specified in the agreement (cl. 10 of the Standard Access Agreement and cl. 11.1 of the Standard Train Operations Deed).
- ‘Reduction to create additional capacity’ – Aurizon Network may commence a mandatory process requiring an increase in the nominal payload, with a consequent reduction in the nominated monthly train services (cl. 12 of the Standard Access Agreement and cl. 12 of the Standard Train Operations Deed).

There were also specific provisions in Aurizon Network’s 2017 DAU that related to the relinquishment of access rights¹¹⁵² that are associated with these processes (see cl. 7.4.3 of the 2017 DAU).

During the collaborative submission process, Aurizon Network and other stakeholders submitted consensus amendments to Aurizon Network’s 2017 DAU in relation to these processes.

A consensus position was developed that proposed the 2017 DAU be amended by removing the ‘reduction to create additional capacity’ mechanism and proposed amendments to the other two mechanisms. Aurizon Network submitted drafting amendments to be included in the UT5 undertaking and the Standard Agreements to reflect the consensus positions developed with stakeholders participating in the collaboration process. Aurizon Network also included proposed amendments to relinquishment fees payable and other changes to Part 7 of the 2017 DAU.

¹¹⁵² For information on relinquishments more generally, see Chapter 16.

QCA analysis and draft decision

Summary of draft decision 14.2

- **The QCA considers the appropriate way for Aurizon Network to amend its 2017 DAU (including the Standard Agreements) to reflect the drafting agreed between Aurizon Network and QRC, as submitted in their respective collaborative submissions, so that:**
 - (a) **the ‘Access holder-initiated reduction’ provisions and ‘reduction due to exceeding maximum payload’ provisions as submitted by Aurizon Network in its collaborative submission are included. Also, a clarifying note be included noting that train tests approved by Aurizon Network are exempt from the Reduction Notice trigger process**
 - (b) **for any surplus access rights that are relinquished under the provisions referred to above, a ‘SAR Relinquishment Fee’ should be payable based on the difference between the AT2 charges that would have been paid but for the relinquishment on the terms as agreed by participating stakeholders and Aurizon Network**
 - (c) **the mandatory ‘Reduction to create additional capacity’ provisions are deleted.**

See consensus drafting cl. 7.4.8 and related Standard Agreements (cls. 10, 11, 12 and 13 of the Standard Access Agreement and cls. 11 and 12 of the Standard Train Operations Deed).

The QCA is required by the QCA Act to consider the 2017 DAU submitted by Aurizon Network and either approve, or refuse to approve, that DAU. In coming to that decision, the QCA must have regard to all of the factors under s. 138(2) of the QCA Act. Included in these factors is ‘any other issues the authority considers relevant’ (s. 138(2)(h) of the QCA Act). Insofar as our decision relates to the Standard Agreements, the fact that stakeholders participating in the collaborative process have reached a consensus position is relevant to the decision on the 2017 DAU Standard Agreements.

(a) ‘Access holder-initiated reduction’ provisions and ‘reduction due to exceeding maximum payload’

Aurizon Network’s 2017 DAU provided the ability to reduce train paths where an access holder exceeds its maximum payload.¹¹⁵³ Aurizon Network initially considered a mechanism was necessary for the mandatory reduction of nominated monthly train services where an access holder exceeded its maximum payload.¹¹⁵⁴

Stakeholders did not agree with Aurizon Network’s submission in this regard.¹¹⁵⁵

Aurizon Network also stated that there is a need for the 2017 DAU to include a mechanism for access holder-initiated increases in maximum payload in order to facilitate above-rail productivity improvements, such as longer trains, as the existing relinquishment provisions did not apply appropriately in these circumstances.¹¹⁵⁶ Stakeholders indicated support for the inclusion of a mechanism of this nature.¹¹⁵⁷

¹¹⁵³ See cl. 10 of the Standard Access Agreement and cl. 11.1 of the Standard Train Operations Deed.

¹¹⁵⁴ Aurizon Network, sub. 1: 51–52.

¹¹⁵⁵ QRC, sub. 20: 34; BMA, sub. 24: 5–6; QCoal, sub. 16: 2–3.

¹¹⁵⁶ Aurizon Network, sub. 1: 52.

¹¹⁵⁷ QRC, sub. 20: 34–35; Pacific National, sub. 19: 12; QCoal, sub. 16: 3; BMA, sub. 23: 5–6.

During the collaborative submission process Aurizon Network and the QRC developed consensus drafting amendments that provide an intermediate step to relinquishment, whereby Aurizon Network will first give notice of any instance of the average annual payload exceeding the maximum payload for a particular train service type.¹¹⁵⁸

The proposed drafting agreed between Aurizon Network and the QRC provides that, if the maximum annual payload is exceeded, the access holder will have the option to either:

- maintain its existing maximum payload by ensuring the operator rectifies its behaviour to comply with that maximum payload; or
- increase the maximum payload in accordance with the amended access-holder-initiated reduction mechanism.

By linking the reduction due to exceeding maximum payload trigger to the access-holder initiated reduction mechanism, the consensus drafting amendments give access holders more control in relation to their access rights and lessen the mandatory nature of Aurizon Network's initial proposal.

The QCA accepts the inclusion of this mechanism as it provides a tailored process for an access holder to seek a relinquishment of access rights based on above-rail productivity improvements. We note the proposed mechanism contemplates the payment of a relinquishment fee for any surplus access rights relinquished in accordance with the UT5 undertaking (discussed below).

The amendments to the 2017 DAU and the Standard Agreements presented in collaborative submissions, have largely addressed the concerns raised by stakeholders in their initial submissions.¹¹⁵⁹ These amendments also provide an option to optimise the capacity of the network whilst safeguarding access holders' contractual rights. This is in the interests of Aurizon Network, access seekers, access holders and promotes the efficiency of the system (ss. 138(2)(a), (b), (d), (e) and (h)). The QCA's draft decision is to amend the 2017 DAU to include the 'access holder-initiated reduction' and 'reduction due to exceeding maximum payload' provisions as submitted by Aurizon Network and the QRC in their collaborative submissions.¹¹⁶⁰

There were also a number of more specific issues raised by stakeholders in relation to the proposed mechanism which are discussed in the following paragraphs.

Pacific National accepted the drafting agreed through the collaborative submission process on the understanding that any trials of longer or larger trains that are undertaken with the agreement of Aurizon Network will be exempt from the test which triggers the notice provisions.¹¹⁶¹

We agree with Pacific National's submission in this regard. The relevant parties should recognise the need for a reasonable amount of flexibility to allow for testing of innovations. An overly strict application of the average annual payload trigger is not in the interest of Aurizon Network or the relevant access holder (s. 138(2)(b),(h)).

¹¹⁵⁸ The proposed consensus amendments to the 2017 DAU were proposed in collaborative submissions in cl. 11 of the Standard Access Agreement and cl. 11 of the Standard Train Operations Deed, and cl. 7.4.8(g) of Part 7 of the 2017 DAU.

¹¹⁵⁹ QRC, sub. 20, Annexure 4, cl. 11; QRC, sub. 20, Annexure 5, cl. 11.

¹¹⁶⁰ See the proposed collaborative submission amendments to clauses in the Standard Agreements (cl. 11) and Part 7 (cl. 7.8.4(g)).

¹¹⁶¹ Pacific National, sub. 28: 3.

The QRC said that it had agreed drafting with Aurizon Network.¹¹⁶² However, its agreement to the ‘capacity test’¹¹⁶³ was subject to Aurizon Network providing a list of examples of the way in which capacity may be affected by the change in payloads.¹¹⁶⁴

Subsequently, Aurizon Network provided the QRC¹¹⁶⁵ with examples of how Aurizon Network would manage the capacity test (under the capacity test outlined in cl. 10.2 of the collaborative submission Standard Access Agreement). The QRC, after reviewing Aurizon Network’s examples, noted that Aurizon Network intends to adopt a very strict view of when an increase to payload will result in the consumption of additional capacity. The QRC said that the effect of Aurizon Network’s capacity test is that practically speaking an access holder would only be able to increase its contracted payload where it elects to relinquish train paths.

After reviewing Aurizon Network’s proposed capacity tests, the QRC proposed additional amendments to the 2017 DAU and Standard Access Agreement to introduce a ‘materiality test’ and also require Aurizon Network to disregard the impact of a change in load and unload times (as users are already required to demonstrate port capacity and capacity at the loading facility under cl. 10.2(a)(i) of the collaborative submission Standard Access Agreement).

The QCA does not consider it appropriate or necessary to further amend the 2017 DAU from the collaborative submission drafting in relation to cl. 10.2(b). We consider it appropriate that if an increase to payload will result in the consumption of additional capacity, that increase should not result in other access holders being unable to use contracted train service entitlements.

We understand that the trigger for resumption under the capacity test is not just whether or not any proposed payload results in increased utilisation of capacity; but rather, whether or not that additional capacity requirement will adversely impact on other access holders’ access rights (see cl. 10.2(a)(ii) of the collaborative submission drafting of the Standard Access Agreement).

If access holders want to increase their payload and maintain their surplus access rights, the consensus drafting amendments allow for this outcome, subject to there being sufficient capacity to do so.

Further, Aurizon Network’s assessment of whether or not the increased payload can be accommodated must be reasonable¹¹⁶⁶ and it is subject to dispute.¹¹⁶⁷ We consider the requirement for Aurizon Network to act reasonably is capable of objective assessment. We also consider that the reasonableness requirement negates the need for the QRC’s proposal for any increased utilisation of capacity to first pass a materiality threshold.

Therefore, we consider that the method of determining whether or not an access holder can increase payload and retain surplus access rights as submitted via the collaborative process is appropriate. It strikes a proper balance between access holders, access seekers and Aurizon Network’s interests (ss. 138(2)(b),(e) and (h)). The mechanism, when combined with the other consensus amendments to the Standard Agreements, also promotes, and allows for, increased productivity and efficiency in the network (ss. 138(2)(a) and (d)).

¹¹⁶² QRC, sub. 29: 3.

¹¹⁶³ Proposed to be applied under the proposed amendments to cl. 10.2(a)(ii) as outlined in the collaborative submission proposed Standard Access Agreement.

¹¹⁶⁴ QRC, sub. 29: 3.

¹¹⁶⁵ QRC response to QCA information request: dated 6 June 2017.

¹¹⁶⁶ See cls. 10.2(a)(i), (ii) and (iii).

¹¹⁶⁷ See cl. 10.3(a)(i).

(b) Application of the relinquishment fee

Aurizon Network considered that the existing relinquishment fee¹¹⁶⁸ arrangements applied inappropriately in circumstances where an access holder's access rights are relinquished due to above-rail productivity improvements (that is, less train paths are required to transport the same volume of tonnes).

As such, Aurizon Network considered the relinquishment fee effectively penalises an access holder and acts as a barrier to the 'freeing up' of train paths for use by access seekers.¹¹⁶⁹ Aurizon Network said the purpose of a relinquishment fee is distorted when it disincentivises an access holder from improving efficiencies driven by advances in technology and operational processes.¹¹⁷⁰

We note the 2017 DAU arrangements propose the calculation of a relinquishment fee for relinquishments under cl. 11 of the Standard Access Agreement (which included a drafting note that Aurizon Network and the QRC were working on a mechanism).

In the collaborative submission process, stakeholders and Aurizon Network developed consensus provisions that provide for the payment of a fee equal to the AT2 component of access charges that would have been payable in relation to the train paths that have been relinquished or reduced. This is referred to as the 'SAR Relinquishment Fee'.¹¹⁷¹ The relevant provisions are contained in cls. 10, 11 and 13 of the collaborative submission Standard Access Agreement and cl. 7.4.8 of the collaborative submission version of the 2017 DAU.

Stakeholders generally supported the payment of a relinquishment fee where an access holder elects to relinquish train paths following an increase of payloads. The QRC considered this is 'necessary to ensure other access holders are not adversely affected by a loss of system revenue arising from the relinquishment',¹¹⁷² which was a sentiment shared by Pacific National.¹¹⁷³ There was stakeholder support for basing the relinquishment fee on the AT2 tariff component on the basis as this is the only component calculated based on train paths.¹¹⁷⁴

In contrast, BMA said:

[A]ccess holders should have the right to relinquish train paths free of charge as a result of creating operating efficiencies. If an access holder must pay to effectively operate more efficiently (i.e. haul the same tonnes using less train paths), there is no incentive to change from the status quo and make (sometimes costly) improvements that ultimately free up capacity for the overall benefit of the network.¹¹⁷⁵

While noting that the fee may need to be recovered by other system users via the revenue cap mechanism, BMA considered that 'similar forms of cost spreading exist and form part of the price and revenue cap regime in operation.'¹¹⁷⁶

¹¹⁶⁸ Broadly, a relinquishment fee is calculated on the basis of 50% of the take-or-pay liability (i.e. AT₂, AT₃ and AT₄ components of access charges) for the relinquished access rights over the remaining term of the access agreement.

¹¹⁶⁹ Aurizon Network, sub. 1: 52–53.

¹¹⁷⁰ Aurizon Network, sub. 1: 52.

¹¹⁷¹ See cl. 13.5 of the collaborative submission drafting of the Standard Access Agreement and cl. 7.4.8 of the sub. 26 and sub. 29. Where SAR refers to 'surplus access rights'.

¹¹⁷² QRC, sub. 20: 35.

¹¹⁷³ Pacific National, sub. 19: 8.

¹¹⁷⁴ QRC, sub. 20: 35; Pacific National, sub. 19: 8.

¹¹⁷⁵ BMA, sub. 23: 6.

¹¹⁷⁶ BMA, sub. 23: 6.

Aurizon Network noted in its collaborative submission that BMA withdrew its opposition during the collaborative submission process.¹¹⁷⁷ Other stakeholders agreed with the collaborative submission drafting of the SAR relinquishment fee provisions.¹¹⁷⁸

We have considered BMA's initial contention for opposing a SAR relinquishment fee. While we acknowledge the benefits of making capacity available to the supply chain, we note existing arrangements already include mechanisms that can mitigate a potential relinquishment fee. These include if there is alternative demand for the relevant access rights—for example, processes for the transfer of access rights (cl. 7.4.2 of the 2017 DAU) or reduction of a relinquishment fee (or transfer fee) if the relevant access rights are utilised by a new access holder (cl. 7.4.4(d) of the 2017 DAU). We do not consider it appropriate for users to bear the costs associated with an access holder relinquishing train service entitlements it no longer requires, or is no longer utilising appropriately.

However, we do consider that generally, at a principle level, relinquishment arrangements should not disincentivise above-rail productivity improvements that result in the 'freeing up' of train paths for use by access seekers. This furthers the object of Part 5 of the Act (s. 138(2)(a)) and is a factor to be considered and balanced under s. 138(2).

Accordingly, the QCA's draft decision is to accept the SAR relinquishment fee provisions and mechanisms (and relevant definitions) in the collaborative submission versions of the Standard Agreements and the 2017 DAU (cl. 7.4.8 of the collaborative submission 2017 DAU) and propose to incorporate these provisions within the amendments we require to the 2017 DAU.¹¹⁷⁹ The QCA considers this approach to relinquishment fees provides an appropriate balance between the interests of access seekers, access holders and Aurizon Network, and they do not act as a disincentive to implementing above-rail productivity improvements efficiently (ss. 138(2)(b), (e) and (h)). These provisions also promote competition in markets by opening the way for more productive utilisation of the network, and encourage the efficient use of the network (ss. 138(2)(a) and (d)).

[\(c\) Mandatory reduction of train services to create capacity](#)

The QCA notes Aurizon Network's comment that in some circumstances it may be more cost-effective to create additional capacity through increases in an operator's maximum payload rather than making additional below-rail investments. Aurizon Network said that, in the absence of a mechanism for Aurizon Network to reduce train services, it would be required to seek the commercial agreement of numerous access holders, which would likely result in Aurizon Network being forced to undertake a more costly below-rail investment where it cannot obtain the consent of access holders who may not have a commercial incentive to increase their payloads and reduce train paths.¹¹⁸⁰

Stakeholders did not support inclusion of this mechanism.¹¹⁸¹

The QCA notes that, following collaborative submission process, Aurizon Network submitted that the 2017 DAU be amended by deleting cl. 12 from proposed the Standard Access Agreement and Standard Train Operations Deed. The QCA agrees that it is not appropriate that

¹¹⁷⁷ Aurizon Network, sub. 26: 6 (footnote 8).

¹¹⁷⁸ See QRC, sub. 29: 3; Pacific National, sub. 28: 3.

¹¹⁷⁹ We note some apparent inaccuracies in relation to the clause references within the collaborative version of the 2017 DAU. For example, the definition 'Relinquishment Provisions' refers to cl.7.4.9. This should be cls. 7.4.8 and 7.4.9. It is appropriate that these and any other inaccuracies should be corrected.

¹¹⁸⁰ Aurizon Network, sub. 1: 53.

¹¹⁸¹ QRC, sub. 20: 35–36; QRC, sub, 20, Annexure 4, cl. 12; Pacific National, sub. 19: 14; QCoal, sub. 16: 2–3.

the proposed mandatory reduction of access rights to create capacity be included in the UT5 undertaking.

14.3.2 Terms of Standard Agreements

The following tables outlines the QCA’s analysis and draft decision in respect of the terms of the Standard Access Agreement and Standard Train Operations Deed, which are not discussed in section 14.3.1 of the draft decision. The table should be read in conjunction with the appropriate sections of the draft decision and the QCA’s proposed amendments to the Standard Agreements.

Standard Access Agreement

Clause¹¹⁸²	QCA analysis and draft decision
<p>Definitions</p> <p>Aurizon Network has deleted the definition of ‘Nominated Unloading Facility’ and included a definition of ‘Relinquishment Fee’.</p>	<p>Aurizon Network said it has removed the definition of ‘Nominated Unloading Facility’ for clarity on the basis that it is not used in the Standard Access Agreement.¹¹⁸³ We accept this and note that this is defined and used in respect of the calculation of the reduction factor provisions under the 2017 DAU, which are incorporated by reference into the Standard Access Agreement, or an Access Agreement that has such incorporation provisions.</p> <p>Aurizon Network said it has included a definition of ‘Relinquishment Fee’ to reflect its usage in cl. 15.2 of the Standard Access Agreement.¹¹⁸⁴ We accept this definition, noting it is defined by reference to the UT5 undertaking.</p>
<p>Definition of ‘Ad hoc train service’</p>	<p>Pacific National sought clarification on how ad hoc train services will be treated for take-or-pay purposes. Specifically, whether ad hoc services can offset the take-or-pay of existing contracted services, which it supported.¹¹⁸⁵</p> <p>The treatment of ad hoc train services under the Standard Access Agreement is not intended to affect how these are treated for the purposes of the operation of take-or-pay in accordance with Schedule F of the UT5 undertaking, nor the network management principles. We note cl. 4.8(c) provides that ad hoc train services that have a different origin and destination for the train service type will not be taken into account for the purposes of the take-or-pay charge.</p>
<p>Clause 3</p>	<p>We consider that the retention of cl. 3.1(c) of the Standard Access Agreement is confusing and unnecessary. Schedule 4 (specifically cl. 5) provides for the determination and review of the reference tariff provisions which apply to the Access Agreement. The inclusion of cl. 3.1(c) may conflict with the operation of the Schedule F provisions (which also provide dispute resolution mechanisms). Because of this, we consider that cl. 3.1(c) of the Standard Access Agreement should be deleted.</p>
<p>Clause 4.8 (Operation of ad hoc train service)</p>	<p>Pacific National queried how the requirement for an operator to have an existing Train Operations Deed would operate in practice, in particular for haulage requirements that arise on short notice (e.g. spot haul) where the access holder wishes to utilise a different operator. It considered this may limit the choice of operator and sought further clarification on this process.¹¹⁸⁶</p> <p>We consider it necessary for the operator to have a Train Operations Deed in place in order for it to operate train services on the network (regardless of whether it is a spot haul or not). It is up to the operator to determine how best to make itself available to operate ad hoc train services for potential customers.</p>

¹¹⁸² Please note, clauses references refer to the relevant Standard Agreement included in Volume 3 of Aurizon Network’s 2017 DAU (unless otherwise indicated).

¹¹⁸³ Aurizon Network, sub. 1, Appendix P.1: 31.

¹¹⁸⁴ Aurizon Network, sub. 1, Appendix P.1: 31.

¹¹⁸⁵ Pacific National, sub. 19: 23–24.

¹¹⁸⁶ Pacific National, sub. 19: 24.

Clause¹¹⁸²	QCA analysis and draft decision
Clause 24.4 (Claims and exclusions in respect of non-provision of access)	<p>Pacific National said that Aurizon Network’s exemption from liability set out under cl. 24.4(b)(i) should contain a time period in which the relevant train service is to be rescheduled.¹¹⁸⁷</p> <p>We do not consider this amendment is necessary, noting the current provision requires Aurizon Network to reschedule the train service in accordance with Aurizon Network’s obligations under the Standard Train Operations Deed (specifically, cls. 16.2 and 16.3 of the Standard Train Operations Deed) and Aurizon Network must schedule an ad hoc train service if that train service is requested within the applicable time-frames and would not result in any other access holder’s scheduled train services or a planned possession not being met (see cl. 4.8(a)(iii) of the Standard Access Agreement and cl. 5.4(c)(ii) of Schedule G of the 2017 DAU).</p>
Clause 29 (Suspension)	<p>Pacific National said that this section potentially allows Aurizon Network to suspend services with no notice of such suspension. It considered that unless the suspension relates to a safety issue, it would expect at least two business days’ notice of impending suspension.¹¹⁸⁸</p> <p>We consider the suspension clause proposed by Aurizon Network is appropriate. We consider Pacific National’s suggestion would create an additional and unnecessary burden on Aurizon Network, noting parties are aware of the circumstances in which suspensions may occur.</p>
Clause 38 (Most favoured nation status)	<p>Pacific National considered that this clause should provide an avenue for compensation to be paid to a disadvantaged access holder in the event Aurizon Network has contravened price differentiation limitations.¹¹⁸⁹</p> <p>We consider the clause proposed by Aurizon Network provides an appropriate mechanism for an access holder to investigate, and have rectified, access charges developed in contravention of the price differentiation limitations. We do not consider it necessary to include specific provision for the payment of compensation and consider this would be a matter for the parties.</p>
Schedule 7—Access Interface Deed (AID)	<p>The AID is necessary where the access holder is a railway operator that will use the access rights to provide train services for a customer (see cl. 4.4 of the access agreement). It establishes a contractual relationship between Aurizon Network and the access holder’s customer, setting out each party’s liabilities and indemnities to each other.</p> <p>The AID includes certain warranties the customer must give Aurizon Network in respect of ownership of the relevant mine and product being transported (cl. 3 of the AID). The AID includes a new drafting note that, if the customer is unable to give such warranties (i.e. because it is not the relevant owner), Aurizon Network intends to enter into other individual deeds with the parties that can give these warranties. Aurizon Network said it had included the drafting note for clarity in response to a request from the QRC.¹¹⁹⁰ The QRC accepted this change.¹¹⁹¹</p> <p>The QCA considers that there should be flexibility in the party that provides these warranties to Aurizon Network, if the customer is unable to do so. We consider the inclusion of this drafting note appropriate to provide clarity on the approach Aurizon Network will take in these circumstances.</p> <p>We also note that the AID appears to repeat the Standard Access Agreement table of contents rather than including the AID’s table of contents. Further, in cl. 3.2 there is an erroneous blank cross-reference.</p>

¹¹⁸⁷ Pacific National, sub. 19: 24.

¹¹⁸⁸ Pacific National, sub. 19: 24.

¹¹⁸⁹ Pacific National, sub. 19: 24–25.

¹¹⁹⁰ Aurizon Network, sub. 1, Appendix P.1: 33.

¹¹⁹¹ QRC, sub. 20, Annexure 1: 34.

Standard Train Operations Deed

Clause	QCA analysis and draft decision
<p>Definitions</p> <p>Aurizon Network has included a number of definitions within the general definitions clause of the train operations deed to refer to the specific clauses within which the terms are defined.¹¹⁹² These definitions are:</p> <p>Authorised Parking</p> <p>Category 1 Reduced Operational Rights</p> <p>Category 2 Reduced Operational Rights</p> <p>Chargee</p> <p>Chargor</p> <p>Disputed Aspect</p> <p>Former Interface Risk Provisions</p> <p>Maximum Gross Mass</p> <p>New Interface Risk Provisions</p> <p>Non-Charging Party</p> <p>Reference Tariff</p> <p>Reference Tariff Provisions</p> <p>Supplier.</p> <p>The definition of Force Majeure has also been amended to correct a previous typographical error.¹¹⁹³</p> <p>The definition of Noise Code has been amended to refer to the CQCN Noise Management Guideline, as opposed to the QR Code of Practice: Railway Noise Management.</p>	<p>We consider the inclusion of these definitions appropriate, noting they assist clarity by referring to the relevant clause within which these terms are defined. The QRC has also indicated acceptance of these amendments to the definitions.¹¹⁹⁴</p> <p>We note some of these definitions contain incomplete cross-referencing in the published Pdf documents of the standard TOD. These have been identified, and listed below. Our draft decision provides the complete cross-references.</p> <p>With respect to the amended definition of ‘Noise Code’, Aurizon Network said this definition has been updated, as the QR Code of Practice: Railway Noise Management has been repealed.¹¹⁹⁵ Aurizon Network said that the Environmental Protection Act 1994 (Qld) specifically excludes noise from the ordinary use of rail transport infrastructure (see Schedule 1, 1(g) of that Act). Aurizon Network has provided a copy of its CQCN Noise Management Guideline and stated that commitments similar to those contained in the former QR Code of Practice are made in the new Guideline.</p> <p>Subject to any stakeholder comments on this matter we consider it is appropriate to approve Aurizon Network’s amended definition. We note that the definition contemplates an Authority prescribing a different code of practice and, if so, that prescribed code will be adopted.</p> <p>Current:</p> <p>http://www.ehp.qld.gov.au/management/planning-guidelines/codes-of-practise/industry_environmental_codes.html</p> <p>Old:</p> <p>https://web.archive.org/web/20160313033135/http://www.ehp.qld.gov.au/management/planning-guidelines/codes-of-practise/industry_environmental_codes.html</p> <p>https://web.archive.org/web/20130513092934/http://www.ehp.qld.gov.au/management/planning-guidelines/codes-of-practise/industry_environmental_codes.html#railway_noise_management_codes_of</p> <p>Cross-referencing issues identified:</p> <p>Authorised Parking - cross-referencing – should be cl. 13.5</p> <p>Category 1 Reduced Operational Rights - cross-referencing – should be cl. 10.2</p> <p>Category 2 Reduced Operational Rights - cross-referencing – should be cl. 10.2</p> <p>Disputed Aspect - cross-referencing – should be cl. 15.1(d)(iii)</p> <p>Former Interface Risk Provisions – cross-referencing – should be cl. 3.2(b)(i)</p> <p>Maximum Gross Mass - cross-referencing – should be Schedule 4</p> <p>New Interface Risk Provisions - cross-referencing – should be cl. 3.2(b)(i)</p> <p>Non-Charging Party - cross-referencing – should be cl. 4.3</p>
<p>Clause 10.1 (Operation of train services)</p>	<p>Pacific National considered an operator should not be required to not operate train services if the access holder does not hold, or have the benefit of, supply chain rights, as the operator will not necessarily have knowledge of whether the access holder has the supply chain rights. It proposed that Aurizon Network should be</p>

¹¹⁹² Aurizon Network, sub. 1, Appendix P.1: 34.

¹¹⁹³ Aurizon Network, sub. 1, Appendix P.1: 35.

¹¹⁹⁴ QRC, sub. 20, Annexure 1: 35–37.

¹¹⁹⁵ Aurizon Network, sub. 1, Appendix P.1: 35.

Clause	QCA analysis and draft decision
	<p>required to advise the operator if the access holder does not hold supply chain rights.¹¹⁹⁶</p> <p>We consider it appropriate for the operator not to operate train services unless the access holder has the benefit of the relevant supply chain rights. We consider it reasonable to expect the access holder and the operator will communicate with each other on whether or not this is the case.</p>
<p>Clause 13.2 (Train control rights and obligations – Aurizon Network)</p>	<p>Pacific National considered this clause should be strengthened to reflect the importance of Aurizon Network’s responsibilities and proposed inclusion of additional obligations.¹¹⁹⁷</p> <p>We consider the clause proposed by Aurizon Network is appropriate. Given the nature of this clause, we do not consider the inclusion of the broad obligations proposed by Pacific National to be appropriate. We consider these are better reflected elsewhere in the train operations deed, noting Aurizon Network’s notification obligations with respect to incidents (cl. 16.4) and its broader obligations with respect to interface management and coordination.</p>
<p>Clause 21.2 (Maintenance of the nominated network)</p>	<p>Pacific National considered the focus of this section should be broadened to include the safe use of the network in addition to standards and train service operation.¹¹⁹⁸</p> <p>We consider the clause proposed by Aurizon Network is appropriate. We consider the safe use of the network is already adequately reflected in Aurizon Network’s obligations and responsibilities set out in the Standard Agreements, as well as its requirements at law. We do not consider it necessary to broaden this clause in the way suggested by Pacific National.</p>
<p>Clause 22.4 (Management of incident response)</p>	<p>Pacific National considered this clause should clarify that the incident site should not be disturbed unless both Aurizon Network and the operator have had the opportunity to complete appropriate investigations of the incident site.¹¹⁹⁹</p> <p>We consider the clause proposed by Aurizon Network is appropriate and have concerns that Pacific National’s suggested amendment may not be practical from a safety and operational perspective.</p>

¹¹⁹⁶ Pacific National, sub. 19: 25.

¹¹⁹⁷ Pacific National, sub. 19: 25.

¹¹⁹⁸ Pacific National, sub. 19: 25.

¹¹⁹⁹ Pacific National, sub. 19: 25.

15 PRICING PRINCIPLES

15.1 Aurizon Network's 2017 DAU proposal

Part 6 of Aurizon Network's 2017 DAU sets out the pricing principles Aurizon Network proposes to apply when developing access charges¹²⁰⁰ and reference tariffs.¹²⁰¹

The 2017 DAU outlines Aurizon Network's proposed general pricing principles:

- (a) price differentiation—defines principles to limit price differentiation between users (cls. 6.2–6.5)
- (b) pricing limits—establishes upper and lower limits for access charges (cl. 6.6)
- (c) rail infrastructure utilisation—provides for Aurizon Network to vary access charges when available capacity is limited. This principle applies only to non-coal-carrying train services (cl. 6.7)
- (d) revenue adequacy—provides for Aurizon Network to earn sufficient revenue to at least recover the efficient costs of providing access and an appropriate return on its assets (cl. 6.8).

Part 6 of the 2017 DAU also sets out the processes to identify or develop access charges for new coal-carrying train services (cl. 6.3), including those that involve an expansion (cl. 6.4) and/or new mine-specific spur lines (cl. 6.4.10) connected to the CQCN. In identifying and/or developing reference tariffs for expansions, Aurizon Network must adhere to the expansion pricing principles (see section 15.3).

Clause 6.12 requires that Aurizon Network maintain the regulatory asset base (RAB) in accordance with Schedule E. The RAB reflects the asset value of the CQCN. Schedule E of the 2017 DAU sets out the provisions regarding maintenance of the RAB and the assessment and approval of capital expenditure for inclusion into the RAB. Schedule E also provides for a customer voting process for proposed capital expenditure projects.

The pricing principles proposed in Aurizon Network's 2017 DAU are largely unchanged from Aurizon Network's existing arrangements. The key changes from the 2016 Undertaking include:

- modifying the scope of what is considered an access condition, and therefore requires the QCA's approval (see cl. 6.13.1(a) and the definition of 'Access Conditions')
- removing the process for the negotiation of access conditions, including the requirement to prepare an access conditions report and changes to the QCA's approval process (cl. 6.13.2)
- modifying prohibited access conditions (cl. 6.13.3).

¹²⁰⁰ An access charge is the price paid to Aurizon Network for providing access. This also includes take-or-pay charges, revenue cap adjustments, charges and penalties associated with the operation of a train service on the rail infrastructure. It also includes the amounts paid to Aurizon Network in accordance with any access conditions, studies funding agreement, user funding agreement or rail connection agreement that are included in the cost build-up for reference tariffs.

¹²⁰¹ A reference tariff includes system reference tariffs and expansion tariffs calculated for a reference train service.

- During the collaborative submission process, stakeholders¹²⁰² reached consensus that Aurizon Network's 2017 DAU be amended to revise provisions relating to access conditions (see section 15.7).

Key issues identified during the QCA's investigation

The QCA has considered all elements of Part 6 and Schedule E of Aurizon Network's 2017 DAU proposal in making this draft decision. The following issues attracted comment from stakeholders, or have been identified for further consideration:

- general pricing principles (see section 15.2)
- the expansion pricing framework (see section 15.3)
- maintenance of the RAB, particularly indexation of the opening asset value, treatment of asset disposals and triggers for adjustment of the RAB (see section 15.4)
- QCA approval of capital expenditure (see section 15.5)
- the customer voting process for acceptance of capital expenditure (see section 15.6)
- access conditions (see section 15.7).

15.2 General pricing principles

Aurizon Network's 2017 DAU proposal

Aurizon Network's 2017 DAU set out high-level pricing principles as follows:

- Price differentiation—Aurizon Network will not differentiate access charges between access seekers and access holders and will not set prices that discriminate in favour of related parties. However, Aurizon Network may negotiate a reasonable access charge where there is no applicable reference tariff to account for differences in cost or risk (cl. 6.2).
- Pricing limits—Aurizon Network's 2017 DAU proposes access charges for individual train services or combination of train services are between the incremental costs of providing access for the relevant train services and the stand-alone costs of providing access for the relevant train services; reference tariffs for the stand-alone cost would be based on the MAR (cl. 6.6.3).
- Rail infrastructure utilisation—this provision in the 2017 DAU allows Aurizon Network to vary access charges for non-coal-carrying train services when available capacity is limited (cl. 6.7.1).
- Revenue adequacy—the 2017 DAU entitles Aurizon Network to earn revenue at least enough to meet efficient costs and provide an appropriate rate of return (cl. 6.8).¹²⁰³

¹²⁰² Collaborative submissions from Aurizon Network (sub. 26: 3, 7 and Appendix 1), the QRC (sub. 29: 2 and Annexures 1 and 2) and Pacific National (sub. 28: 1) supported consensus amendments to the 2017 DAU.

¹²⁰³ Aurizon Network, sub. 1, 2017 DAU mark-up.

QCA analysis and draft decision

Summary of draft decision 15.1

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in respect of the general pricing principles.**

Stakeholders did not raise any issues with respect to general pricing principles. The QCA considers that the general pricing principles in Part 6 of the 2017 DAU are appropriate to approve. The general pricing principles are in the interests of access seekers and access holders, as they promote the efficient costs of providing access (ss. 138(2)(e) and (h)) and provide certainty and confidence that promotes efficient investment (s. 138(2)(a)).

Part 6 also appropriately balances the s. 168A principles, including providing price discrimination where it aids efficiency, but also prohibiting discrimination that favours the related party operations of Aurizon Network. It also serves Aurizon Network's commercial interest by providing for the recovering of its efficient costs in providing access and in earning a return on investment commensurate with the regulatory and commercial risks involved.

15.3 Expansion pricing framework

Aurizon Network's 2017 DAU proposal

The following principles underpin expansion pricing (cl. 6.4.1):

- Expanding users (an access seeker or access holder who seeks access rights for coal-carrying train services that require expansion) should generally pay an access charge that reflects at least the incremental costs (capital and operating) of providing additional capacity.
- Non-expanding users should not experience a material increase in access charges due to an expansion.
- If expanding users face higher access charges than non-expanding users, it is generally acceptable for expanding users to not contribute to Aurizon Network's common costs.
- Allocating some of the expansion costs to non-expanding users may be appropriate if the expansion has clear benefits to those users.

Clause 6.4 of the 2017 DAU also provides a process for establishing which pricing arrangements apply to the expansion. This process involves a sequential assessment described by the following:

- Consensus expansion – If expansion stakeholders agree to the pricing arrangements, those pricing arrangements will apply - (cl. 6.4.2).
- Endorsed expansion – If consensus between expansion stakeholders is not achieved and there are no substitutable train services¹²⁰⁴, the pricing arrangements are decided using a predetermined methodology that satisfies the expansion pricing principles (cl. 6.4.3(c)).
- Customised expansion – If consensus between expansion stakeholders is not achieved and there are substitutable train services, tailored pricing arrangements that satisfy the expansion pricing principles will apply (cl. 6.4.3(d)).

¹²⁰⁴ In the case of expansion, substitutable train services means that the access holder of those services has train service entitlement(s) created by the expansion that can be used instead of the train service entitlement(s) related to the existing capacity.

QCA analysis and draft decision

Summary of draft decision 15.2

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in relation to expansion pricing framework.**

While Aurizon Network's expansion pricing framework is consistent with existing arrangements in the 2016 Undertaking¹²⁰⁵, stakeholders raised specific concerns in submissions on the 2017 DAU.

Allocation of expansion costs to non-expanding users where an expansion has clear benefits to those users

Pacific National said it has concerns with this principle, as users who have not sought an expansion and who have not agreed to fund an expansion may be required to partially fund an expansion. Pacific National said the issue is of particular concern where the benefits are not verified by a third party and/or are based on Aurizon Network scheduling and planning train operations in a specific manner, which results in the expansion appearing to benefit users who did not seek the expansion or agree to fund the expansion.¹²⁰⁶

Pacific National said this principle should be removed.

Anglo American submitted that expansion pricing should be considered on a 'case-by-case' basis, to take account of where it is not clear whether the expansion is triggered by new users and whether existing users will benefit by way of more capacity.¹²⁰⁷

The QCA notes that when determining access charges for a new coal-carrying train service, access undertakings for the CQCN have generally benefited existing train services. Underpinned by the 'average down' principle, these provisions share tariff reductions between new and existing train services, if doing so lowers the reference tariff of existing train services. In addition, provisions have generally allocated a portion of common costs to new train services, again to the benefit of existing of train services.

The QCA considers it appropriate that non-expanding users are allocated a portion of expansion costs if there is a genuine benefit to them. This assessment is undertaken on a case-by-case basis, for example, to identify where non-expanding users might benefit from the expansion if the capacity available to them and/or reliability increases, holding operating assumptions constant.

The QCA considers that this approach appropriately balances the interests of access seekers and access holders (ss. 138(2)(e) and (h)). By ensuring that costs are appropriately allocated between relevant parties, it should also promote the efficient investment in infrastructure (s. 138(2)(a)). Further, it is consistent with the pricing principles set out in s. 168A of the QCA Act (s. 138(2)(g)), specifically that revenue should be at least enough to meet the efficient costs of providing the service (to expanding and non-expanding users).

Expansion pricing approach

Anglo American submitted that the nature of an expansion should first be considered before applying the 'incremental up/average down' test used by the QCA in the past. Anglo American

¹²⁰⁵ Aurizon Network, sub. 1, 2017 DAU mark-up.

¹²⁰⁶ Pacific National, sub. 19: 22.

¹²⁰⁷ Anglo American, sub. 18: 16.

said that to apply a pricing impact test in any situation means existing users are exposed to cross-default risk in the future, should new user(s) (competitors) not produce the required volumes.¹²⁰⁸

The QCA notes that in making its determination under the expansion pricing framework, it must have regard to the factors under s. 138(2) of the QCA Act. This means that if there are material changes after an endorsed expansion is approved, the QCA must consider the approved pricing proposal in light of these changes, including where an endorsed expansion includes an incremental up/average down test. This requirement affords an expansion stakeholder with certainty that the QCA will consider the matters raised before it on a case-by-case basis.

Common cost contribution by expanding users

Anglo American submitted that, in assessing whether an expansion might provide a new and higher tariff than the existing reference tariff, a portion of common costs should also be included in the new expansion tariff.¹²⁰⁹

Pacific National said that a zero contribution from expanding users—if they face a higher cost than non-expanding users—is not generally acceptable. It proposed that expanding users should make a contribution to common costs, although this could be less than the contribution made by non-expanding users.¹²¹⁰

Anglo American considered that the true test of whether the expansion tariff for a particular mine haul is able to accommodate a portion of common cost is whether that expansion tariff is actually higher on a dollar per net tonne basis, rather than the reference tariff of an existing user with the longest haul to that same unloading destination and adjusting for differences in train characteristics.¹²¹¹

In relation to the above, if the expansion access charge for a particular mine load-out (before adding a portion of common costs) is lower than an existing mines' access charge, all things being equal, then under the average down principle, the new train services are making a positive contribution to the common costs of the system.

Where expanding users already pay access charges that are higher than the access charges faced by existing users, a requirement to also pay a contribution to the systems common costs could impose an additional burden that unnecessarily dissuades future investment. The QCA considers a zero contribution to common costs from expanding users to be consistent with the object of Part 5 of the QCA Act, as it promotes efficient investment in the CQCN. In addition, a zero contribution to common costs from expanding users would not affect the access charges to existing users and they would therefore not be worse off.

Moreover, where expanding users already pay access charges that are higher than those faced by existing users, a zero contribution to common costs from expanding users appropriately balances the interests of access seekers and access holders (ss. 138(2)(e) and (h)). It also recognises Aurizon Network's legitimate business interests, as it does not adversely affect Aurizon Network's ability to earn revenue that reflects its efficient cost of providing access including an appropriate rate of return (ss. 138(2)(b) and (g)).

¹²⁰⁸ Anglo American, sub. 18: 16

¹²⁰⁹ Anglo American, sub. 18: 17.

¹²¹⁰ Pacific National, sub. 19: 22.

¹²¹¹ Anglo American, sub. 18: 17.

15.4 Maintenance of the regulatory asset base

Part 1 of Schedule E of the 2017 DAU sets out the general principles for the ongoing maintenance and updating of the RAB, including the circumstances under which the RAB value is rolled forward and adjusted. Provisions also apply for reporting of capital expenditure and RAB roll-forward, and including equity-raising costs in the RAB.

15.4.1 RAB roll-forward

Aurizon Network's 2017 DAU proposal

The 2017 DAU proposes that the RAB is rolled forward each year using an opening value at the first year of the term of the UT5 undertaking, and is adjusted to take account of inflation, depreciation, asset disposals and the addition of prudent and efficient capital expenditure.

Indexation

Aurizon Network's 2017 DAU proposes that the opening value would be indexed using the change in forecast CPI that was used for the purpose of determining the relevant reference tariff for the relevant year.¹²¹² The 2017 DAU marks a change from the 2016 Undertaking, where the opening asset value was indexed using the change in CPI between the June quarter of the previous year and the June quarter for that year, that is, the actual inflation rate, based on Brisbane All Groups CPI.

Asset disposals

Aurizon Network proposed that where an asset disposal results from an expansion of, or maintenance work on, rail infrastructure, the RAB would be reduced by the net proceeds of the sale of the asset (cl. 1.1 of Schedule E). Aurizon Network's view was that this approach (compared to the 2016 Undertaking) would expedite the treatment of asset disposals and would ensure that the benefit of any net proceeds from the sale of assets will accrue to Aurizon Network's customers.¹²¹³

Aurizon Network considered that a case-by-case approval mechanism creates unnecessary regulatory risk and uncertainty. It provided an example where the remaining undepreciated value of a culvert replacement would not be included in the RAB until an ad hoc approval from the QCA, which could lead to delays in funding the expenditure.¹²¹⁴

¹²¹² See Chapter 4 on addressing the inconsistency between the forecast inflation deducted from Aurizon Network's revenue allowance and the actual inflation used in the RAB roll-forward.

¹²¹³ Aurizon Network, sub. 1: 90–91.

¹²¹⁴ Aurizon Network, sub. 1: 90.

QCA analysis and draft decision

Summary of draft decision 15.3

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in respect of the indexation of the RAB for roll-forward purposes.**
- **However, the QCA considers the appropriate way for Aurizon Network to amend its 2017 DAU is to reflect the clarifying drafting agreed between Aurizon Network and QRC, as submitted in their respective collaborative submissions.**

Indexation

The QRC indicated that it did not accept Aurizon Network's proposal for indexation.¹²¹⁵

As noted in Chapter 4 Aurizon Network considers that the current approach involves a mismatch between the actual inflation rate used to index the RAB for the roll-forward process, and the forecast inflation rate used to deduct the inflationary gain component from revenues.¹²¹⁶ Aurizon Network considered that for consistency, the RAB should also be indexed using the forecast inflation rate.

The QCA's draft decision is to approve Aurizon Network's proposal as appropriate. The basis for the QCA's decision is set out in Chapter 4. While this could mean the RAB may vary from the value had an actual CPI been applied, it can be expected that these variations would cancel out over successive regulatory periods.

While the QCA's draft decision is to approve Aurizon Network's proposal relating to indexation of the RAB, the QCA invites further comment on the options for the appropriate treatment of inflation in the regulatory model (see Chapter 4).

This approach is considered to be consistent with s. 138(2)(a), the object to promote efficient investment, as it enables an appropriate value to be reflected in the RAB over a number of regulatory periods. By addressing the mismatch between the treatment of inflationary gain in the regulatory model and the inflation measure used to index the RAB, this change also serves the legitimate business interests of the operator of the service (s. 138(2)(b)), while not disadvantaging the interests of access seekers (s. 138(2)(e)) or access holders (s. 138(2)(h)).

Asset disposals

Aurizon Network's 2017 DAU proposals for asset disposal arrangements suggested that the net sales proceeds from asset disposals would be deducted from the cost of the expansion or maintenance work before the latter is included in the RAB.¹²¹⁷ While this may be the effect in practice, a more general view is that the RAB itself would be adjusted by the sales amount. The more general view is considered appropriate, given that the timing of an expansion or maintenance work may vary from that of subsequent asset disposals. Aurizon Network's submitted 2017 DAU is consistent with the QCA's view.¹²¹⁸

The QRC accepted Aurizon Network's proposed amendments, but also provided further minor amendments to clarify that the disposal 'necessarily' results from an expansion or maintenance work, and that any sale would be on an arm's length basis.¹²¹⁹ In collaborative submissions,

¹²¹⁵ QRC, sub. 20, Annexure 1: 26.

¹²¹⁶ Aurizon Network, sub. 1: 116.

¹²¹⁷ Aurizon Network, sub. 1: 90–91.

¹²¹⁸ Aurizon Network, sub. 1, 2017 DAU mark-up.

¹²¹⁹ QRC, sub. 20, Annexure 1: 26.

Aurizon Network and Pacific National accepted the QRC's clarifying amendments.¹²²⁰ These amendments are also considered appropriate by the QCA.

The QCA accepts as a general principle that Aurizon Network should be compensated for the net undepreciated value of an asset that is prudently and efficiently replaced by a new asset as part of an expansion or changes in maintenance. Any sale proceeds should be offset from the remaining undepreciated amount, and it is agreed that such sales should be on an arm's length basis to reflect a market value. It is noted that the timing of disposals would need to be recorded to ensure a correct adjustment to the RAB, particularly where disposals occur later than the expansion or maintenance work.

It is considered that, by providing certainty and allowing timely recognition of undepreciated amounts, the 2017 DAU proposal meets the s. 138(2)(a) criterion to promote the efficient investment in infrastructure. The process should avert the scenario identified by Aurizon Network where an investment in new upgraded facilities could potentially be delayed. Also, because of improved clarity and certainty, and providing a streamlined process for determining asset disposal adjustments, the proposed process is in the interests of Aurizon Network (s. 138(2)(b)) and access holders (s. 138(2)(h)).

15.4.2 Adjusting the value of assets in the RAB

Aurizon Network's 2017 DAU proposal

The 2017 DAU proposes that the QCA may reduce the value of assets in the RAB under certain conditions (cl. 1.2 of Schedule E). These include:

- where the QCA made an initial decision to include the assets into the RAB on the basis of information provided by Aurizon Network that Aurizon Network knew to be false or misleading at the time it provided the information
- circumstances where demand has deteriorated to such an extent that regulated prices on an unoptimised asset would only exacerbate the demand decline (and the associated revenue impacts for Aurizon Network), and that the demand reduction is long-term and sustained.
- a condition-based assessment reveals that Aurizon Network has not maintained its assets in accordance with, among other things, prudent and good operating practices.

Aurizon Network submitted that cl. 1.2(b) of the 2016 AU provides the QCA with the ability to reduce the RAB for any of three triggers but does not detail how the amount of reduction would be determined. It proposed that a provision be included that the RAB would only be adjusted by the amount necessary to allow for that trigger. For example, if inaccurate information was provided that resulted in a \$10 million value being included in the RAB, when \$8 million should have been included, the RAB value should be adjusted by the net amount, that is, \$2 million.

Aurizon Network also submitted that 'inadequate' information should not be a trigger. Aurizon Network stated that if the QCA included a value in the RAB, therefore having determined the information as being 'adequate', it should not be able to later decide that information provided to it was 'inadequate'.¹²²¹ Aurizon Network therefore amended the cl. 1.2(b) of the 2016 Undertaking by removing the word 'inadequate'.

¹²²⁰ Aurizon Network, sub. 26: 8; Pacific National, sub. 28: 2.

¹²²¹ Aurizon Network, sub. 1: 89–90.

QCA analysis and draft decision

Summary of draft decision 15.4

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in regard to adjusting the value of the RAB.**

The QCA considers optimising assets due to demand deterioration should occur after steps are made by Aurizon Network to negotiate with its customers on solutions for addressing the CQCN's long-term viability. Aurizon Network has the opportunity if necessary to adjust prices in consultation with its customers to avert a reduction in the RAB.

Provisions are also included for the RAB to be subsequently increased for reinstated assets where demand has improved sufficiently or where the asset condition has been restored to the standard required.

Aurizon Network's 2017 DAU proposals to clarify the reduction in the RAB in response to any of the three triggers are consistent with the QCA's policy position. That is, the adjustment would only reflect the amount attributed to the specific trigger. The QCA agrees that the intent of the provisions should not be to make an adjustment by a different amount. The 2017 DAU therefore provides clarity and regulatory certainty.

In regard to the removal of the term 'inadequate', the QCA accepts Aurizon Network's comments. However, for clarity, in circumstances where there was available information that was not known to the QCA and was later found to be withheld, this would be considered to be 'misleading' behaviour.

The QRC also accepted Aurizon Network's 2017 DAU proposals.¹²²²

By providing clarity and certainty about the circumstances when the QCA would trigger an asset revaluation, the 2017 DAU proposals are considered to provide an appropriate balance in terms of the s.138(2) factors, including the object to promote efficient investment (s. 138(2)(a)), the legitimate business interests of Aurizon Network (s. 138(2)(b)), the interests of access seekers (s.138(2)(e)), and the interests of access holders (s.138(2)(h)).

Consistency with line diagrams

Anglo American submitted that the QCA should require the RAB to be in line with the current line diagrams. Anglo American said there should be an obligation for Aurizon Network to facilitate an independent audit of RAB assets. The independent assessor would be appointed by the QCA and provide a report within six months of the commencement of UT5. Anglo American suggested this approach would ensure that amendments to line diagrams are reflected in the RAB. It did not anticipate that it would be an expensive or time-consuming process and would be a natural part of developing the MAR at the start of each regulatory period.¹²²³

The QCA does not propose a major review of the RAB to align it with the line diagrams. The RAB has been rolled forward over a number of years and adjusted annually for new capital expenditure, asset depreciation and disposals that have been subject to approval by the QCA. Given that the RAB and associated capital expenditure assessment processes have been developed on a system, rather than line section basis, this proposal would be an expensive and time-consuming process that would not provide any benefit to the regulatory framework.

¹²²² QRC, sub. 20, Annexure 1: 26–27.

¹²²³ Anglo American, sub. 18: 22.

Anglo American's concern with respect to asset write-offs¹²²⁴ is already addressed in the capital expenditure assessment process. In the absence of any specific asset items being identified of concern, the QCA does not consider at this stage that the benefits of such a review justify the costs.

15.4.3 Reporting capital expenditure, RAB roll-forward and equity raising costs

Aurizon Network's 2017 DAU proposal

Clause 1.3 of Schedule E contains requirements for reporting the capital expenditure and RAB roll-forward to the QCA. Under the provisions, Aurizon Network is to provide information on capital expenditure sufficient for the QCA to determine prudence and efficiency within four months of the end of each year of the term. Roll-forward of the RAB then occurs within one month of the QCA's acceptance of the capital expenditure report.

Clause 1.4 of Schedule E allows for the inclusion of equity raising costs into the RAB, reasonably required to maintain the benchmark capital structure of 55 per cent debt and 45 per cent equity.

QCA analysis and draft decision

Summary of draft decision 15.5

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in respect of reporting capital expenditure, RAB roll-forward processes and inclusion of equity raising costs.**

The 2017 DAU approach to reporting of capital expenditure and RAB roll-forward is consistent with the legitimate business interests of Aurizon Network (s. 138(2)(b)), as it enables a recovery of prudent and efficient costs. It therefore is consistent with the pricing principles (s. 138(2)(g)) to generate sufficient revenue, and promotes efficient investment in infrastructure (s. 138(2)(a)). By ensuring prudence and efficiency, there is a balance between the interests of Aurizon Network and those of access seekers and access holders (ss .138(2)(e) and (h)).

15.5 Approval of capital expenditure by the QCA

Aurizon Network's 2017 DAU proposal

Under Part 2 of Schedule E of the 2017 DAU, Aurizon Network is to obtain the QCA's approval for capital expenditure prior to including it in the RAB. Part 2 sets out a process for this.

Under cl. 2.2, the QCA determines the prudence and efficiency of capital expenditure by taking account of the scope and standard of works, and whether the costs are prudent and efficient. Various matters are taken into account, including the relevant Network Development Plan, the need to accommodate current and future demand, and the age and condition of existing assets. The efficiency of costs is assessed taking into account the scale, nature, cost and complexity of the project, the market circumstances for construction inputs, and compliance and timing requirements. In considering prudence and efficiency, the QCA will take account of circumstances prevailing at the time the decision to invest was made. This provides regulatory certainty should there be a change in market circumstances after the decision to invest.

¹²²⁴ Anglo American, sub. 18: 8.

The QCA must also take account of the outcomes of any customer voting proposal when considering prudence and efficiency.

Clause 2.3 provides a process for approval that is designed to enhance transparency and confidence in maintaining the RAB. This includes providing sufficient notice to Aurizon Network or user funders if the QCA is considering refusing to include new capital expenditure into the RAB. New capital expenditure also covers the costs of concept, pre-feasibility and feasibility studies.

Aurizon Network has discretion to submit an Asset Management Plan (AMP) to the QCA for approval, which sets out the standards Aurizon Network will apply in determining whether to incur capital expenditure by replacing assets within the RAB, rather than maintaining those assets (Part 3 of Schedule E). Aurizon Network is also able to request the QCA's acceptance of the capital expenditure for asset replacement and renewal included in the AMP as prudent and efficient.

QCA analysis and draft decision

Summary of draft decision 15.6

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in respect of approval of capital expenditure.**

Anglo American submitted that an *ex ante* capital expenditure approval process such as the ARTC Hunter Valley Rail Group concept should be implemented instead of the *ex post* process currently in UT4 and proposed for UT5. This would avoid reviewing capital expenditure claims after the event and allow iterative and proactive involvement by those underwriting the project. However, Anglo American also suggested this idea be considered for UT6.¹²²⁵

An *ex ante* approach has some merit as it could be structured to provide a cost efficiency incentive for Aurizon Network. However, the *ex post* approach still provides an incentive for Aurizon Network to achieve efficiencies, as capital expenditure remains subject to prudence and efficiency review by the QCA. Anglo American's proposal implies a change in the regulatory format and may best be considered in the context of any future review of the regulatory framework that should include assessing the risk profile implications of such changes.

The QRC considered that the QCA should have the ability to reconsider a decision to approve capital expenditure into the RAB if a capacity shortfall in respect of an expansion is determined.¹²²⁶ The QRC submitted that if significantly less capacity is produced from an expansion, the relevant expenditure may no longer be considered prudent and efficient.¹²²⁷ The QRC proposed adding a cl. 1.2(b)(iv) to Schedule E, to allow the QCA to reduce the value of assets in the RAB if a capacity shortfall occurs in an expansion and the QCA's decision to approve the capital expenditure would have been different.¹²²⁸ In collaborative submissions, Aurizon Network clarified that it did not agree with this proposed amendment.¹²²⁹

The QCA considers that the scenario presented by the QRC is already adequately accommodated under the 2017 DAU. That is, if the expansion shortfall was attributable to

¹²²⁵ Anglo American, sub. 18: 22–23

¹²²⁶ QRC, sub. 20: 30.

¹²²⁷ QRC, sub. 20: 30.

¹²²⁸ QRC, sub. 20, 2017 DAU mark-up.

¹²²⁹ Aurizon Network, sub. 26: 8.

misleading information, the QCA may require a reduction in the RAB. Otherwise, the arrangements set out in Part 8 of the 2017 DAU provide a process for addressing a capacity shortfall, including where it may be due to a default by or a negligent act of Aurizon Network. The QRC's proposed amendment would only add complexity and uncertainty to existing provisions.

The 2017 DAU approach is consistent with the pricing principles (s. 138(2)(g)) to generate sufficient revenue, and promotes efficient investment in infrastructure (s. 138(2)(a)). The 2017 DAU Asset Management Plan is consistent with promoting efficient investment in infrastructure (s. 138(2)(a)). By ensuring prudence and efficiency, there is a balance between the interests of Aurizon Network (s. 138(2)(b)) and those of access seekers and access holders (ss. 138(2)(e) and (h)).

15.6 Acceptance of capital expenditure by interested participants

Schedule E provides a process for a broad range of interested participants to provide their views on a particular proposed capital expenditure, by voting whether or not they accept the project.

15.6.1 Aurizon Network's 2017 DAU proposal

Application of the customer voting process

Part 4 of Schedule E of the 2017 DAU sets out a voting process for access holders, customers and access seekers to provide their views on the prudence and efficiency of the scope, standard or cost of the capital project.

To inform the customer vote, Aurizon Network proposes to provide relevant information such as the feasibility study on the capital project to the QCA and interested participants. Aurizon Network proposes to promptly inform the QCA when it seeks a customer vote and the outcome of that vote.

Compared to the 2016 Undertaking, Aurizon Network proposed a minor clarification to ensure that the voting process recognises the binding nature of the voting in cl. 2.1(f) of Schedule E. This clarification in cl. 4.1(a) was requested by the QRC during the finalisation of the 2016 Undertaking, and was agreed upon at the time.¹²³⁰

Interested participants

Clause 4.2 of Schedule E identifies interested participants as customers, access holders and access seekers where:

- the access charges relevant to the person are determined by reference to a reference tariff and would be affected by including the capital expenditure into the RAB
- the proposed capital expenditure will impact on the person's contracted capacity or train paths after construction is completed.

Potential interested participants may notify Aurizon Network and the QCA providing reasons why they are entitled to participate.

¹²³⁰ Aurizon Network, sub. 1, Appendix P.1: 28.

Voting rights of interested participants

The voting rights of an interested participant will reflect that interested participant's train paths as a proxy for the service provided (cl. 4.3 of Schedule E). Schedule E also sets out how the train paths would be determined.

Voting and acceptance process

The legitimacy and effectiveness of the voting process is served when voting intentions are clear. In Schedule E, cl. 4.4 requires that 'no' votes be accompanied by sufficient detailed reasons so that the QCA can understand these reasons, while for a 'yes' vote, interested participants may but are not required to provide reasons. The voting proposal is deemed accepted where interested participants accounting for at least 60 per cent of affected train paths voted 'yes'.

Information relating to acceptance votes

Aurizon Network proposes under cl. 4.5 to provide relevant information, including the results of a pre-feasibility study and feasibility study (unless interested participants agree that the pre-feasibility study is sufficient information). However, any scope changes after the pre-feasibility study could change the list of interested participants considered eligible to vote.

Aurizon Network may require an interested participant to sign a confidentiality agreement substantially in the form set out in Schedule I, prior to providing information in relation to a customer vote on a voting proposal.

Compliance and auditing

Clause 4.6 of Schedule E sets out compliance and auditing provisions for the voting process. Aurizon Network proposes to take whatever action is reasonably required to comply with the customer voting process in response to concerns regarding possible non-compliance, received in writing, from interested participants. Interested participants are also required to notify the QCA, in writing, of its concerns.

Aurizon Network also must procure an audit of the voting procedure. If the auditor identifies flaws in the calculation of affected train paths, Aurizon Network must recalculate the affected train paths and recount the votes. If there are material flaws in the voting process, Aurizon Network must redo the vote.

QCA analysis and draft decision

Summary of draft decision 15.7

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in respect of the application of the customer voting process.**

The QRC supported Aurizon Network's proposed cl. 4.1(a) of Schedule E.

The 2017 DAU approach to the voting process is consistent with the legitimate business interests of Aurizon Network (s. 138(2)(b)) as it enables an appropriate scoping of the services required by participants. It therefore is also consistent with promoting efficient investment in infrastructure (s. 138(2)(a)). By ensuring prudence and efficiency, there is a balance between the interests of Aurizon Network and those of access seekers and access holders (ss .138(2)(e) and (h)).

15.7 Access conditions

Aurizon Network's 2017 DAU proposal

Clause 6.13 of the 2017 DAU provides for Aurizon Network and an access seeker to agree access conditions and submit these for the QCA's approval.

Aurizon Network and an access seeker may agree to access conditions, provided these have no effect until approved by the QCA (cl. 6.13.1). The QCA must approve the access conditions, unless it is satisfied that the access conditions (cl. 6.13.2):

- will, in relation to the provision of access, materially disadvantage access seekers or access holders who will be directly affected by the access conditions but will not be parties to the agreements containing the access conditions; or
- contravene the QCA Act.

Clause 6.13.3 of the 2017 DAU sets out the following prohibited access conditions that cannot be imposed by Aurizon Network or approved by the QCA:

- any access condition that restricts access seekers from raising disputes with the QCA or disclosing proposed access conditions or other contract terms to the QCA
- any access condition that requires access seekers or access holders to disclose information that is confidential to one or more of them, or to any other access holder or access seeker, in circumstances other than those permitted by the undertaking.

While the 2017 DAU access conditions provisions were developed from its existing arrangements in the 2016 Undertaking, Aurizon Network's 2017 DAU proposed various changes (see below).

Figure 36. 2017 DAU access conditions—key differences compared to the 2016 Undertaking

Aurizon Network's 2017 DAU proposed the following key changes to access conditions, as compared to the 2016 Undertaking:

- changing the definition of access conditions, most notably limiting the application of access conditions provisions to conditions that meet certain materiality thresholds
- not including the process for the negotiation of access conditions, including the obligation on Aurizon Network to issue an access conditions report detailing, among other things, quantification of the additional costs or risks Aurizon Network is exposed to which it is seeking to mitigate, and why Aurizon Network's exposure to the additional risks would not be mitigated through other specified means (see cls. 6.13.2(a)–(d) of the 2016 Undertaking)
- changes to the circumstances in which the QCA may refuse to approve proposed access conditions, such as no longer allowing the QCA to refuse approval if it is satisfied the proposed access conditions are contrary to the public interest (see cl. 6.13.2(e) of the 2016 Undertaking)
- omitting the process for the QCA to consider proposed access conditions in the event that only some or none of the access seekers agree to access conditions sought by Aurizon Network (see cls. 6.13.2(f)–(g) of the 2016 AU)
- changing amending the list of prohibited access conditions to not include an access condition that results in Aurizon Network earning an access charge based on a varied WACC or otherwise earning the return provided by reference tariffs based on the approved WACC (other than as approved by the QCA) (see cl. 6.13.3 of the 2016 Undertaking).

QCA analysis and draft decision

Summary of draft decision 15.8

- **The QCA considers the appropriate way for Aurizon Network to amend its 2017 DAU is to reflect the consensus drafting agreed between Aurizon Network and QRC, as submitted in their respective collaborative submissions. The amendments clarify that the following:**
 - (a) The access conditions clause only applies to coal-carrying train service.**
 - (b) Access conditions may include other monetary considerations (not only access charges), whether levied under an access agreement or otherwise.**
 - (c) Aurizon Network will issue an access conditions report to access seekers, customers and the QCA detailing the access conditions, quantification of additional costs and risks, and reasons why Aurizon Network's risks are not otherwise mitigated.**
 - (d) Access conditions are defined in Part 12 as being additional to those in the standard access agreement and which are not immaterial. Minor variations to payment terms or amendments to insurance requirements are considered immaterial.**

The QCA's draft decision is that it is not appropriate to approve the 2017 DAU in respect of the access conditions provisions in Part 6. The QCA notes that stakeholders submitted the 2017 DAU access conditions required amendment.

Aurizon Network's collaborative submission proposal

Following the collaborative submission process, Aurizon Network¹²³¹ and the QRC¹²³² submitted that the 2017 DAU be amended to include revisions to cl. 6.13 and the definition of 'access conditions' (Part 12). Pacific National¹²³³ supported Aurizon Network's collaborative submission proposals for this drafting.

The following discussion reflects the issues raised in submissions, although stakeholders were able to support consensus drafting in the collaborative submission process.

Applicability

Aurizon Network proposed that 2017 DAU access conditions provisions should be considered in the context of the 2016 Undertaking. Aurizon Network's 2016 Undertaking expanded the application of access condition provisions to all non-standard terms that have cost and risk implications for Aurizon Network or an access seeker. This meant that Aurizon Network must seek our approval for these types of non-standard terms.

In the 2017 DAU, Aurizon Network said it had sought to simplify the access conditions provisions (compared to its 2016 Undertaking) because it considered that a much larger number of access conditions would be caught under the broadened definition.¹²³⁴ It considered the 2016 Undertaking approach may require QCA approval for every variation to a standard access agreement. Aurizon Network said the 'broader application of the access conditions approval regime in UT4, applying to even quite minor variations to the standard access agreements,

¹²³¹ Aurizon Network, sub. 26: 3, 7 and Appendix 1.

¹²³² QRC, sub. 29: 2, and Annexures 1, 2.

¹²³³ Pacific National, sub. 28: 1.

¹²³⁴ Aurizon Network, sub. 1: 56.

increases the risk of significant delays and uncertainty in the access negotiation process,¹²³⁵ and noted the length of time taken for the QCA's approval process for the access conditions in respect of the Wiggins Island Rail Project (WIRP).

Aurizon Network also considered the 2016 Undertaking approach:

- does not take into account the other protections that exist within the 2016 Undertaking (and within the proposed 2017 DAU) for access seekers who do not wish to agree to a term proposed by Aurizon Network that deviates from the standard access agreement, such as how the standard access agreements act as a safe harbour and (in the context of expansions) the availability of user funding as an alternative to agreeing access conditions with Aurizon Network¹²³⁶
- is inconsistent with its legislative framework and the intended policy objective of the Queensland Government in respect of the right of parties to negotiate.¹²³⁷ In particular, Aurizon Network considered that 'any provision of an access undertaking that prevents an access provider and an access seeker from freely negotiating terms (even if those terms are inconsistent with an access undertaking) divests the access provider and access seeker of their fundamental right to negotiate.'¹²³⁸

Aurizon Network considered its approach under the 2017 DAU (i.e. approval of access conditions will be sought once they have been agreed but before they become binding) is more practical and effective than the 2016 Undertaking requirement to submit a report when parties intended to commence negotiating access conditions (as the commercial bargain will not have been struck at this stage). It considered that 'its volunteered proposal is appropriate and removes any concern that the QCA or interested stakeholders may have in relation to access conditions potentially disadvantaging other parties.'¹²³⁹

Anglo American, BMA, Pacific National, QCoal and Rio Tinto did not support changes that limit the QCA's oversight. Specifically:

- (a) Anglo American said Aurizon Network should not be allowed to determine that an access application requires access conditions if it is simply due to the provision of an Access Agreement and not because the items are material to risk.¹²⁴⁰
- (b) Pacific National said that if the intention of the amendments is to:
 - (i) allow minor amendments to coal access agreements which are unique to an access seeker, and/or
 - (ii) allow non-coal access agreements to be negotiated,
- (c) then the 2017 DAU drafting should be amended to reflect these specific items as being explicitly identified exemptions to the otherwise reinstated cl. 6.13 of the 2016 Undertaking. Pacific National said this approach would be acceptable, as long as access conditions negotiated under these exemptions do not unfairly differentiate between access holders and/or access seekers.¹²⁴¹

¹²³⁵ Aurizon Network, sub. 1: 56.

¹²³⁶ Aurizon Network, sub. 1: 56–57.

¹²³⁷ Aurizon Network, sub. 1: 57–58.

¹²³⁸ Aurizon Network, sub. 1: 57.

¹²³⁹ Aurizon Network, sub. 1: 58–59.

¹²⁴⁰ Anglo American, sub. 18: 18.

¹²⁴¹ Pacific National, sub. 19: 7.

- (d) BMA said that if current provisions unintentionally expand the application of access conditions, then changes need to be made so the provisions operate as practically intended.¹²⁴²

Anglo American, BMA and QCoal supported the QRC's submission.

The QRC initially submitted that it did not support the definition of access conditions or cl. 6.13 as proposed in Aurizon Network's 2017 DAU. The QRC submitted:

- (a) The modification put forward by Aurizon Network has the effect of narrowing and complicating the definition. A narrow definition creates ambiguity and increases the scope for parties to seek to avoid the access conditions regime.¹²⁴³
- (b) The two circumstances in which Aurizon Network proposes that the QCA can withhold its approval of an access condition are remote. In practice it is highly unlikely than an access seeker who is not a party to an access condition will be 'directly' and 'materially disadvantaged' by an access condition. Secondly, it is unlikely that access conditions would breach the QCA Act.¹²⁴⁴
- (c) Access conditions should not be confined to expansions. In non-expansion scenarios, the dispute process provides an element of protection, but:
- (i) the protection only arises where a dispute arises
 - (ii) there is no downside in there being a need to obtain QCA approval for access conditions for non-expansory capacity.¹²⁴⁵
- (d) Where an expansion is concerned, the protection provided by the access conditions regime is important for the following reasons:
- (i) Without the obligation to invest and in the absence of a competitive alternative to Aurizon Network funding, its monopoly power is unchecked.
 - (ii) While the QCA may be able to resolve disputes over some aspects of the negotiation process, it cannot compel Aurizon Network to fund an expansion, which means the undertaking dispute process alone is not enough.¹²⁴⁶

Aurizon Network's collaborative submission proposal

In March 2017, Aurizon Network and the QRC submitted that they had reached consensus on amendments required to be made to the 2017 DAU access conditions provisions. This drafting broadly reflects the QRC's proposed mark-up of the definition of access conditions and cl. 6.13 that the QRC included in their February submission¹²⁴⁷, except to:

- (a) clarify that cl. 6.13 applies only to coal-carrying train services; and
- (b) reinstate the definition of an access charge to ensure there are no unintended consequences in the context of the remainder of the UT5 undertaking.

¹²⁴² BMA, sub. 24: 7.

¹²⁴³ QRC, sub. 20: 18–19.

¹²⁴⁴ QRC, sub. 20: 19–20.

¹²⁴⁵ QRC, sub. 20: 19.

¹²⁴⁶ QRC, sub. 20: 19.

¹²⁴⁷ QRC, sub. 29, Annexure 2.

The consensus drafting acknowledges that access conditions may include other monetary considerations (not only access charges), whether levied under an access agreement or otherwise.

Aurizon Network said the two minor amendments above will ensure that immaterial variations to standard access agreements do not require QCA pre-approval. Aurizon Network said pre-approval will remain a requirement for other, more material variations.¹²⁴⁸

Pacific National said they accept the QRC's and Aurizon Network's proposed changes.¹²⁴⁹

The collaborative submissions agreed to include the definition of an access charge as access charges being related only to Access Agreements and not any other arrangement.¹²⁵⁰ The definition of an access charge is proposed to remain unchanged from the 2016 Undertaking.

Given the confidential nature of access agreements, it is important that a mechanism is in place to ensure that any non-standard terms agreed do not adversely impact access holders and access seekers not party to the negotiation.

Insofar as our draft decision relates to access conditions generally, the fact that stakeholders participating in the collaborative discussions have reached a consensus position is relevant to our draft decision on the 2017 DAU access conditions provisions (s. 138(2)(h) of the QCA Act).

The consensus drafting submitted in Aurizon Network and the QRC's collaborative submission is considered appropriate, as it provides the QCA with regulatory oversight to ensure that Aurizon Network does not impose unfair access conditions. The consensus drafting submitted under Aurizon Network's and the QRC's collaborative submission also explicitly identifies conditions that are immaterial and are therefore not access conditions, to improve clarity.¹²⁵¹ The consensus drafting achieves a more workable and simple process while also including some of the key elements of the 2016 Undertaking, such as required access conditions report.

For the reasons outlined above, the drafting submitted under collaborative submissions balances the legitimate business interests of Aurizon Network (s. 138(2)(b)) and the interests of access seekers and the public (ss. 138(2)(d) and (e)). It also promotes efficiencies in the regulatory process that is in the public interest (s. 138(2)(d)) and which efficiencies advance the object of Part 5 (s. 138(2)(a)).

¹²⁴⁸ Aurizon Network, sub. 26: 7.

¹²⁴⁹ Pacific National, sub. 28: 1.

¹²⁵⁰ QRC, sub. 29: 2.

¹²⁵¹ QRC, sub. 29, Annexure 1, Clause 6.13 marked up.

16 AVAILABLE CAPACITY ALLOCATION & MANAGEMENT

16.1 Aurizon Network's 2017 DAU proposal

Part 7 of the 2017 DAU outlines the general principles and procedures for the allocation of existing capacity¹²⁵² to access seekers and the management of capacity once it has been contracted to access holders. It also sets out a framework for transfers of train service entitlements between access holders.

The 2017 DAU framework consists of principles and procedures for Aurizon Network to:

- allocate available capacity to access seekers and maintain registers of capacity notifications and committed capacity (cl. 7.2), including where there are mutually exclusive access applications (cl. 7.5)
- resume capacity from an access holder (cl. 7.6).

The framework also outlines processes for access holders to:

- renew contracted capacity (cl. 7.3)
- transfer capacity, including the:
 - transfer of access rights from an access holder to an access seeker (cl. 7.4.2)
 - relinquishment of access rights to Aurizon Network (cl. 7.4.3).

Key issues identified during the QCA's investigation

The QCA has considered all elements of Part 7 of Aurizon Network's 2017 DAU proposal in making its draft decision. The following issues attracted comment from stakeholders, or were identified for further consideration:

- the process for allocating available capacity (see section 16.2)
- renewal term for access agreements (see section 16.3)
- capacity resumption (see section 16.4)
- relinquishment processes to support productivity improvements (see section 16.5).
- consensus drafting of transfer provisions arising from the collaborative submission process (see section 16.6)
- the period for short-term capacity transfers arising from the collaborative submission process (see section 16.7).

16.2 Allocating available capacity

Aurizon Network's 2017 DAU proposal

Aurizon Network proposes to prioritise the allocation of available capacity¹²⁵³ to the access seeker who submits an access application first (cl. 7.5.2(b)). Where there is insufficient available

¹²⁵² Existing capacity refers to capacity that does not require an expansion to meet an access seeker's requirements.

¹²⁵³ Access rights for capacity that is not already committed.

capacity to satisfy more than one access application, Aurizon Network proposes to establish and maintain a queue to determine the order in which it will negotiate with the competing access seekers (cl. 7.5.2(b)). In managing the order of the queue, Aurizon Network proposes to give priority to renewing access seekers, then access seekers who hold conditional access rights, followed by access seekers based on the date of application.

Aurizon Network proposes to maintain registers that assist with identifying and coordinating the reallocation of capacity to interested parties, which include:

- the capacity notification register to record parties' interests in securing additional capacity (cl. 7.2.2)
- the committed capacity register to record parties' capacity allocations (cl. 7.2.3).

Aurizon Network may refuse to allocate available capacity to an access seeker if it reasonably considers that the access seeker has not suitably demonstrated the ability to use the access rights requested (cl. 7.2.1).

QCA analysis and draft decision

Summary of draft decision 16.1

- **The QCA's draft decision is to approve Aurizon Network's proposed 2017 DAU framework for allocating available capacity.**

Stakeholders did not object to Aurizon Network's proposal.

The QCA notes that Aurizon Network has proposed provisions to allocate available capacity that are consistent with existing arrangements.

Aurizon Network's proposed processes for allocating available capacity appropriately balances the legitimate business interests of Aurizon Network with the interests of access seekers and end customers.

The QCA notes also that no issues were pursued by stakeholders. Having regard to s. 138(2) of the QCA Act, including the matters noted above, the arrangements proposed by Aurizon Network are considered to be appropriate.

16.3 Term for renewing access applications

Aurizon Network's 2017 DAU proposal

An existing access holder¹²⁵⁴ has the priority to negotiate with Aurizon Network to renew its access rights, subject to certain conditions being met (cl. 7.3), even if a queue of competing access applications has been formed (cl. 7.5.2(b)(i)). This is referred to as a renewal access application. In certain instances (cl. 7.3(b)), the renewal of access rights may relate to a different origin and destination than the existing access rights.

A renewal access application is required to apply for a term that is the lesser of 10 years or the:

- remaining life of the relevant mine for coal carrying train services
- same term as the existing access agreement for non-coal carrying train services (cl. 7.3(f)).

¹²⁵⁴ Referred to as a renewing access seeker.

QCA analysis and draft decision

Summary of draft decision 16.2

- **The QCA draft decision is to approve Aurizon Network's proposed 2017 DAU requirements for renewing access applications.**

Anglo American considered that access holders who have previously held their access under an agreement for at least 10 years should be able to renew for a lesser period, but not less than five years.¹²⁵⁵ In support of this proposal, Anglo American considered that this would enable better alignment of term expiry dates between track and port agreements, allowing users to better align their significant take-or-pay commitments and capacity requirements.¹²⁵⁶

Priority for renewal access applications gives access holders certainty and security for the access rights associated with their related investments. Priority for renewal access applications is in the interest of access seekers/holders, as it provides investors with the confidence that access to transportation services will be available on reasonable terms and conditions upon expiry of an access agreement.

However, the certainty provided to access seekers/holders and mine investors needs to be balanced with the legitimate business interests of Aurizon Network to obtain appropriate security by means of the term of access agreements that underpin its rail infrastructure investment.

In any case, it is not a requirement for access holders to renew on the terms specified in cl. 7.3(f). The renewal provisions only apply if the renewing access holder wants to maintain priority in a queue of access applications for those access rights.

On balance, the proposed term requirements for renewal access applications appropriately balance the legitimate business interests of Aurizon Network with the interests of access seekers/holders and end customers.

Therefore, the QCA considers the terms for renewal access applications in the 2017 DAU to be appropriate.

16.4 Capacity resumption

Aurizon Network's 2017 DAU proposal

The 2017 DAU enables Aurizon Network to initiate a process to resume access rights where an access holder underutilises its train service entitlement in accordance with a resumption trigger event (cl. 7.6(a)).

Following a resumption trigger event, Aurizon Network may issue an information request notice to the relevant access holder asking the access holder to demonstrate a sustained requirement for the underutilised access rights. This provides the access holder with an opportunity to demonstrate its ability to use the access rights.

After issuing an information request notice, Aurizon Network may resume access rights where:

- the access holder fails to demonstrate a sustained requirement for the underutilised access rights

¹²⁵⁵ Anglo American, sub. 18: 18.

¹²⁵⁶ Anglo American, sub. 18: 18.

- Aurizon Network is able to demonstrate a reasonable expectation of a sustained alternative demand for those access rights (cl. 7.6(d)).

Where Aurizon Network resumes capacity, a resumption notice is to be issued to the access holder confirming the date the access rights will be resumed (cl. 7.6(e)).

QCA analysis and draft decision

Summary of draft decision 16.3

- **The QCA's draft decision is to approve Aurizon Network's proposed 2017 DAU capacity resumption provisions.**

Stakeholders did not raise any concerns with Aurizon Network's proposal. In this respect, the QRC submitted proposed drafting which the QCA considered to be consistent with Aurizon Network's framework for capacity resumptions.¹²⁵⁷

After having regard to each of the matters set out in s. 138(2) of the QCA Act, the QCA considers that Aurizon Network's proposal appropriately balances the legitimate business interests of Aurizon Network with the interests of access seekers/holders and end customers.

The QCA's draft decision is to approve the framework for Aurizon Network to resume contracted capacity as proposed by Aurizon Network. The QCA notes that Aurizon Network has proposed capacity resumption provisions consistent with existing arrangements. Having regard to s. 138(2) of the QCA Act, including matters noted above, the arrangements proposed by Aurizon Network are considered to be appropriate.

16.5 Relinquishment processes

Aurizon Network's 2017 DAU proposal

Access holders are able to relinquish their access rights to Aurizon Network, in accordance with the terms of their access agreements. The proposed conditions that must be satisfied for Aurizon Network to give effect to a relinquishment are outlined in cl. 7.4.3 of the 2017 DAU. An access holder (or customer) who initiates a relinquishment of access rights will incur a fee.

The proposed relinquishment provisions (cls. 7.4.3(f)–(k)) are also included in the Standard Access Agreement and Standard Train Operations Deed.

Aurizon Network's 2017 DAU proposed three circumstances in which an access holder's monthly train service entitlement may be reduced during the term of an access agreement when trains are operated above the maximum payload for its contracted train service type.

- 'Access holder-initiated reduction' – The access holder may request an increase in the maximum payload for a train service type, with a consequent reduction in the nominated monthly train services (cl. 11 of the Standard Access Agreement and cl. 11.2 of the Standard Train Operations Deed).¹²⁵⁸
- 'Reduction due to exceeding maximum payload' - Aurizon Network may reduce the train services if, at a point in time, the average annual payload for a train service type has exceeded the maximum payload for that train service type as specified in the agreement

¹²⁵⁷ QRC, sub. 20, Annexure 2.

¹²⁵⁸ Refer to cl. 7.4.3(h) of Aurizon Network's 2017 DAU.

(cl. 10 of the Standard Access Agreement and cl. 11.1 of the Standard Train Operations Deed).¹²⁵⁹

- ‘Reduction to create additional capacity’ – Aurizon Network may commence a mandatory process requiring an increase in the nominal payload, with a consequent reduction in the nominated monthly train services (cl. 12 of the Standard Access Agreement and cl. 12 of the Standard Train Operations Deed).¹²⁶⁰

Where Aurizon Network reduces a train operator’s nominated monthly train service entitlement as contemplated by cl. 7.4.3(f) or cl. 7.4.3(i) of the 2017 DAU, the access holder is not required to pay a relinquishment fee.

QCA analysis and draft decision

Summary of draft decision 16.4

- **The QCA’s draft decision is that the capacity relinquishment processes due to increased maximum payloads in Part 7 of Aurizon Network’s 2017 DAU be amended to reflect the consensus drafting agreed between Aurizon Network and QRC, as submitted in their respective collaborative submissions, so that:**
 - the ‘Access holder-initiated reduction’ provisions and ‘reduction due to exceeding maximum payload’ provisions as submitted by Aurizon Network in its collaborative submission are included. Also, a clarifying note be included noting that train tests approved by Aurizon Network are exempt from the Reduction Notice trigger process**
 - for any surplus access rights that are relinquished under the provisions referred to above, a ‘SAR Relinquishment Fee’ should be payable based on the difference between the AT2 charges that would have been paid but for the relinquishment on the terms as agreed by participating stakeholders and Aurizon Network**
 - the mandatory ‘Reduction to create additional capacity’ provisions are deleted.**

See consensus drafting cl. 7.4.8 for the QCA’s proposed amendments to the 2017 DAU.

Matters relating to these processes are discussed in detail in Chapter 14. The following discussion should be read in conjunction with the QCA’s analysis and draft decision relating to Part 5 and the Standard Agreements.

Aurizon Network considered that its 2017 DAU proposed relinquishment provisions in its Standard Access Agreement and Standard Train Operations Deed allowed for productivity improvements to enable more efficient capacity management practices.¹²⁶¹ Aurizon Network submitted that under the 2016 Undertaking Aurizon Network and access holders are constrained in their ability to manage, and cost-effectively create, capacity for the benefit of the supply chain.¹²⁶²

¹²⁵⁹ Refer to cls. 7.4.3(f) and (g) of Aurizon Network’s 2017 DAU.

¹²⁶⁰ Refer to cl. 7.4.3(i) of Aurizon Network’s 2017 DAU.

¹²⁶¹ Aurizon Network, sub. 1: 4.

¹²⁶² Aurizon Network, sub. 1: 51.

Initially, stakeholders did not support Aurizon Network's 2017 DAU relinquishment proposals relating to exceeded maximum payloads.¹²⁶³

However, following the collaborative submission process, Aurizon Network submitted that the 2017 DAU be amended with revised drafting in respect of payload relinquishment provisions. Stakeholders¹²⁶⁴ supported the proposed drafting in Aurizon Network's collaborative submission.¹²⁶⁵ The amendments to the 2017 DAU sought following the collaborative process are outlined and considered in Chapter 14.

Also, during the collaborative process Aurizon Network reached consensus with other stakeholders¹²⁶⁶ on a surplus access rights (SAR) relinquishment fee to apply where:

- an access holder increases its maximum contracted payload and relinquishes existing contracted train paths;¹²⁶⁷ or
- Aurizon Network reduces an access holder's train service entitlement when average payloads exceed the maximum payload and the access holder fails to respond to a notice from Aurizon Network.¹²⁶⁸

Again, the amendments sought following the collaborative process are considered in detail in Chapter 14.

The QCA's draft decision is that it is not appropriate to approve the 2017 DAU in respect of the relinquishment processes relating to increased maximum payloads. The 2017 DAU must be amended to incorporate the consensus drafting supported by Aurizon Network and participating stakeholders.

The QCA's reasoning for this draft decision is contained in Chapter 14.

16.6 Transfers of access rights

Aurizon Network's 2017 DAU proposal

Access holders are able to transfer their access rights to another access holder/access seeker in accordance with the terms of their access agreements. The conditions that must be satisfied for Aurizon Network to give effect to a proposed transfer are outlined in cl. 7.4.2 of Aurizon Network's 2017 DAU.

An access holder that initiates a transfer or a relinquishment of access rights may incur a fee. Aurizon Network proposes to calculate the transfer fee and notify the relevant access holder of the fee payable as well as the key assumptions used to calculate the fee.

Aurizon Network's 2017 DAU proposes that, other than for short-term transfers, the transfer fee be calculated based on the present value of the take-or-pay charges that would have been payable for the transfer period (cl. 7.4.2(s)).

¹²⁶³ QRC, sub. 20: 34–36, Annexure 2; BMA, sub. 24: 6; Pacific National, sub. 17: 8; QCoal, sub. 16:2-3; Anglo American, sub. 18: 19.

¹²⁶⁴ Pacific National, sub. 28: 1–2; Aurizon Operations, sub. 27: 2; QRC, sub. 29: 3; Aurizon Network, sub. 26: 6.

¹²⁶⁵ Aurizon Network, sub. 26: 6, Appendix 1. As set out in cl. 7.4.8 of the amended 2017 DAU submitted in the collaborative process (and reflected in the amendments to cls. 10–13 of the Standard Access Agreement).

¹²⁶⁶ Pacific National, sub. 28: 1–2; Aurizon Operations, sub. 27: 2; QRC, sub. 29: 3.

¹²⁶⁷ Aurizon Network, sub. 26: 6, Appendix 1 (refer to cl. 7.4.8(i)(ii) of the collaborative redrafted 2017 DAU).

¹²⁶⁸ Aurizon Network, sub. 26: 6, Appendix 1 (refer to cl. 7.4.8(j) of the collaborative redrafted 2017 DAU).

Aurizon Network's 2017 DAU proposes similar arrangements to apply to transfers initiated by customers (cl. 7.4.2(e)).

QCA analysis and draft decision

Summary of draft decision 16.5

- **The QCA's draft decision is that the transfers of access rights provisions in Aurizon Network's 2017 DAU be amended to reflect the consensus drafting agreed between Aurizon Network and QRC, as submitted in their respective collaborative submissions.**
See consensus drafting to cls. 7.4.1–7.4.7 for the QCA's proposed amendments to the 2017 DAU.

Initial submissions from stakeholders considered that the transfer provisions were complex and could be improved.¹²⁶⁹ The QRC proposed a number of amendments to the transfer provisions.¹²⁷⁰

Following the collaborative submission process, Aurizon Network submitted that the 2017 DAU be amended with revised drafting in respect of provisions relating to the transfer of access rights.¹²⁷¹

Stakeholders participating in the collaborative process supported Aurizon Network's collaborative submission proposals. The QRC noted that the consensus transfer provisions proposed preserve the substance of the existing transfer provisions, except to amend the short-term transfer period.¹²⁷² Aurizon Network submitted that the intent of the collaborative amendments is to clarify drafting so that transfer provisions are easier to understand and apply.¹²⁷³ Pacific National accepted the proposed consensus drafting.¹²⁷⁴

The QCA's draft decision is that it is not appropriate to approve the 2017 DAU in respect of the transfer provisions in Part 7. The QCA notes that stakeholders collaboratively proposed that the 2017 DAU transfer provisions be amended.

Included in the relevant factors under s. 138(2) of the QCA Act is 'any other issues the authority considers relevant' (s. 138(2)(h) of the QCA Act). Insofar as our draft decision relates to the transfer provisions generally, the fact that stakeholders participating in the collaborative discussions have reached a consensus position is relevant to the draft decision on the 2017 DAU transfer provisions. The QCA also considers that proceeding to amend the 2017 DAU for the consensus transfer provisions is in the interests of Aurizon Network, access seekers and access holders, as these provisions will facilitate transfers between access holders and/or customers in an efficient manner.

The QCA considers that the proposed collaborative amendments to the transfer provisions, as submitted by Aurizon Network and the QRC, are appropriate to approve, as they should result in a more efficient use of transfer provisions which in turn promotes the efficient use of capacity (s. 138(2)(a) of the QCA Act).

¹²⁶⁹ QRC, sub. 20: 21; Anglo American, sub. 18: 18; Pacific National, sub. 19: 19–20; BMA, sub. 24: 6.

¹²⁷⁰ QRC, sub. 20: 21.

¹²⁷¹ Aurizon Network, sub. 26: 6–7; QRC, sub. 29: 2.

¹²⁷² QRC, sub. 29: 2.

¹²⁷³ Aurizon Network, sub. 26: 7.

¹²⁷⁴ Pacific National, sub. 28: 1.

Accordingly, the QCA's draft decision is that the 2017 DAU be amended to incorporate the consensus drafting supported by Aurizon Network, the QRC, Pacific National and Aurizon Operations.

16.7 Short-term capacity transfers

Aurizon Network's 2017 DAU proposal

Clauses 7.4.2(h)–(j) establish a short-term capacity transfer mechanism. Short-term transfers have the same application and approval processes as other transfers. However, no transfer fee or relinquishment fee is applicable to a short-term transfer.¹²⁷⁵

For a transfer to be considered a short-term transfer, transferred train service entitlements must not be held by the transferee for longer than 12 months (cl. 7.4.2(h)).

The transfer fee for a short-term transfer is zero if the transferred train service entitlements have not been transferred by the access holder for more than 24 of the previous 36 months (cl. 7.4.2(t)).

For a short-term transfer, the transferor's and transferee's access charges must be calculated using the same reference tariffs.

QCA analysis and draft decision

Summary of draft decision 16.6

- **The QCA's draft decision is that the short-term transfer provisions in Aurizon Network's 2017 DAU be amended to reflect the consensus drafting agreed between Aurizon Network and QRC, as submitted in their respective collaborative submissions.**
See consensus drafting cl. 7.4 for the QCA's proposed amendments to the 2017 DAU for short-term transfers.

Two-year short-term transfer period

Generally, stakeholders did not support Aurizon Network's proposed one year short-term transfer period.¹²⁷⁶

Following the collaborative submission process, Aurizon Network submitted that its 2017 DAU be amended with revised transfer provisions, which amongst other things, proposed the period of a short-term transfer be increased from one to two years.¹²⁷⁷ Aurizon Network submitted this would assist with the adoption and use of its transfer provisions by access holders.¹²⁷⁸

Stakeholders participating in the collaborative process supported Aurizon Network's collaborative submission proposals. The QRC considered that this allows for greater flexibility in

¹²⁷⁵ Refer to cl. 7.4.2(h)(iii) of Aurizon Network's 2017 DAU.

¹²⁷⁶ QRC, sub. 20: 21; Pacific National, sub. 19: 20; BMA, sub. 24: 7.

¹²⁷⁷ Aurizon Network, sub. 26: 7; QRC, sub. 29: 2.

¹²⁷⁸ Aurizon Network, sub. 26: 7.

respect of rail access rights and only marginally departs from the 2016 Undertaking.¹²⁷⁹ Pacific National accepted the two-year period for short-term transfers.¹²⁸⁰

Insofar as our decision relates to the period for short-term transfers, the fact that stakeholders participating in the collaborative process have reached a consensus position is relevant to the decision on the 2017 DAU short-term transfer provisions. The QCA also considers that proceeding to amend the 2017 DAU for the consensus short-term transfers provisions is in the interests of Aurizon Network, access seekers and access holders, as these provisions will facilitate transfers between access holders and/or customers an efficient manner.

In addition to providing for the efficient utilisation of the network, short-term transfers provide access holders with the ability to manage variations in the utilisation of their train service entitlements—allowing access holders to meet short-term demand for additional train service entitlements or mitigate take-or-pay liabilities. Providing access holders with greater flexibility within the short-term transfer provisions will further encourage access holders to use this mechanism to manage their access rights.

The revised period for short-term capacity transfers submitted by Aurizon Network and the QRC strengthens the ability of stakeholders to manage variations in the utilisation of their train service entitlements. The provisions in the collaborative consensus drafting will assist to minimise the risks of gaming by requiring reasonable evidence that the transferred entitlements will be used.

The QCA therefore considers that the revised period for short-term capacity transfers will facilitate short-term transfers between access holders and maximise use of rail infrastructure. This change is in the interests of access holders and access seekers (s. 138(2)(h),(e) of the QCA Act) and is generally consistent with the object to promote the efficient use of significant infrastructure (s. 138(2)(a) of the QCA Act), while not impacting the legitimate business interests of Aurizon Network (s. 138(2)(b) of the QCA Act). As such, the QCA is supportive of the consensus provisions submitted by Aurizon Network and the QRC.

Accordingly, the QCA's draft decision is that the 2017 DAU must be amended to incorporate the collaborative drafting supported by Aurizon Network, the QRC and Pacific National.

Criteria for short-term transfers

Anglo American considered that the short-term transfer regime is too restrictive, as a transfer fee may be payable for the transfer if it is for contracted capacity with a different reference tariff.¹²⁸¹ Anglo American submitted that it is likely to dis-incentivise users from utilising the short-term transfer mechanism.¹²⁸² Anglo American believed that, while other users should not be disadvantaged or impacted by a short-term transfer, there should be scope to broaden the application of the short-term transfer mechanism to ensure that as much capacity as possible can be transferred.¹²⁸³

The QCA recognises that a short-term transfer mechanism that is least restrictive is in the interests of access holders. However, the QCA does not consider it unreasonable that access charges for short-term transfers be calculated using the same reference tariffs as the nominated access rights. The QCA considers that the consensus drafting proposed by Aurizon Network and

¹²⁷⁹ QRC, sub. 29: 2.

¹²⁸⁰ Pacific National, sub. 28: 1.

¹²⁸¹ Anglo American, sub. 18: 18.

¹²⁸² Anglo American, sub. 18: 18.

¹²⁸³ Anglo American, sub. 18: 18.

the QRC, and reflected in the collaborative submissions, assists to minimise the complexity of the short-term transfer mechanism. Furthermore, the QCA has considered whether allowing different reference tariffs to be transferred on a zero fee mechanism may increase the risk of gaming behaviour.

The QCA considers that the drafting of provisions relating to short-term transfers and to transfer fees payable as incorporated in the consensus drafting provides an appropriate balance between the interests of access seekers and the legitimate interests of the Aurizon Network (s.138(2)(b),(e) of the QCA Act). Additionally, the QCA considers that the drafting of the transfer fee, and related provisions, will assist to promote efficient use of significant infrastructure (s. 138(2)(a) of the QCA Act). The QCA has also considered the position of stakeholders involved in the collaborative process as reflected in the consensus drafting. Having regard to the matters to be considered by the QCA under s. 138(2) of the QCA Act, including the above matters, the QCA considers that it is appropriate to amend the transfer provisions as reflected in the collaborative submission submitted by Aurizon Network.

Train ordering timeframes

The 2017 DAU requires the transferor to submit transfers within a certain timeframe prior to the next train ordering week (see cl. 7.4.2(b)(i)(C) of the 2017 DAU). Pacific National believed that this timeframe restricts an access holders' ability to flexibly transfer access rights and may reduce the number of short-term transfers that would otherwise occur.¹²⁸⁴

In its collaborative submission, Pacific National accepted a number of matters addressed in the collaborative drafting, but did not specifically address this issue.¹²⁸⁵ For completeness, the QCA has separately considered this issue.

While it is in the interest of access holders to reduce timeframe requirements for short-term transfers, such a change needs to be balanced with providing Aurizon Network reasonable notice of access holder intentions to enable it to manage the utilisation of the network. The QCA considers that the transfer notice timeframes outlined in the collaborative drafting are appropriate, as they balance the interests of Aurizon Network and access holders (ss. 138(2)(b), (e) of the QCA Act). The QCA considers those timeframes to be consistent with the object of Part 5 (s. 138(2)(a) of the QCA Act) and considers that it is also relevant that stakeholders participating in the collaborative process accepted the timeframes.

Having regard to s. 138(2) of the QCA Act, including the above matters, the QCA considers that it is appropriate to amend the transfer provisions as reflected in the collaborative submission submitted by Aurizon Network.

¹²⁸⁴ Pacific National, sub. 19: 22.

¹²⁸⁵ Pacific National, sub. 28.

17 CAPACITY AND SUPPLY CHAIN MANAGEMENT

17.1 Aurizon Network's 2017 DAU proposal

Part 7A of the 2017 DAU provides a framework for the following matters relating to network management principles, supply chain coordination and capacity assessments:

- Aurizon Network's proposed development, review and application of System Rules (cl. 7A.2)
- Aurizon Network's proposed role with regards to coal supply chain coordination and related participation (cl. 7A.3)
- Aurizon Network's annual process to provide updated capacity assessments each year through the undertaking period (cls. 7A.4.2–7A.4.3)
- Expert review of capacity assessments, including audit processes of Aurizon Network's capacity modelling processes (cl. 7A.4.4)
- Processes where capacity deficits are identified, including publication of reports and consideration of the implications executing an Access Agreement that would increase the size of the identified capacity deficit (cl. 7A.4.3)
- Provision of system operating parameters (SOPs), their use and the processes for amending (cl. 7A.5)
- Network Development Planning requirements (cl. 7A.6).

Schedule G sets out the network management principles obligations in relation to scheduling, network control and associated services.

For access holders, it is critical that Aurizon Network can meet its contractual obligations, and that train paths are used efficiently. These factors not only affect access holders' volumes and operational flexibility, but they also contribute to a transparent understanding of the need for infrastructure expansion.

Key issues identified during the QCA's investigation

The QCA has considered all elements of Part 7A and Schedule G of Aurizon Network's 2017 DAU in making this draft decision. The following issues attracted comment from stakeholders or have been identified for further consideration by the QCA:

- Supply chain coordination—Aurizon Network considered that its 2016 Undertaking obligations for it to participate in and adopt operational changes determined by a supply chain group are not workable. Instead, Aurizon Network proposed to participate in supply chain groups where reasonable, and provide reasons where it determines that it would not adopt operational changes proposed by a supply chain group. Collaborative submissions¹²⁸⁶ supported Aurizon Network's cl. 7A.3 proposals.
- System capacity assessment—Aurizon Network submitted that its 2017 DAU proposal be amended to include a new annual assessment of system capacity, to be used for information purposes of access seekers/holders, train operators and customers.¹²⁸⁷ This new proposal

¹²⁸⁶ QRC, sub. 29: 2 and Annexure 5; Pacific National, sub. 28: 2.

¹²⁸⁷ Aurizon Network, sub. 26: 7 and Appendix 2.

was developed as part of the collaborative submission process and was supported by QRC¹²⁸⁸ and Pacific National.¹²⁸⁹

- Expert review of capacity assessment—Aurizon Network submitted that its 2016 Undertaking capacity expert review provisions are imprecise and the scope of the expert's work is essentially undefined. Aurizon Network considered that a more accurate capacity assessment is likely to be achieved by an appropriately qualified third party auditing of Aurizon Network's model rather than an expert putting in place an entirely new model.

17.2 Coal supply chain coordination

The efficient delivery of the CQCN's capacity is fundamental to the object of the QCA Act's third party access regime (set out in s. 69E of the QCA Act). This objective is furthered when all access holders and seekers are confident about:

- the development, operation and coordination of the CQCN's supply chains
- planned expansions incurring the lowest costs among the various expansion options considered.

Aurizon Network's active participation in coordination matters, as a key service provider in the supply chain, is therefore critical for the efficient operation of the supply chain.

Aurizon Network's 2017 DAU proposal

Participation in supply chain groups

Aurizon Network submitted that it did not agree with the strict obligation in its 2016 Undertaking compelling it to participate in each supply chain group, the concerns being:¹²⁹⁰

- (a) The clause requiring participation does not relate to the terms upon which access is provided to the declared service, and is therefore beyond the scope of an access undertaking to impose such an obligation.
- (b) The clauses requiring Aurizon Network's participation were inflexible and do not allow Aurizon Network to not participate in a supply chain group that is not representative of the relevant supply chain, or to limit its participation.
- (c) Aurizon Network is already required to consult with supply chain groups in developing the SOPs, NMPs and system rules.

Aurizon Network proposed that it would continue to participate in supply chain groups where it is reasonable to do so and where the incremental costs of participation are recoverable under the undertaking.¹²⁹¹ Aurizon Network did not consider that it should be required to ensure that supply chain groups were provided with a consistent level of service.¹²⁹²

¹²⁸⁸ QRC, sub. 29: 2–3 and Annexure 5.

¹²⁸⁹ Pacific National, sub. 28: 2.

¹²⁹⁰ Aurizon Network, sub. 1: 70–71.

¹²⁹¹ Aurizon Network, sub. 1: 71.

¹²⁹² Aurizon Network, sub. 1: 2017 DAU mark-up: 150.

Aurizon Network also proposed a definition of 'Supply Chain Group' to capture only groups that were established as a supply chain coordination group and which have the support of sufficient participants.¹²⁹³

Obligation to implement operational changes

Aurizon Network did not consider that it should be obliged to make operational changes determined by a supply chain group. Aurizon Network's views were that:¹²⁹⁴

- (a) Imposing an obligation to make operational changes required by supply chain groups would give power to third party groups to instruct Aurizon Network on how to operate its business.
- (b) Any operational changes that increase capacity would effectively bypass provisions in Part 8 that are subject to prudence tests. Aurizon Network therefore did not propose it should have obligations to implement operational changes that could increase capacity.
- (c) Operational changes proposed by a supply chain group does not include all stakeholders may not be in the interests of the broader group. However, the broader customer base may be required to fund any operational cost increases through socialised access charges.
- (d) Where there are multiple supply chain groups, a proposal by one supply chain may directly impact another's performance. In such cases, Aurizon Network said it should not be forced to make changes in favour of one supply chain group, over another.

Accordingly, Aurizon Network did not propose provisions requiring it to implement operational changes proposed by a supply chain group. Aurizon Network instead said it would investigate suggested operational changes if it has the capability to do so and if it considers the request was reasonable. Where Aurizon Network decides not to implement such changes, it would provide reasons for its decision to the supply chain group.

Aurizon Network did not propose any drafting that clarified that disputes arising from a decision not to adopt operational changes would be dealt with in accordance with Part 11.

QCA analysis and draft decision

Summary of draft decision 17.1

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in relation to participation in supply chain groups.**

Participation in supply chain groups

The 2017 DAU provides discretion for Aurizon Network to participate in supply chain groups where it considers it reasonable to do so.

QCoal Group agreed with Aurizon Network's view, noting that Aurizon Network has been willing to be an active member of supply chain groups and that it is in Aurizon Network's interest to participate.¹²⁹⁵

Submissions from the QRC¹²⁹⁶ and Pacific National¹²⁹⁷ confirmed support for Aurizon Network's 2017 DAU proposals in relation to participation in supply chain groups:

¹²⁹³ Aurizon Network, sub. 1: 72. See Part 12 of the 2017 DAU.

¹²⁹⁴ Aurizon Network, sub. 1: 73.

¹²⁹⁵ QCoal Group, sub. 16: 5.

- The QRC initially submitted that Aurizon Network should be obliged to participate in supply chain groups as it is not an onerous obligation and supply chain groups have been stable in number. The QRC also had the view that limiting Aurizon Network's obligations in relation to supply chain coordination will not promote the economically efficient operation, use of, and investment in the rail network. It said that the QCA has broad powers in relation to undertakings, including in relation to supply chain coordination matters.¹²⁹⁸ However, in spite of these broad views, the QRC accepted that the 2017 DAU reasonableness test provides Aurizon Network with some comfort and therefore accepted the drafting of cls. 7A.3(a),(b),(c) and (e).¹²⁹⁹
- Pacific National initially considered that any reasonableness test would be subjective and that Aurizon Network should participate in supply chain groups. Pacific National also considered that different supply chains should receive a consistent level of service. It proposed that the 2016 Undertaking wording in cls. 7A.3(a),(b) and (c)(ii) should be reinstated.¹³⁰⁰ However, in its collaborative submission, Pacific National agreed with the 2017 DAU, conditional on other changes in the broader collaborative submission being accepted.¹³⁰¹

The QCA's main concern is that Aurizon Network should not be discriminatory in selecting the supply chain groups in which it chooses to participate. The QCA notes Aurizon Network has proposed behavioural obligations that, amongst other things, include the undertaking being applied consistently.¹³⁰² The QCA is not aware of evidence that preferential treatment is being provided to certain supply chain groups over any other.

However, while the QCA agrees with Pacific National that there is an element of subjectivity implied by the reasonableness test, a reasonableness threshold is also capable of being tested objectively. In general, supply chain groups should include sufficient participants to effectively perform a co-ordination function, as defined in Part 12 of Aurizon Network's 2017 DAU. The revised drafting of the 2017 DAU retains a strong sense of commitment for Aurizon Network to participate in supply chain groups.

The Aurizon Network proposal does not substantially weaken its obligation and provides reasonable qualifications for participation; that is, Aurizon Network must participate if it has the capacity to do so and if it considers the request is reasonable. It is noted that the 2017 DAU drafting is supported by QCoal Group, Pacific National and the QRC.

The QCA considers that cl. 7A.3 of the 2017 DAU is appropriate in regard to participation in supply chain groups.

The QCA's draft decision is to approve the 2017 DAU cls. 7A.3(a),(b), (c) and (e). These changes are clearly in the legitimate business interests of Aurizon Network (s. 138(2)(b)) because they ensure more efficient management of participation costs. In the QCA's view, the provisions also further the object of Part 5 of the Act (s. 138(2)(a)), by providing for active and reasonable participation in the supply chain groups and the coordination of supply chains more broadly. At

¹²⁹⁶ QRC, sub. 29: 2 and Annexure 5.

¹²⁹⁷ Pacific National, sub. 28: 2.

¹²⁹⁸ QRC, sub. 20: 12–13.

¹²⁹⁹ QRC, sub. 20: 22; Annexure 1: 6.

¹³⁰⁰ Pacific National, sub. 19: 9.

¹³⁰¹ Pacific National, sub. 28: 2.

¹³⁰² Cl. 2.3 of the 2017 DAU.

the same time, the proposed provisions do not impair the interests of access seekers and access holders (s. 138(2)(e) and (h)).

The proposed definition of supply chain groups is considered reasonable. This provides a recognition process for supply chain groups to be sufficiently representative of their customer base and provides an incentive for supply chain groups to be formed on a representative and non-exclusive basis. Again, this strikes a balance between the interest of Aurizon Network (s. 138(2)(b)) and access seekers and access holders (s. 138(2)(e) and (h)).

Obligation to implement operational changes

QCoal Group supported Aurizon Network's position, noting that Aurizon Network is in a unique position to assess the impact of any operational changes proposed by a supply chain group in the context of the CQCN.¹³⁰³

Submissions from the QRC¹³⁰⁴ and Pacific National¹³⁰⁵ ultimately confirmed support for Aurizon Network's 2017 DAU proposals in relation to implementing operational changes proposed by supply chain groups.

- Pacific National agreed with the 2017 DAU, conditional on other changes in the broader collaborative submission being accepted.¹³⁰⁶ Pacific National initially considered that Aurizon Network should adopt operational changes that will improve capacity in the system. It proposed that 2016 Undertaking drafting be reinstated.¹³⁰⁷
- The QRC said that the agreed drafting as set out in the 2017 DAU is appropriate.¹³⁰⁸ Initially, the QRC did not consider that the risks identified by Aurizon Network to justify a change to cl. 7A.3(d) are likely to occur. It said that the adverse effect test is not confined to the system proposing the change. The QRC also objected to the amendments in relation to operational changes that increase capacity, submitting that the 2016 Undertaking drafting for cl. 7A.3(d) be reinstated.¹³⁰⁹ However, in its collaborative submission, the QRC withdrew these comments.¹³¹⁰

The QCA is minded to approve the 2017 DAU proposed by Aurizon Network in regard to the obligation to implement operational changes. On the basis of the arguments presented by Aurizon Network, we are satisfied that unanticipated issues could arise from an automatic obligation to implement changes, although it is acknowledged that the risk is likely low. At the same time, the 2017 DAU does not discourage supply chain groups from considering operational changes that would increase capacity. Rather, Aurizon Network has the discretion, reflecting its better information about the CQCN in general, and must give reasons for the exercise of its discretion. Such reasons would necessarily relate to any adverse impacts on network development plans, system rules or system operating parameters that may not be anticipated by, nor important to, a particular individual supply chain group. The obligation to give reasons should act to keep Aurizon Network's decision-making reasonable in this regard.

In response to the specific issues raised by Aurizon Network:

¹³⁰³ QCoal Group, sub. 16: 5.

¹³⁰⁴ QRC, sub. 29: 2 and Annexure 5.

¹³⁰⁵ Pacific National, sub. 28: 2.

¹³⁰⁶ Pacific National, sub. 28: 2.

¹³⁰⁷ Pacific National, sub. 19: 9.

¹³⁰⁸ QRC, sub. 29: 2.

¹³⁰⁹ QRC, sub. 20: 23.

¹³¹⁰ QRC, sub. 29: 2.

- (a) The QCA accepts that some qualifications need to be applied to the obligation to implement changes proposed by a supply chain group, to take account of issues raised by Aurizon Network. Clause 7A.3(d) of the 2017 DAU is therefore considered appropriate.
- (b) The costs of operational changes that result in an increase in capacity should be compared to the costs of comparable infrastructure expansion options. The supply chain groups may be able to propose cost-effective changes that defer capacity expansions. Aurizon Network's participation in supply chain groups would facilitate a comparison of the options. However, the 2017 DAU drafting would not seem to inhibit appropriate consideration of such options, as it provides for Aurizon Network to participate where the request is reasonable (and this likely includes examples where there are benefits).

The QCA is interested in considering how Aurizon Network is incentivised to make operational improvements to avoid unnecessary investments.

- (a) It is acknowledged that operational changes may result in increases in costs that are socialised across all customers, some of whom may not be beneficiaries. The QCA has undertaken a comprehensive assessment of Aurizon Network's proposed operating costs to assess their efficiency (see Chapter 7). Ultimately, the onus remains on Aurizon Network to ensure the best options are implemented for expansions or other operational efficiency requirements.
- (b) Similarly, the QCA is interested in considering how supply chain participants can also be incentivised to make investments that lower the total cost of supply, but some others may also be beneficiaries.
- (c) Operational changes that result in conflict between supply chain groups would need to be evaluated by Aurizon Network and understood by all supply chain groups.

The QCA considers that it is appropriate to approve cl. 7A.3 of the 2017 DAU in regard to participation in supply chain groups and implementation of changes proposed by supply chain groups. It strikes an appropriate balance between the interests of Aurizon Network, access seekers and access holders (ss. 138(2)(b), (e) and (h)) and encourages the economically efficient operation and investment in infrastructure (s. 138(2)(a)).

17.3 Capacity assessment

Aurizon Network's 2017 DAU proposal

Aurizon Network submitted that its UT5 undertaking does not require any provisions for a baseline capacity assessment as the one-off requirement will be completed under the 2016 Undertaking.¹³¹¹ Accordingly, the 2017 DAU does not include these processes.¹³¹²

¹³¹¹ Aurizon Network, sub. 1: 86.

¹³¹² Aurizon Network, sub. 1: 2017 DAU mark-up: 151–157.

QCA analysis and draft decision

Summary of draft decision 17.2

- **The QCA accepts that Aurizon Network's 2017 DAU should not include provisions for a baseline capacity review on the basis that, this process will be completed under the 2016 Undertaking arrangements.**
- **The QCA's draft decision is that the 2017 DAU should be amended to include a new transitional provision, and consequential amendments, which account for the situation where the baseline capacity review has not been completed prior to the approval of the UT5 undertaking. See cl. 12.4(g) in Appendix K for the QCA's amendments to the 2017 DAU.**

The QCA has received a baseline capacity assessment from Aurizon Network as part of its 2016 Undertaking obligations. It is anticipated that following a consultation process the baseline capacity assessment will be finalised prior to the approval date of the UT5 undertaking. However, the risk of a delay in the process remains.

The QRC accepted Aurizon Network's 2017 DAU proposals on the proviso that the baseline capacity assessment is completed and approved under the 2016 Undertaking.¹³¹³ Pacific National observed that Part 7A may need redrafting to reflect the status of the baseline capacity work, but did not propose any changes at this time.¹³¹⁴ Anglo American submitted that the baseline capacity concept should not be deleted, and that a yearly updated baseline capacity report should be provided to the QCA and industry via an updated Network Development Plan (NDP) document.¹³¹⁵

Taking account of the views expressed in the submissions, the QCA considers the baseline capacity assessment should be completed under the 2016 Undertaking, making the annual capacity assessment (see section 17.4) sufficient for the UT5 undertaking period.

We therefore propose to approve Aurizon Network's proposal, but consider it appropriate to amend the 2017 DAU to provide for a transitional mechanism in the event that the completion of the baseline capacity assessment is not completed during the operation of the 2016 Undertaking. This takes the form of a proposed cl. 12.4(g) (see Appendix K) to be included in the 2017 DAU, with additional consequential amendments to the definitions of Baseline Capacity Assessment and Baseline Capacity Assessment Report (Part 12) and other references within Part 7A. More information on the status of the baseline capacity assessment should be available prior to the final decision to determine whether this transitional drafting is required.

This approach is considered appropriate after having regard to the s. 138(2) factors, because it balances the interests of Aurizon Network while ensuring an appropriate level of information is available to access seekers and access holders in respect of capacity matters (ss. 138(2)(b),(d),(e) and (h)).

¹³¹³ QRC, sub. 20: 24, Annexure 1: 6.

¹³¹⁴ Pacific National, sub. 19: 20–21.

¹³¹⁵ Anglo American, sub. 18: 19.

17.4 Annual capacity assessments

Aurizon Network's 2017 DAU proposal

Aurizon Network's 2017 DAU is based on an annual capacity assessment process that takes into account the completed 2016 Undertaking baseline capacity assessment.¹³¹⁶

Under Part 7A of Aurizon Network's 2017 DAU proposal, capacity assessments will:

- be undertaken on the same date each year as the date the QCA publishes the 2016 Undertaking baseline capacity assessment report and when variations in system operating assumptions materially changed expected existing capacity in a coal system (cl. 7A.4.2(a)). This could occur, for example, where changes in payloads significantly affect capacity and therefore require a review of system operating parameters
- use the same modelling methodology in its previous capacity assessment or provide reasons for any change in approach (cl. 7A.4.2(b)(v))
- include its consideration of:
 - consultation outcomes with access holders, access seekers (and, where applicable, their customers and train operators) and relevant supply chain groups (cls. 7A.4.2(b)(i),(ii))
 - Access Agreement terms within each coal system (cl. 7A.4.2(iv)(A))
 - interfaces between its rail infrastructure and other parts of the supply chain (cl. 7A.4.2(iv)(B))
 - strategic train plans for that coal system.

Aurizon Network proposes to engage an expert, acceptable to the QCA, to audit the capacity assessment (including the strategic train plans).

¹³¹⁶ Aurizon Network commenced the baseline capacity assessment under its 2016 Undertaking (cl. 7A.4.1). Refer to Aurizon Network, sub. 1: 2017 DAU mark-up.

QCA analysis and draft decision

Summary of draft decision 17.3

- **The QCA's draft decision is that the 2017 DAU be amended to reflect the drafting agreed between Aurizon Network and QRC, as submitted in their respective collaborative submissions, so that the following apply:**
 - (a) Aurizon Network will undertake annual system capacity assessments for information purposes.**
 - (b) System capacity assessments must have regard to outcomes of consultation with access holders, access seekers, supply chain groups, and port operators.**
 - (c) System capacity assessments will take account of reasonable requirements in respect of maintenance and repair of each element of the supply chain (including loading facilities, load out facilities and coal export terminal facilities); reasonably foreseeable delays or failures occurring in the relevant supply chain (including mine, port and rollingstock-associated losses); and the supply chain operating mode, among other factors.**

See consensus drafting to cl. 7A.4.3 for the QCA's proposed amendments to the 2017 DAU.

Aurizon Network's collaborative submission proposal

Following the collaborative submission process, Aurizon Network submitted that the 2017 DAU be amended to accommodate system capacity assessments (see collaborative submission drafting in cl. 7A.4.3).¹³¹⁷ Pacific National and QRC supported Aurizon Network's collaborative submission proposals.

Under the consensus drafting, Aurizon Network proposed to undertake a system capacity assessment for each coal system for information purposes. Aurizon Network considered the information from a system capacity assessment would benefit access holders and access seekers, as well as customers and train operators.¹³¹⁸

Accordingly, the parties reached consensus that system capacity assessments would take account of:

- (a) reasonable requirements in respect of maintenance and repair of each element of the supply chain (including loading facilities, load out facilities and coal export terminal facilities)
- (b) reasonably foreseeable delays or failures occurring in the relevant supply chain (including mine, port and rollingstock-associated losses)
- (c) the supply chain operating mode
- (d) the capacity of each element of the supply chain (including loading facilities, load out facilities, rollingstock and coal export terminal facilities).¹³¹⁹

Annual capacity assessments

The QRC accepted Aurizon Network's proposal to consider the outcomes of consultation, not the consultation itself.¹³²⁰ The QCA agrees that cls. 7A.4.2(b)(i) and (iii), as proposed by Aurizon

¹³¹⁷ Aurizon Network, sub. 26: Appendix 1.

¹³¹⁸ Aurizon Network, sub. 26:7.

¹³¹⁹ Aurizon Network, sub. 26: Appendix 1, Part 12 Amended 2017 DAU; QRC, sub. 29: 3.

Network, are reasonable and that it is appropriate to approve these clauses, having regard to s. 138(2).

System capacity assessments

Following the collaborative submission process, Aurizon Network and the QRC submitted that the 2017 DAU should be amended to include a new system capacity assessment process. Pacific National also agreed with these amendments.¹³²¹

The QRC proposed a number of significant amendments to the 2017 DAU in its initial submission.¹³²² The QRC observed that the baseline capacity assessment adopted by Aurizon Network used a very narrow interpretation of capacity—with rail infrastructure as an isolated asset, ignoring the impact of the operating mode of ports, planned maintenance of loading and unloading facilities and supply chain capability.¹³²³

In the consensus submission process, stakeholders proposed that these assumptions be incorporated into the Part 12 definition of 'system capacity'. System capacity is defined as the maximum number of train paths, calculated monthly and annually, that can be provided in respect of each coal system and each mainline and branchline of each coal system, including for any expansion.¹³²⁴

As part of the collaborative process in developing the new system capacity provisions, the QRC agreed to depart from some positions it proposed in its initial submission¹³²⁵; that is, the QRC said it would:

- (a) not require separate capacity assessments for expansions. Expansion capacity is included in the system capacity where relevant
- (b) depart from its position that Aurizon Network should be prohibited from contracting any additional capacity where system capacity does not exist¹³²⁶
- (c) not require an expert review process for system capacity assessments.¹³²⁷

The QCA considers that if Aurizon Network is able to collect the relevant information on capacity effects of, for example, load-out facilities and port facilities, this should result in a more accurate estimate of system capacity, which should assist in planning processes for the entire supply chain. With the process of extensive consultation built into the capacity review process, an expert assessment should not be necessary. The QRC's view is that the system capacity assessment is intended to be modelled based on reasonable and real-life forecast assumptions rather than contractual arrangements.¹³²⁸

Clause 7A.4.3(d) of the consensus drafting requires Aurizon Network to promptly publish the outcomes of the system capacity assessment on its website. Taken overall, the 2017 DAU when amended to incorporate the proposed consensus drafting should provide a timely, relevant and transparent assessment of system capacity. This is consistent with the public interest in having

¹³²⁰ QRC, sub. 20: Annexure 1: 8.

¹³²¹ Pacific National, sub. 28: 2.

¹³²² QRC, sub. 20: 24–26.

¹³²³ QRC, sub. 20: 25–26.

¹³²⁴ Aurizon Network, sub. 26: 2017 DAU mark-up.

¹³²⁵ QRC, sub. 20: 25.

¹³²⁶ QRC, sub. 29: 3.

¹³²⁷ Aurizon Network, sub. 26: 7.

¹³²⁸ QRC, sub. 29: 3.

an efficient network by allowing for accurate allocation of access (ss. 138(2)(a) and (d)), as well as the interests of access seekers and access holders, by reducing information asymmetry (ss. 138(2)(e) and (h)). A transparent assessment of system capacity also promotes the legitimate business interests of Aurizon Network (s. 138(2)(b)), by allowing Aurizon Network to accurately assess its available and committed capacity.

Accordingly, the QCA's draft decision is that the 2017 DAU be amended to incorporate the consensus drafting supported by Aurizon Network, the QRC and Pacific National (cl. 7A.4.3 of the collaborative submission amendments to the 2017 DAU). However, in response to requests for information, Aurizon Network and QRC clarified that further minor drafting amendments relate to:

- cl. 7A4.3(a) - Aurizon Network must undertake a static or dynamic (as appropriate) *system* capacity analysis
- Part 12 definition - the definition of system capacity analysis should refer to a simulation modelling assessment of the system capacity
- cl. 7A4.3 to 4.5 - various cross references need to be consistent.

17.5 Capacity deficits

Aurizon Network's 2017 DAU proposal

A capacity deficit occurs where committed capacity exceeds existing capacity. Aurizon Network's 2017 DAU reflects a number of drafting proposals to accommodate the transition from the 2016 Undertaking (under which a baseline capacity assessment is anticipated to be completed) to the UT5 undertaking (see cl. 7A.4.3 of the 2017 DAU). This allows for circumstances where a capacity deficit report has not been published before the approval date of the UT5 undertaking.

Overview of 2016 Undertaking capacity deficit provisions

In the 2016 Undertaking, where an agreed baseline capacity assessment report reveals a capacity deficit (that is, committed capacity exceeds existing capacity), Aurizon Network must provide a preliminary report to the QCA within 20 business days that:

- (a) identifies the likely cause, location (coal system) and size of the deficit
- (b) identifies the access holders and seekers affected by the capacity deficit
- (c) includes Aurizon Network's proposed plan for consulting with the affected access holders and seekers
- (d) includes Aurizon Network's preliminary views on solutions that can most efficiently resolve the capacity deficit.

Within six months of the capacity deficit being revealed under the 2016 Undertaking, Aurizon Network is required to provide a report to the QCA that:

- (a) identifies the preferred below-rail operational changes that can address the capacity deficit, including estimates of relevant costs (if any) to implement those changes
- (b) where below-rail operational changes cannot resolve the deficit, provides evidence of Aurizon Network's consultation with stakeholders that explains why below-rail operational changes are unviable
- (c) identifies a shortlist of the below-rail expansion options that have been explored, including estimates of costs to undertake those expansions
- (d) identifies whether Aurizon Network and stakeholders have agreed on a specific below-rail expansion to resolve the capacity deficit.

Where Aurizon Network and stakeholders agree on a below-rail expansion to resolve the capacity deficit, Aurizon Network must negotiate in good faith with affected access holders/seekers on the cost-sharing arrangements to apply to that expansion.

If Aurizon Network and affected access holders/seekers are unable to agree on a cost-sharing arrangement,

they can refer a proposed cost-sharing arrangement to the QCA for a decision. Both Aurizon Network and the affected access holders/seekers need to first agree to refer that cost-sharing arrangement to the QCA and agree to be bound by the QCA's decision on that arrangement.

The expansion itself would be undertaken in accordance with Part 8 of the 2016 Undertaking. This makes the process for all expansions consistent (regardless if the objective is to address capacity deficits in existing infrastructure or in new infrastructure).

Aurizon Network proposes that it would use reasonable endeavours to consult with supply chain groups and terminal operators to identify if there are supply chain solutions to the capacity deficit (cl. 7A.4.3(c)). This is in line with its proposals for a non-obligatory involvement with supply chain groups as noted above.

Aurizon Network also included a process where the most recent capacity assessment report reveals there is a deficit in capacity for a coal system (cl. 7A.4.3(b)). Under this provision, Aurizon Network must submit to the QCA and publish on its website within 20 days a preliminary report, and must within six months provide a detailed report showing solutions to address the capacity deficit. These provisions align with those applying to a capacity deficit arising from a baseline capacity assessment as set out in the 2016 Undertaking.¹³²⁹

Aurizon Network did not include any reference to affected access seekers, as its view is that a capacity deficit is only relevant to access holders. It also did not include the requirement that Aurizon Network must 'act in good faith' to negotiate with access holders and access seekers, preferring the term 'act reasonably'. No reference is made either to a dispute process about who will fund or the proportion of funding required.¹³³⁰

QCA analysis and draft decision

Summary of draft decision 17.4

- **The QCA's draft decision is that the 2017 DAU be amended so that:**
 - (a) access seekers are involved in decisions regarding capacity deficits where relevant**
 - (b) Aurizon Network must negotiate 'in good faith' with access holders and access seekers**
 - (c) any disputes are to be resolved in accordance with Part 11.**
- See cl. 7A.4.3 in Appendix K for the QCA's amendments to the 2017 DAU.**

Aurizon Network's proposal accommodates the scenario where the baseline capacity assessment is completed under the 2016 Undertaking, but any capacity deficit matters are addressed under the UT5 undertaking. The QRC considered the amendments acceptable, provided the baseline capacity assessment is completed under the 2016 Undertaking.¹³³¹ These essentially transitional amendments are appropriate in light of the approval of the removal of the baseline capacity assessment report provisions from the 2017 DAU and inclusion of a new transitional provision (see above).

The provisions to require consultation with supply chain groups and terminal operators on a reasonable endeavours basis are also considered appropriate. The drafting retains an obligation

¹³²⁹ Aurizon Network, sub. 1: 86–88.

¹³³⁰ Aurizon Network, sub. 1, 2017 DAU.

¹³³¹ QRC, sub. 20, Annexure 1: 10.

to consult with access holders, customers and train operators in regard to the capacity deficit, which the QCA considers is sufficient (see above for further discussion). This is also supported by the QRC.¹³³²

The QCA agrees with the process included for reporting to the QCA on the outcomes of the assessment of capacity deficit and proposed solutions.

However, the QCA considers that it is not appropriate to approve the following aspects of the 2017 DAU:

- (a) Clause 7A.4.3(c) and (e)—the QCA’s view is that a capacity deficit is relevant to access seekers, given they may well be directly affected by a capacity deficit. The QCA notes that the QRC’s submission promoted this approach with respect to s. 138(2)(e).¹³³³
- (b) Clause 7A.4.3(e)(ii)—the QCA considers that the term 'act in good faith' is appropriate, rather than 'act reasonably'. 'Act in good faith' is consistent with the negotiation principle in s. 100(1) of the QCA Act; also, the term 'act reasonably' may imply a lower level of commitment to the relevant negotiations on the part of Aurizon Network. The QRC and Pacific National’s submissions promoted this approach (ss. 138(2)(a),(d),(e) and (h)).¹³³⁴
- (c) Clause 7A.4.3(e)(ii)—the reference to dispute resolution under Part 11 should be included to provide certainty to the processes to resolve differences. The QRC, Anglo American and Pacific National supported this approach (ss. 138(2)(e) and (h)).¹³³⁵

The QCA notes that the range of solutions to address a capacity deficit could include:

- (a) below-rail operational changes (e.g. SOP amendments) and the associated costs
- (b) capacity trading
- (c) above-rail supply-chain options
- (d) below-rail expansion options.

For the reasons set out above, the QCA is of the view that it is not appropriate to approve the 2017 DAU, after having regard to the object of Part 5 of the QCA Act (s. 138(2)(a)) and the interests of access seekers and access holders (ss. 138(2)(e) and (h)). This is because in order to further the object of the Act, the process for dealing with capacity deficits needs to be transparent, involve consultation with all those likely to be affected—including access seekers—and provide a robust mechanism for addressing any such capacity deficits, including by way of good faith negotiations and a dispute resolution process. Such a framework is also in the interests of access seekers and access holders. The framework proposed in the 2017 DAU does not go far enough to achieve these important objectives.

The QCA considers that it would be appropriate to amend the 2017 DAU with the suggested amendments in Appendix K of this draft decision. The QCA considers that these amendments provide an appropriate balance between the legitimate business interests of Aurizon Network (s. 138(2)(b)) and the interests of access seekers and access holders.

¹³³² QRC, sub. 20, Annexure 1: 10.

¹³³³ QRC, sub. 20: Annexure 1: 12.

¹³³⁴ QRC, sub. 20: Annexure 1: 12; Pacific National, sub. 19: 9.

¹³³⁵ QRC, sub. 20, Annexure 1: 12; Pacific National, sub. 19: 9; Anglo American, sub. 18: 19.

17.6 Expert review of capacity assessments

Aurizon Network's 2017 DAU proposal

Expert review of annual capacity assessments

Aurizon Network submitted that the 2016 Undertaking capacity expert provisions are imprecise and the scope of the expert's work is essentially undefined. Aurizon Network considered that a more accurate capacity assessment is likely to be achieved by an appropriately qualified third party auditing Aurizon Network's model rather than an expert putting in place an entirely new model. Aurizon Network also set out the consequences of overstatement or understatement of capacity. For example, if capacity is understated, a capacity deficit could be incorrectly identified and an unnecessary expansion investigated.¹³³⁶

Overview of 2016 Undertaking expert review of capacity assessments

Under the 2016 Undertaking, the QCA may choose to engage an appropriately qualified independent expert to review Aurizon Network's baseline capacity assessment (cl. 7A.4.1).

If the QCA disagrees with Aurizon Network's baseline capacity assessment report, it may request Aurizon Network to make amendments to the report. Aurizon Network can make these amendments, or provide reasons for not accepting the amendments. If the QCA still does not agree with the amendments, it may prepare an alternative baseline capacity assessment report. The QCA may engage an independent expert to assist it with the alternative report.

For subsequent annual capacity assessments (cl. 7A.4.2), Aurizon Network may be requested by the QCA, or by access holders or customers (accounting for at least 60% of train paths or the number of access holders), to engage an independent expert to review the preliminary assessment. The expert must be acceptable to the QCA. Aurizon Network must make reasonable endeavours to adopt the recommendations of the independent expert and produce an amended assessment.

Clause 7A.4.4 of the 2016 Undertaking sets out provisions for the engagement of an appropriately qualified independent expert, the expert's reporting arrangements, and obligations on Aurizon Network to provide relevant information and run various scenarios at the request of the expert.

Aurizon Network therefore proposed that the third party expert verification process for annual capacity assessments should follow an expert audit of the model, with Aurizon Network's model being the reference point for the audit process. Aurizon Network indicated that the process would be no less transparent or accountable, but would involve lower cost and time commitments.¹³³⁷

Aurizon Network submitted that its proposed cl. 7A.4.4(b) audit process would:

- (a) confirm that input parameters are consistent with the requirements of existing Access Agreements, all relevant laws, as well as the UT5 undertaking (including, the network management principles, relevant system rules and system operating parameters)
- (b) confirm input parameters were correctly applied in Aurizon Network's model
- (c) confirm that the preliminary capacity assessment report appropriately and correctly reflects the outcome of the modelling and was otherwise complete and accurate
- (d) provide a response process in circumstances where the auditor was unable to provide such confirmation; the auditor is required to make a recommendation on how issues are to be addressed.¹³³⁸

¹³³⁶ Aurizon Network, sub. 1: 87.

¹³³⁷ Aurizon Network, sub. 1: 87–88.

¹³³⁸ Aurizon Network, sub. 1: 88.

Aurizon Network's cl. 7A.4.4(b) requires the auditor to 'opine' on the above matters rather than to 'confirm'.¹³³⁹

Aurizon Network would provide the expert auditor's report promptly to access holders, access seekers and customers, and on an unredacted basis, to the QCA (cl. 7A.4.2(e)).

Aurizon Network will then within 20 days respond to the auditor's report, with its view as to whether the audit recommendation is reasonable. If considered not reasonable, Aurizon Network will provide reasons. If the recommendation is reasonable, Aurizon Network will modify its modelling process appropriately and amend the preliminary capacity assessment report.¹³⁴⁰

QCA analysis and draft decision

Summary of draft decision 17.5

- **The QCA's draft decision is that the 2017 DAU be amended so that:**
 - (a) subsequent capacity assessments are subject to 'review' rather than 'audit'**
 - (b) for annual capacity assessments, the review should identify changes since the previous capacity assessment, whether changes to assumptions are required, and the appropriate application of assumptions.**
 - (c) notice is provided to access holders if there is insufficient capacity to meet the requirements of a new access agreement.**

See cl. 7A.4.5 and cl. 7A.4.2(g) in Appendix K for the QCA's proposed amendments to the 2017 DAU.

Expert review of annual capacity assessments

Under the 2016 Undertaking, the approved baseline capacity assessment will potentially have already been subject to an expert review (if required), including whether or not Aurizon Network's model is appropriate. Following an expert review, an alternative baseline capacity assessment may be completed.

Aurizon Network expressed a view that the third party verification process should be framed so that the expert does not develop their own assessment of capacity from first principles and therefore proposed an audit process rather than a review process.

The QRC noted that an audit process defeats the purpose of an independent review, part of which is to interrogate the assumptions used in the capacity assessment. It would narrow the expert's role to identifying application errors. The QRC considered that a broad first principles review of capacity is an important way for stakeholders to be confident about the accuracy of the capacity assessment.¹³⁴¹ Pacific National concurred with the QRC, noting that an audit narrows the scope to a verification of the capacity assessment calculations. Pacific National proposed the word 'review' in cls. 7A.4.2 and 7A.4.4, consistent with the 2016 Undertaking provisions.¹³⁴² QCoal Group noted that the role of the expert as set out in the 2016 Undertaking has the potential to improve the quality of information from a capacity assessment. QCoal

¹³³⁹ Aurizon Network, sub. 1, 2017 DAU mark-up.

¹³⁴⁰ Aurizon Network, sub. 1: 88.

¹³⁴¹ QRC, sub. 20: 24.

¹³⁴² Pacific National, sub. 19: 9.

supported the QRC's amendments.¹³⁴³ Anglo American proposed generally that the 2016 Undertaking provisions be reinstated in regard to expert review.¹³⁴⁴

The QCA does not consider that the 2016 Undertaking requires that the expert necessarily needs to develop an entirely new model. Rather, as originally submitted in Aurizon Network's 2014 DAU, it requires the expert to undertake a 'review' of the capacity assessment. This does not necessarily entail developing a new model from first principles as suggested by Aurizon Network.

Unless there are extensive changes in circumstances, it is anticipated that the model itself would remain unchanged from the baseline capacity assessment.

With the support of stakeholders, the QCA considers that the annual capacity assessments be subject to 'review' by an independent expert rather than a compliance-style 'audit'. This should provide confidence and certainty to access holders and access seekers that the capacity assessment is based on rigorous analysis (ss. 138(2)(e) and (h)). An audit process may not provide sufficient certainty and credibility, and may not for example address whether underlying assumptions and inputs within the model remain appropriate (ss. 138(2)(a), (d) and (h)).

The proposed scope for the audit as set out in cl. 7A.4.4(b) of the 2017 DAU is considered to be too constrained in its scope. The review process should also involve:

- reviewing the validity of assumptions and, if appropriate, making changes to assumptions used in capacity assessments and the subsequent capacity assessment modelling
- reviewing to ensure that the modelling assumptions are applied correctly
- identifying and taking account of significant changes since the previous capacity assessment where appropriate.

The QCA therefore proposes to define the review scope to cover these requirements, as set out in cl. 7A.4.5(b) of the proposed amendments to the 2017 DAU (Appendix K).

Aurizon Network has not proposed to use reasonable endeavours to adopt reasonable recommendations of the expert audit report (cl. 7A.4.2(d)(v)(4)). Aurizon Network's 2017 DAU proposal sets out a series of steps that give Aurizon Network discretion as to whether or not it will adopt changes recommended by the auditor. The QRC was agreeable to this amendment, but considered that Aurizon Network should notify access holders where it intends entering into a new Access Agreement if the independent expert has determined there is insufficient available capacity to meet the demand of the new Access Agreement. Otherwise, access holders would not be aware that Aurizon Network is entering into an agreement with access seekers where the expert believes there is insufficient capacity.¹³⁴⁵

In the QCA's view, the 2017 DAU drafting would allow Aurizon Network to either make no changes or only selectively make changes to the preliminary capacity assessment. While the clause requires Aurizon Network to provide transparent reasons why it considers the expert report is not reasonable, Aurizon Network retains a very wide discretion (cl. 4.2(e)(ii)). However, the QCA proposes to accept the proposal, subject to amendments to address the QRC's suggestion to notify access holders if there is insufficient capacity to meet the requirements of a

¹³⁴³ QCoal Group, sub. 16: 6.

¹³⁴⁴ Anglo American, sub. 18: 19.

¹³⁴⁵ QRC, sub. 20: 24–25; QRC, sub. 29: 9.

new access agreement (see new cl. 7A.4.2(g) in Appendix K for the QCA's proposed amendments). The QCA considers that the 2017 DAU provisions relating to potential modifications to the 'modelling process' are appropriate (cls. 4.2(e) and (f) of the 2017 DAU).

The QCA considers that the proposed changes to the 2017 DAU are appropriate, having regard to the interests of access holders and access seekers (s. 138(2)(e)), as they would provide better information and greater certainty to those parties. The changes do not in the QCA's view detract from the legitimate business interests of Aurizon Network (s 138(2)(b)).

17.7 Confidentiality

Aurizon Network's 2017 DAU proposal

The 2017 DAU proposes the following:

- Aurizon Network is to use reasonable endeavours to enter into confidentiality obligations that do not prevent disclosure of information, and permit disclosure of information required by the undertaking, relevant to capacity assessments and other matters.
- Disclosure to the QCA of confidential information relevant to capacity assessments is still required to enable the QCA to evaluate whether the capacity assessment is robust and reasonable
- Where consent for release of information cannot be obtained, information may be aggregated and provided on an unredacted basis.

Aurizon Network proposed the expert's final audit report would be subject to confidential obligations (cl. 7A.4.2(d)(v)).

QCA analysis and draft decision

Summary of draft decision 17.6

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals relating to confidentiality provisions for capacity assessments.**

The QRC noted that Aurizon Network's proposal is consistent with the 2016 Undertaking with respect to confidential information, and accepted cl. 7A.4.2(d)(v).¹³⁴⁶

The QCA considers that Aurizon Network's confidentiality obligations are reasonable and should be applied where a capacity assessment process is undertaken.

In the context of capacity assessments, access seekers should have the right to protect information that is critical to, for example, their competitive advantage. At the same time, however, capacity assessments must include all critical operational information to allow for stakeholders to have an accurate understanding of the network's capacity. Aurizon Network's 2017 DAU meets these principles and is considered appropriate to approve. These provisions achieve the right balance between the interests of access holders and access seekers, and Aurizon Network's legitimate business interests (ss. 138(2)(b), (e) and (h)).

¹³⁴⁶ QRC, sub. 20, Annexure 1: 8.

17.8 System operating parameters amendment processes

Aurizon Network's 2017 DAU proposal

System operating parameters (SOPs) contain Aurizon Network's core assumptions for operating each element of the supply chain within each coal system.

Under cl. 7A.5 of the 2017 DAU, Aurizon Network will maintain SOPs for each coal system at all times. The SOPs seek to be consistent with the relevant assumptions in the baseline capacity assessment and subsequent capacity assessments.

Aurizon Network proposes to consult with all access holders, access seekers, customers, supply chain groups, and affected infrastructure providers, infrastructure service providers and railway operators on all capacity and operating assumptions (i.e. SOPs and other parameters) that will underpin Aurizon Network's baseline capacity assessment and subsequent capacity assessments. Aurizon Network will respond to stakeholder submissions on the SOPs within 15 business days, or a longer period if agreed by the QCA.

Aurizon Network will review the SOPs for a coal system as soon as practicable after it becomes aware that a sustained change has occurred, or will occur, to the coal system that materially affects those SOPs. This includes where a new coal terminal is connected to the rail infrastructure or a major expansion is completed.

The QCA can review or amend the SOPs if it undertakes its own baseline capacity assessment, and, in doing so, must have regard to the terms of Access Agreements and consider the impact those changes have on access holders. While Aurizon Network need not adopt the SOP amendments proposed by the QCA in the baseline capacity assessment, the revised SOPs will form part of the QCA's alternative baseline capacity assessment, which will be the point of reference for addressing capacity-deficit matters.

Aurizon Network proposes to submit SOPs to the QCA on an unredacted basis, and publish the SOPs on its website in a way that is consistent with honouring confidentiality obligations it is unable to waive with third parties.

QCA analysis and draft decision

Summary of draft decision 17.7

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in respect of system operating parameters (cl. 7A.5).**

The QCA's draft decision is to approve the SOP provisions as proposed by Aurizon Network. The QCA notes that Aurizon Network has proposed provisions consistent with existing arrangements except for amendments to provide for the baseline capacity assessment report to be completed under the 2016 Undertaking provisions.

Stakeholders did not raise any concerns with Aurizon Network's proposal.

The 2017 DAU approach to SOPs is consistent with the legitimate business interests of Aurizon Network (s. 138(2)(b)) and achieves the right balance between the interests of access seekers and access holders (ss.138(2)(e) and (h)). It also advances the object of Part 5 (s. 138(2)(a)) by providing timely and transparent information on the operation of the network (s. 138(2)(a)).

17.9 Network Development Plan

Aurizon Network's 2017 DAU proposal

Under cl. 7A.6 of the 2017 DAU, the Network Development Plan (NDP) is an overarching strategic tool providing the most efficient way of disseminating information to supply chain participants on the cost profiles for various rail infrastructure capacity expansions.

The NDP identifies the medium-term capacity options that will meet future demand for access in each coal system and includes options for developing or improving the operational performance, capacity and cost of throughput on the CQCN. The NDP identifies the particular track segments within each coal system that are capacity-constrained.

The NDP provides all supply chain participants with:

- a dynamic capacity review in a five-year planning horizon, taking into account the expansion options being at least at the pre-feasibility stage; existing TSEs; and TSEs of access seekers (and renewing access seekers (if any)) who have properly completed their access applications and have provided the information set out in cl. 4, Schedule B of the undertaking
- growth scenarios within each coal system linking to a port optimisation project (where Aurizon Network, acting reasonably, considers this appropriate)
- the impact of operational constraints on existing capacity, committed capacity and available capacity
- the scope, standard and preliminary costs of proposed expansion projects under investigation as a concept study, pre-feasibility study or feasibility study
- investigations being undertaken or being considered to inform the next NDP update.

Aurizon Network can provide static-capacity modelling outputs for planned rail infrastructure projects that are scheduled to occur within more than five years, if it considers it appropriate.

The NDP will be reviewed and updated annually or more frequently as considered necessary (cl. 7A.6(c)). Conditions for when the review and update process should be undertaken include when there are material changes in circumstances; when expansion infrastructure is being completed and new coal basins and port terminals are being connected to Aurizon Network's infrastructure; and where the QCA or 60 per cent of access holders request it.

In developing the NDP, Aurizon Network must have regard to current SOPs, system rules and network management principles. A draft NDP should be provided to the QCA and all relevant supply chain participants, who can then make submissions to Aurizon Network on the draft NDP.

The draft NDP can be peer reviewed if requested by access holders, access seekers and their customers.

Aurizon Network must take relevant supply chain participants' views into account in finalising the NDP.

Stakeholders who consider that Aurizon Network has inadequately addressed their views can refer the NDP to the QCA for dispute resolution.

QCA analysis and draft decision

Summary of draft decision 17.8

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in respect of Network Development Plans.**

The QCA's draft decision is to approve the provisions for Aurizon Network to develop its Network Development Plans as proposed by Aurizon Network. The QCA notes that Aurizon Network has proposed provisions consistent with existing arrangements.

Stakeholders did not raise any concerns with Aurizon Network's proposal.

The 2017 DAU approach to Network Development Plans provides a balance between the interests of Aurizon Network (s. 138(2)(b)) and those of access seekers and access holders (ss. 138(2)(e) and (h)). It also advances the object of Part 5 (s. 138(2)(a)), by providing timely information relating to efficient investment in the network (s. 138(2)(a)).

17.10 Network Management Principles

Aurizon Network undertakes operational decisions to make contracted train service entitlements¹³⁴⁷ (TSE) available for use by train operators. The network management principles (NMPs), which represent a general framework for managing operators' use of the CQCN, are set out in Schedule G of the 2017 DAU.

The NMPs in Schedule G of the 2017 DAU cover:

- the forms of train plans to be developed by Aurizon Network (see cls. 2–5)
- the train control principles—to facilitate the safe running of train services and network possessions in delivering the daily train plan (DTP) (see cl. 7)
- the contested train paths principles—to guide the allocation methodology for mutually exclusive requests by two or more parties for a train path during the development of the intermediate train plan (ITP) (see cl. 8)
- the traffic management decision making matrix (TMDMM)—to guide the decisions in resolving conflicts in the day-to-day management of trains (see cl. 9).

The implementation of the NMPs is prescribed in greater detail in the relevant system rules—system rules are documents separate to the access undertaking, and are developed (and maintained) in consultation with stakeholders to address issues relevant to each specific rail system.

Train plans

Aurizon Network's 2017 DAU proposal

Train plan development plays a significant role in the process of Aurizon Network meeting its contracted TSE obligations.

Schedule G of the 2017 DAU requires that Aurizon Network develop four types of train plans: a strategic train plan (STP); a master train plan (MTP); an intermediate train plan (ITP); and a daily train plan (DTP). Other than the STP, the train plans are in a tabular timetable form that can be

¹³⁴⁷ A TSE is an access holder's entitlement to operate or cause to be operated a specific number and type of train services on the CQCN within a specific time period and in accordance with specified operational factors.

used for scheduling purposes, with the level of detail and certainty (i.e. likelihood of non-variation to the plan) increasing as the scheduling horizon shortens.

A general description of these train plans, in accordance with the 2017 DAU, is at Table 96 below.

Table 96 Train plans required under 2017 DAU

<i>Train plan</i>	<i>Purpose</i>	<i>Frequency of publication</i>	<i>Period</i>
STP (cl. 2)	To demonstrate Aurizon Network has sufficient capacity to deliver existing TSEs	Annually	1–2 years
MTP (cl. 3)	To demonstrate how Aurizon Network plans to deliver TSEs in each coal system, in a tabular timetable form	Monthly	1–3 months
ITP (cl. 4)	To act as an intermediate scheduling step in progressing from the MTP to the DTP	Weekly	7 days
DTP (cl. 5)	To indicate all scheduled train services and planned possessions, urgent possessions and emergency possessions (to the extent known) for a particular day	Daily	1 day

Under the 2017 DAU, Aurizon Network is to provide these train plans to the relevant stakeholders (e.g. access holders), as complete and transparent documents, subject to Aurizon Network's confidentiality obligations (Sch. G, cls. 3(f), 4(f) and 5(c)). The 2017 DAU also requires Aurizon Network to use reasonable endeavours to agree to confidentiality obligations that permit disclosure of information required by the undertaking in relation to the train plans (Sch. G, cls. 3(g), 4(g) and 5(d)).

Specific details of the train plans are provided below.

Strategic train plan

Consistent with its stated purpose, the 2017 DAU requires the STP to provide an estimate of:

- existing capacity on the CQCN
- capacity necessary to meet Aurizon Network's contractual TSE obligations for at least the subsequent financial year (but not more than two years) (Sch. G, cl. 2(e)).

Developing the STP forms part of the annual capacity assessment that Aurizon Network is required to undertake under the 2017 DAU (Sch. G, cl. 2(b)).

Master train plan

The MTP reflects the translation of TSEs, as specified in individual Access Agreements, into a consolidated format that can readily be used for scheduling purposes. It forms a baseline for the ITP and DTP, which have shorter planning horizons (seven days and one day respectively).

Accordingly, the 2017 DAU requires the MTP to cover at least one month (up to three months), and to be in a tabular timetable form that is readily convertible to an ITP and DTP (Sch. G, cl. 3.1(b)). In developing the MTP, Aurizon Network has to consider, amongst other things, the impact of temporary closures of the network for the purposes of maintenance, construction or other activities that may affect capacity (Sch. G, cl. 3.1(c)).

The 2017 DAU also specifies a number of circumstances (e.g. a planned possession) where Aurizon Network can make amendments to an MTP (Sch. G, cl. 3.2(a)). Further, Aurizon

Network is required to notify, and gain written acknowledgements from, access holders whose TSEs would be affected by a proposed MTP amendment (Sch. G, cl. 3.2(b)).

Intermediate train plan

Scheduling an ITP is the intermediate step in progressing from the MTP to the DTP (Sch. G, cl. 4(a)). At the ITP stage, an additional consideration for Aurizon Network is train orders—train orders are railing requests for a nominated period of time made by access holders and train operators (Sch. G, cl. 4(a)).

Train orders play an important role in the CQCN, as most of the coal traffic is cyclic traffic (as opposed to timetabled traffic), where the TSEs are defined in terms of the number of train services within a particular period of time, for example, a year or a month (as opposed to being defined in terms of a specified train path on a particular day and/or week) (Part 12 of the 2017 DAU).

The contested train paths principle would be applied at the ITP stage if the process of planning cyclic traffic involves the allocation of a contested train path amongst access holders (Sch. G, cl. 4(d)).

The 2017 DAU also requires the ITP to provide information in relation to available train paths, which is not required for the MTP (Sch. G, cl. 4(e)).

Daily train plan

A DTP is produced for each day, showing all scheduled train services and network possessions (Sch. G, cl. 5.1). It draws from the ITP, and may incorporate scheduling adjustments permitted under the 2017 DAU (Sch. G, cl. 5.4). Similar to an MTP amendment, Aurizon Network is required to consult access holders whose scheduled train services would be affected by a proposed DTP that is in variation to the ITP (Sch. G, cl. 5.4(d)). Further, the 2014 DAU limits the circumstances where Aurizon Network can amend a DTP once it is scheduled (Sch. G, cl. 5.5).

Beyond its use as a scheduling tool, the DTP schedule forms the base information for performance monitoring, including for the purposes of the quarterly network performance report required under the 2017 DAU (Sch. G, cl. 5.3).

QCA analysis and draft decision

Summary of draft decision 17.9

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in respect of provisions for train plans.**

Stakeholders did not object to Aurizon Network's proposal.

The QCA notes that Aurizon Network has proposed provisions for train plans that are consistent with existing arrangements.

The proposed processes for train plans appropriately balances the legitimate business interests of Aurizon Network with the interests of access seekers and end customers (s 138(2)(b), (e) and (h)).

Train control principles and contested train paths

Aurizon Network's 2017 DAU proposal

The purpose of the train control principles is to facilitate the safe running of train services, and the commencement and completion of network possessions, in delivering the DTP (Sch. G, cl.

7.1). These principles apply along with the traffic management decision-making matrix (TMDMM). These are used to guide the decisions in resolving conflicts in the day-to-day management of train traffic (e.g. deciding which train is given priority if two trains are behind the DTP schedule) (Sch. G, cl. 7.4).

The 2017 DAU permits Aurizon Network to depart from the TMDMM for a period following an incident that materially affects its ability to deliver the DTP (Sch. G, cl. 7.4(c)). The range of incidents is defined in the 2017 DAU, and includes force majeure events.

The 2017 DAU outlines the contested train paths principles that Aurizon Network will follow to determine which access holder is allocated a contested train path, for the purpose of developing the ITP (as opposed to the TMDMM which applies in the day-of-operation environment) (Sch. G, cl. 8). As stated in the 2017 DAU, a key purpose of these principles is to ensure access holders are not unfairly differentiated (Sch. G, cl. 8.1).

The contested train paths principles are set out in order of priority in cl. 8.3 of Schedule G, and they include a comparison of how far behind the access holders are for their use of TSEs in a particular period of time. To support this ITP scheduling process, Aurizon Network is required to provide a reconciliation report of TSE consumption to each access holder (and its train operator) at the end of each ITP period (seven days by default) (Sch. G, cl. 8.2). The report shows the TSEs that have been used within a particular period of time, for example, a year or a month, and the remaining balance of TSEs.

QCA analysis and draft decision

Summary of draft decision 17.10

- **The QCA's draft decision is to approve Aurizon Network's 2017 DAU proposals in respect of train control principles and contested train paths provisions.**

Stakeholders did not object to Aurizon Network's proposal. The QRC submitted proposed drafting, which the QCA considers to be consistent with Aurizon Network's framework for allocating available capacity.¹³⁴⁸

The QCA notes that Aurizon Network has proposed train control principles and contested train paths that are consistent with existing arrangements.

The 2017 DAU approach to train control principles and contested train paths appropriately balances the legitimate business interests of Aurizon Network with the interests of access seekers and end customers (ss. 138(2)(b), (e) and (h)).

¹³⁴⁸ QRC, sub. 20, Annexure 2.

18 NETWORK DEVELOPMENT & EXPANSIONS

18.1 Aurizon Network's 2017 DAU Proposal

Part 8 of the 2017 DAU establishes principles and procedures for expansions of the CQCN.

Access seekers may require an expansion of the CQCN to obtain access to the declared service. Aurizon Network's 2017 DAU provides the following funding avenues for expansions:

- (1) Aurizon Network funding an expansion, either:
 - (a) On terms consistent with the QCA's regulatory terms, using the QCA's approved Standard Access Agreement and reference tariff methodology (including the QCA's approved WACC); or
 - (b) On terms that include specified access conditions, which mitigate exposure to any additional costs or risks associated with providing access that are not included in the calculation of reference tariff.
- (2) Users funding an expansion by means of a user funding arrangement.

The Part 8 framework outlines an expansion process to apply to every expansion (regardless of the source of funding) and is available to all access holders, access seekers and customers of the declared service. As such, the expansion process is an investment framework that responds to the requirements of both a user funded expansion and an Aurizon Network funded expansion.

Aurizon Network's 2017 DAU proposes an expansion process based on a 'stage-gate' investment process. This process incorporates a series of stages that must be satisfied prior to the construction of the expansion.

The initial stages of the expansion process produce a sequence of studies to inform the investment decision, with each study representing an incremental stage in the investigation and design of a suitable expansion to provide the relevant access rights:

- Demand assessment — an estimation of the demand for capacity beyond that provided by the existing capacity of the network and any planned capacity resulting from any expansion(s) that Aurizon Network is contractually committed to construct.
- Concept study — that enables a preliminary assessment of the potential costs, benefits and risks of providing the capacity required in respect of a potential expansion.
- Pre-feasibility study — a study that identifies and assesses all technical solutions to deliver the required capacity. The study is to identify a single preferred solution for the proposed expansion.
- Feasibility study — a detailed study of the preferred solution identified in the pre-feasibility study. This includes a detailed assessment of technical and operating requirements of the proposed expansion and a detailed design of the proposed expansion.

The expansion process outlines the principles in relation to how Aurizon Network is to undertake these studies, as well as the way in which the studies are to be funded, and contains provisions enabling another party to step-in and undertake the relevant studies under defined circumstances.

Following the completion of the feasibility study, Aurizon Network is to finalise the expansion parameters, grant access seekers provisional capacity allocations and finalise the source of funding for the expansion.¹³⁴⁹

The construction of any expansion must be undertaken by Aurizon Network (cl. 8.2.1(I)). Following the construction of an expansion, Aurizon Network is to identify and address, in consultation with affected access holders, any shortfalls in capacity arising from an expansion.

Key issues identified during the QCA's investigation

The QCA has considered all elements of Part 8 of Aurizon Network's 2017 DAU proposal in making its draft decision, but has identified a number of key issues. The following issues attracted comment from stakeholders, or have been identified for further consideration:

- investing in network expansions (see section 18.2)
- capacity shortfall rectification obligation (see section 18.3)
- the process for incorporation of SUFA into the UT5 undertaking (see section 18.4)
- the study funding agreement (see section 18.5)

18.2 Investing in network expansions

Aurizon Network's 2017 DAU proposal

Aurizon Network's 2017 DAU proposal is that it will, at its discretion, commit to fund all or part of an expansion consistent with the notice of its decision to the parties requesting the expansion (cl. 8.2.1(b)).

Aurizon Network's 2017 DAU does not include a provision that permits feasibility funders to adopt user funding for an expansion where Aurizon Network has given the required notice of its willingness to fund an expansion on regulatory terms. This establishes a clear option for Aurizon Network to fund an expansion, if other pre-conditions to project commitment are met and it is willing to do so on the QCA's approved regulatory terms.

Aurizon Network also proposes to issue a definitive funding notice within 40 business days after the relevant studies funding agreements become unconditional. This definitive funding notice advises relevant stakeholders as to whether Aurizon Network is willing to fund the expansion and, if so, whether it requires access conditions to do so (cl. 8.7.1(c)(ii)).

An access seeker may fund its relevant portion of the expansion if:

- Aurizon Network is unwilling to fund an expansion; or
- the access seeker does not accept Aurizon Network's access conditions.¹³⁵⁰

By contrast, the 2016 Undertaking provides feasibility funders, following the provisional capacity allocation to access seekers, with the ability to fund their portion of the costs of the expansion, irrespective of Aurizon Network's willingness to fund it without access conditions.

¹³⁴⁹ The expansion process outlines how capacity is provisionally allocated to access seekers and the general principles in relation to the funding of an expansion.

¹³⁵⁰ Refer to cl. 8.7.1(a) of the 2017 DAU.

QCA analysis and draft decision

Summary of draft decision 18.1

- **The QCA's draft decision seeks stakeholders' views as to whether the 2017 DAU adequately accounts for the extent to which non-price terms and conditions may be valued by access seekers.**
 - **The QCA is currently minded to permit feasibility funders to adopt user funding for an expansion, even where Aurizon Network provides notice of its willingness to fund that expansion without access conditions.**
- The QCA's suggested drafting amendments to cl. 8.7.1 is provided at Appendix L.**

Aurizon Network considered that if it is prepared to invest in an expansion at the regulated rate of return, it should be entitled to do so, irrespective of whether an access seeker wishes to adopt user funding.¹³⁵¹ Aurizon Network considered that the user funding option should only apply where Aurizon Network is not willing to invest on regulatory terms.¹³⁵²

Aurizon Network considered that its proposal to have the first option to invest in an expansion on regulatory terms meets the object of Part 5 of the QCA Act. Aurizon Network submitted that an investment on QCA approved regulatory terms must surely promote efficient investment in rail infrastructure. It believed that the absence of the right to invest in its own business fails to protect its right to invest in efficient expansions of its own network.¹³⁵³

Furthermore, Aurizon Network considered that a restriction on its right to invest on regulatory terms is not required to facilitate access to the declared service. Therefore, Aurizon Network stated that the absence of the right to invest in an expansion on regulatory terms cannot be justified on the basis of the object of Part 5 of the QCA Act. Aurizon Network also considered that a right for it to invest on regulatory terms in its facility is within the scope of its legitimate business interests.¹³⁵⁴

The QRC did not consider that giving Aurizon Network a paramount right to invest in an expansion is the sole means by which the object of Part 5 of the QCA Act may be met.¹³⁵⁵ The QRC considered that in the absence of a funding obligation, investment in the infrastructure is best serviced by creating competition for sources of funding for expansions. The QRC submitted that promoting competition in investment in this market (that is, rail infrastructure) is both in the public interest and consistent with the object of the QCA Act.¹³⁵⁶ The QRC also considered that access seekers have an interest in retaining a right to invest in expansions.¹³⁵⁷

Pacific National considered that access seekers should have the ability to choose to fund an expansion regardless of whether or not Aurizon Network elects to fund an expansion.¹³⁵⁸

QCoal, the QRC and Anglo American did not support Aurizon Network's proposed first right to invest in expansions without a corresponding obligation to fund expansions.¹³⁵⁹

¹³⁵¹ Aurizon Network, sub. 1: 60.

¹³⁵² Aurizon Network, sub. 1: 60-62.

¹³⁵³ Aurizon Network, sub. 1: 60.

¹³⁵⁴ Aurizon Network, sub. 1: 60-61.

¹³⁵⁵ QRC, sub. 20: 11.

¹³⁵⁶ QRC, sub. 20: 27.

¹³⁵⁷ QRC, sub. 20: 11.

¹³⁵⁸ Pacific National, sub. 19: 10.

- QCoal considered that Aurizon Network’s proposal would not develop the market for funding rail infrastructure. QCoal believed that Aurizon Network’s proposal gives it a competitive advantage, by providing it with opportunities to invest that are not afforded to other investors. QCoal submitted that this will reinforce Aurizon Network’s primary position as funder of rail infrastructure and that the privilege of a right to fund cannot be provided without an obligation to fund.¹³⁶⁰
- The QRC considered that without a funding obligation there needs to be a competitive alternative to Aurizon Network funding. The QRC believed that Aurizon Network’s proposed first right to invest will lessen the interest of potential funders for user funding. The QRC submitted that a capped funding obligation is necessary and prudent.¹³⁶¹
- Anglo American believed that Aurizon Network’s ability to engage in economic hold-up to the detriment of the capacity and efficiency of the CQCN must be managed. Anglo American submitted that this is most appropriately done by requiring Aurizon Network to expand the CQCN in certain specific and controlled situations.¹³⁶² Anglo American considered that it is fundamental to the provision of regulated access that the provider be required to invest in prudent and efficient expansions at the WACC as part of providing the declared service.¹³⁶³

The terms and conditions for the construction of an expansion reflect the risk/reward/liability framework underpinning the construction of a project. The QCA notes that Aurizon Network’s proposal does not address the extent to which non-price terms and conditions may be valued by access seekers.

In certain instances, access seekers will value certain non-price terms and conditions, including, amongst other things, those terms and conditions associated with the delivery of scope, standard and time-to-complete for the expansion. For instance, in the case of WIRP, the access provider of the CQCN was able to agree access conditions with users that included, amongst other things, additional incentives to protect customers’ interests in regard to the scope and timing of the expansion (see below).

Figure 37 Non-price terms and conditions being valued by access seekers

QR Network (QRNN) - Access Conditions Report for the Wiggins Island Rail Project (11 May 2011)

“QRNN recognises that the timely delivery of this project (within budget) is important to customers. This is not only because of the opportunity cost of foregone throughput, but because this investment is being made concurrent with (and contingent upon) a number of other major investments in other parts of the supply chain. The Project Deed requires QRNN to commit to the delivery of the project at a target cost and based on target delivery dates. Accordingly, the Deed provides for:

- *an incentive if the project is delivered for less than this target cost; and*
- *downward adjustments of the WIRP fee for cost overruns and late delivery.*

As the target delivery cost and timeframes are based on a p75 estimate, the probabilities of QRNN not achieving the target time and budget is consistent with the certainty of those estimates. The standard terms and condition of access provide for the inclusion of prudent capital expenditure into the RAB. In incurring this magnitude of expenditure, QRNN would ordinarily expect to devise and exercise control over a procurement strategy and project delivery timeframe and to align its own resourcing

¹³⁵⁹ QCoal, sub. 16: 4; QRC, sub. 20: 27; Anglo American, sub. 18: 20.

¹³⁶⁰ QCoal, sub. 16: 4.

¹³⁶¹ QRC, sub. 20: 27.

¹³⁶² Anglo American, sub. 18: 21.

¹³⁶³ Anglo American, sub. 18: 20.

requirements and management of cash flows.

However, in the case of the WIRP Project, the customer group has proposed commercial terms that impose specific target costs and budgets on QRNN and this consequently requires QRNN to assume a higher degree of risk in the project delivery due to the scale of the project, which is also being undertaken in parallel with other major construction projects in other parts of the supply chain.

As QRNN is not currently compensated for these risks as part of its regulated revenue (including via the regulated WACC), it is proposed that this compensation is made via the WIRP fee and any performance adjustments are limited to that fee.” (page 13).

...

“QRNN has sought to involve customers in the design and construction process to enable them to ensure that their own interests are protected (particularly in relation to the scope, timing and cost of the works)” (page 22)

Source: QR Network, Access Conditions Report for the Wiggins Island Rail Project.

Aurizon Network’s proposal does not necessarily account for those circumstances in which an access seeker prefers an alternative expansion funding option (i.e. with access conditions or user funding) that provides superior non-pricing terms and conditions in comparison to that offered by Aurizon Network on standard regulatory terms. The QCA is seeking stakeholders’ views as to whether the 2017 DAU adequately addresses the extent to which non-price terms and conditions may be valued by access seekers.

The QCA considers that the ability of an access seeker to choose a funding option with superior non-pricing terms and conditions, regardless of Aurizon Network’s willingness to fund it on regulatory terms, promotes efficient investment in the CQCN (s. 138(2)(a)). Allowing relevant parties to have the option to fund an expansion regardless of Aurizon Network’s willingness to fund at regulatory terms provides those parties with greater flexibility to negotiate non-pricing terms and conditions.

The QCA is currently minded to permit feasibility funders to adopt user funding for an expansion, even where Aurizon Network provides notice of its willingness to fund that expansion on regulatory terms. The QCA considers that this provides an appropriate balance between the legitimate business interests of Aurizon Network (s. 138(2)(b)) and the interests of access seekers (s. 138(2)(e)), while also promoting the object of Part 5 (s. 138(2)(a)) as these arrangements promote the efficient investment in the CQCN including by increasing competition in relation to funding of expansions. This also assists to provide a possible constraint on Aurizon Network given concerns as to the potential for it to exert monopoly power, flowing from its control over the construction process under standard regulatory arrangements.

The QCA notes that Aurizon Network has not proposed to include a voluntary investment commitment for expansions as part of its 2017 DAU. If Aurizon Network had proposed a voluntary investment commitment, then it would be reasonable that its legitimate business interests were afforded with the corresponding first right to fund on clear, observable and non-discriminatory terms. Only Aurizon Network has the ability to include a voluntary funding obligation as part of its 2017 DAU. In the absence of a voluntary investment commitment from Aurizon Network, it is unclear to the QCA that Aurizon Network’s business interests should be given greater weight than the interest of access seekers.

Separately, Aurizon Network’s 2017 DAU proposes a definitive funding notice be provided to feasibility funders within 40 business days after the relevant studies funding agreements

become unconditional (cl. 8.7.1(c)(ii)). The QRC did not accept the Aurizon Network's proposal, rather it considered that this be maintained at 20 days.¹³⁶⁴

In the absence of any evidence or supporting arguments, the QCA considers that Aurizon Network's proposal is not unreasonable. The QCA considers 40 days is an appropriate timeframe for Aurizon Network to respond in this instance, given the administrative processes that are likely to be required. This timeframe provides a balance between the legitimate business interests of Aurizon Network (s. 138(2)(b)) and the interests of access seekers (s. 138(2)(e)).

Scope of QCA dispute resolution powers

Aurizon Network considered that no basis exists for an access dispute in relation to the funding of the expansion if the access provider is willing to fund the expansion on approved regulatory terms. Aurizon Network submitted that it is not within the scope of an access dispute for an access seeker to dispute the right of an access provider to fund an expansion on regulatory terms merely because the access seeker feels that there is some commercial advantage to be gained by doing so.¹³⁶⁵

Aurizon Network considered that the QCA Act does not confer a right on the QCA to adjudicate on who should be entitled to invest in Aurizon Network's network. Aurizon Network stated that if the QCA is unable to make an access determination overriding Aurizon Network's right to invest in an expansion that is necessary to provide access, then the QCA can have no power to require such an outcome under an approved access undertaking.¹³⁶⁶

The QRC did not support Aurizon Network's interpretation of the scope of the QCA's dispute resolution powers. The QRC considered that the QCA Act does not restrict the contents of an access undertaking by reference to the prescribed restrictions on access determinations.¹³⁶⁷ The QRC submitted that providing access seekers with a right to fund is not inconsistent with any provision of the QCA Act.¹³⁶⁸

Section 117(3) of the QCA Act states that an access determination "may deal with any matter relating to access to the service by the access seeker, including matters that were not the basis for the access dispute notice for the access dispute".

The QCA's draft decision with respect to the scope of the QCA's dispute resolution powers is at Chapter 21– Part 11 – Dispute resolution and decision making.

18.3 Capacity shortfall rectification obligation

Aurizon Network's 2017 DAU proposal

Aurizon Network is to undertake an assessment of the change in capacity arising from an expansion and indicate whether there is a capacity shortfall¹³⁶⁹ in relation to the conditional access rights commissioned to the conditional access holder (cls. 8.9.2 and 8.9.3).

¹³⁶⁴ QRC, sub. 20, Annexure 1: 15.

¹³⁶⁵ Aurizon Network, sub. 1: 61.

¹³⁶⁶ Aurizon Network, sub. 1: 61.

¹³⁶⁷ QRC, sub. 20: 11.

¹³⁶⁸ QRC, sub. 20: 27.

¹³⁶⁹ A capacity shortfall occurs where an expansion results in less capacity than is required to meet all of the access rights granted on the basis of the expansion undertaken.

Where there is a capacity shortfall, Aurizon Network is to meet with affected access holders and discuss with them the available options to address that capacity shortfall (cl. 8.9.3(c)).

If Aurizon Network and affected access holders consider that an expansion is the best option to address any capacity shortfall, Aurizon Network must act reasonably and negotiate with the affected access holders the terms of a funding arrangement for that expansion (cl. 8.9.3(d)(ii)). Affected access holders are given priority allocation for the capacity associated with an expansion that addresses a capacity shortfall.

The 2017 DAU does not place an obligation on Aurizon Network to bear the cost of rectifying a capacity shortfall in regard to:

- a capacity shortfall if it was caused wholly by a default by, or negligent act or omission of, Aurizon Network
- the part of a capacity shortfall relating the scope and standard of work proposed by Aurizon Network
- the proportion of a capacity shortfall that represents the proportion of the earlier expansion that was funded by Aurizon Network.¹³⁷⁰

QCA analysis and draft decision

Summary of draft decision 18.2

- **The QCA's draft decision is that the 2017 DAU be amended to incorporate a process to establish accountability for capacity shortfalls resulting from an Aurizon Network default or negligent act.**
The QCA's suggested drafting amendments to cl. 8.9.3 are provided in Appendix L.

Appropriate allocation of risk of a capacity shortfall

Aurizon Network noted that the compression mechanism reduces the expansion access seeker's access rights if an expansion results in capacity shortfall. Aurizon Network noted that this allocates the risk that an expansion's scope will be inadequate to provide the contracted access rights to the expansion's access seeker.¹³⁷¹

The QRC, Anglo American, Pacific National and QCoal did not support there being no obligation on Aurizon Network to bear the cost of rectifying a capacity shortfall.¹³⁷²

QCoal considered that Aurizon Network should not transfer the capacity risk to access seekers where it has control over funding, design and construction. QCoal submitted that Aurizon Network prices risks into its agreements with access seekers that it perceives are associated with the expansion, whereas access seekers have no control over these aspects and no way of assessing or mitigating this risk.¹³⁷³

Pacific National considered that Aurizon Network should be held accountable to correct a capacity shortfall, as any shortfall should have been able to be avoided by Aurizon Network given it has full control over the scope, cost and deliverable outcomes of any capacity

¹³⁷⁰ Aurizon Network, sub. 1: 63.

¹³⁷¹ Aurizon Network, sub. 1: 65.

¹³⁷² QRC, sub. 20: 29; Anglo American, sub. 18: 21; Pacific National, sub. 19: 11; and QCoal, sub. 16: 4.

¹³⁷³ QCoal, sub. 16: 4.

expansions. Accordingly, Aurizon Network should bear the cost depending on the reason for the shortfall.¹³⁷⁴

Submissions from stakeholders considered whether Aurizon Network should have an obligation to rectify a capacity shortfall in circumstances where:

- Aurizon Network has funded all or part of the expansion
- Aurizon Network's default or negligence is the cause of the capacity shortfall.

Expansions funded, entirely or partly, by Aurizon Network

The QRC considered that Aurizon Network should be required to rectify any shortfall associated with an expansion that it originally funded. The QRC noted that Aurizon Network has no compulsory obligation to fund an expansion; therefore, any election by it to fund an expansion would be made with the knowledge that it may later be required to rectify a shortfall expansion. The QRC disagreed that this imposes a funding obligation on Aurizon Network, as a shortfall expansion can only arise if Aurizon Network first voluntarily elects to fund the expansion with the knowledge that in doing so it may later be required to fund a shortfall expansion.¹³⁷⁵

QCoal considered that Aurizon Network should be liable for any capacity shortfall resulting from an expansion that it funds, designs, constructs and enters into contracts with access seekers for a certain capacity resulting from that expansion.¹³⁷⁶

Aurizon Network noted that in determining the scope of an expansion there is a trade-off between the expected capital cost of the expansion's scope and the certainty that this scope will deliver the required quantum of access rights. Aurizon Network considered that its role in considering such a trade-off should be in providing access seekers with options and information about the implications of these options, allowing access seekers to choose a scope that best fits their needs.¹³⁷⁷

Aurizon Network considered that access seekers should be given as much flexibility as possible to exercise their business judgement in determining the optimal scope and that it should not have a vested interest in advocating any option.¹³⁷⁸

Aurizon Network considered that if it had an obligation to rectify a capacity shortfall, it would have a legitimate business interest (and incentive) to propose a scope that minimises the risk of a capacity shortfall upon completion of the project. Furthermore, it would discourage Aurizon Network from investing in an expansion unless the expansion's scope ensured a very high level of certainty of access availability. Aurizon Network considered that this creates perverse incentives to not provide for the most efficient expansion. As such, the inclusion of this mechanism would be contrary to the objective of Part 5 of the QCA Act, and would not result in Aurizon Network's legitimate business interests being protected.¹³⁷⁹

Aurizon Network also considered that a requirement to partially fund a shortfall expansion, corresponding to its proportion of funding, may result in outcomes and practical difficulties

¹³⁷⁴ Pacific National, sub. 19: 11.

¹³⁷⁵ QRC, sub. 20: 29.

¹³⁷⁶ QCoal, sub. 16: 4.

¹³⁷⁷ Aurizon Network, sub. 1: 64-65.

¹³⁷⁸ Aurizon Network, sub. 1: 65.

¹³⁷⁹ Aurizon Network, sub. 1: 65-66.

given that conditional access holders may not decide to fund their part. Aurizon Network noted the inequality of such an outcome.¹³⁸⁰

The QRC noted that in its experience Aurizon Network already adopts a conservative approach to scoping expansions. The QRC considered that the benefit of having certainty of contracted access rights following an expansion outweighs the risk of Aurizon Network being more conservative in scoping expansions.¹³⁸¹

The QCA agrees with Aurizon Network that access seekers should be able to exercise their business judgement in determining the optimal scope of an expansion, without Aurizon Network having a vested interest in advocating a specific scope for the expansion. Both Aurizon Network and conditional access holders should agree on the scope of the project.

Furthermore, Aurizon Network's proposed consultative approach allows different options to be considered without imposing a strict rectification obligation on Aurizon Network.¹³⁸² Anglo American submitted that Aurizon Network should consult with affected access holders prior to undertaking any steps to deliver the shortfall to determine whether the additional cost is still to the benefit of affected access holders, for example whether cheaper operational options can be developed.¹³⁸³ In some circumstances, for example, it may not be efficient to invest in a further expansion of the network. The QCA considers, in these circumstances, that a flexible, negotiated approach is consistent with the legitimate business interests of Aurizon Network (s. 138(2)(b)) as well the interests of access seekers and access holders (s. 138(2)(e),(h)).

A flexible approach removes incentives for an overly conservative approach to expansions. The QCA considers that funding allocations for capacity shortfall rectification should remain subject to the outcomes of the negotiation process proposed in cl. 8.9.3(c).

Therefore, Aurizon Network's proposal to rectify a capacity shortfall is considered to be reasonable for an expansion funded, or partly funded, by Aurizon Network.

Aurizon Network default or negligence

In regard to a capacity shortfall following a user funded expansion, the QRC considered that a capacity shortfall rectification obligation will only materialise where the shortfall was caused by Aurizon Network's default or negligence. The QRC submitted that this is a reasonable obligation as Aurizon Network need only act appropriately (and not negligently) in determining the scope of an expansion.¹³⁸⁴

QCoal submitted that in any other construction project the contractor would be bound to deliver the product or service contracted — and if not delivered would either need to rectify or compensate the client.¹³⁸⁵

Anglo American considered that as a minimum Aurizon Network must fund any expansion where there is a capacity shortfall and it is unable to demonstrate that it acted as a reasonably prudent provider in conducting and delivering the capacity in the expansion.¹³⁸⁶

¹³⁸⁰ Aurizon Network, sub. 1: 67.

¹³⁸¹ QRC, sub. 20: 30.

¹³⁸² However, the QCA considers that Aurizon Network should be accountable for its actions where a capacity shortfall is a result of its default or negligence (discussed below).

¹³⁸³ Anglo American, sub. 18: 21-22.

¹³⁸⁴ QRC, sub. 20: 29.

¹³⁸⁵ QCoal, sub. 16: 5.

¹³⁸⁶ Anglo American, sub. 18: 21.

The QCA considers that Aurizon Network should be accountable for its actions where a capacity shortfall is caused by Aurizon Network's default or negligent act. This is an appropriate allocation of risk as Aurizon Network is able to manage the risk of a default or negligent act where it is responsible for the capacity shortfall given its responsibility as constructor for expansions. Other parties including access holders and access seekers are not well placed to manage this risk.

The QCA does not consider that holding Aurizon Network accountable for capacity shortfalls resulting from an Aurizon Network default or negligent act will have implications for over-scoping of an expansion. Access seekers must agree on the scope of the expansion, and Aurizon Network is only accountable if it is negligent or defaults. In any case, the scoping of an expansion remains subject to QCA approval before it is incorporated into the RAB.

Remedies for default or negligent acts

Aurizon Network considered that remedies for default or negligent acts or omissions are dealt with by the law of contract and law of negligence. Furthermore, Aurizon Network considered this removes Aurizon Network's ability to manage risks through appropriate contractual provisions negotiated with sophisticated counterparties.¹³⁸⁷

Pacific National was concerned that the 2017 DAU is too flexible and is likely to allow Aurizon Network to avoid any obligation to rectify a capacity shortfall.¹³⁸⁸

The QCA considers that Aurizon Network's 2017 DAU should include a clear process for access seekers to hold Aurizon Network accountable for capacity shortfalls resulting from an Aurizon Network default or negligent act. Such a process provides certainty for access seekers and also allows for the allocation of risk to the party best able to control that risk.

There are a number of ways that Aurizon Network may be held accountable for its default or negligent act that result in a capacity shortfall. These include:

- (a) Aurizon Network's UT5 undertaking could have included a provision whereby Aurizon Network agreed to bear the reasonable cost of rectification works as reasonably required to remedy a capacity shortfall associated with an Aurizon Network default or negligent act
- (b) the standard construction agreement in a standard user funding agreement framework could include a 'capacity obligation clause' or outline appropriate remedies for default or negligent acts or omissions
- (c) Aurizon Network's UT5 undertaking could include a clause that holds it accountable for damages suffered by relevant access seekers arising from a capacity shortfall to the extent reasonably attributed to an Aurizon Network default or negligent act.

The QCA is currently of the view that Aurizon Network should incorporate provisions that permit relevant parties to recover damages arising from a capacity shortfall reasonably associated with an Aurizon Network default or negligent act into its 2017 DAU.¹³⁸⁹ This will provide accountability for capacity shortfalls resulting from an Aurizon Network default or

¹³⁸⁷ Aurizon Network, sub. 1: 66.

¹³⁸⁸ Pacific National, sub. 19: 10.

¹³⁸⁹ The QCA recognises that its view of whether such a remedy is appropriate should be reviewed as part of the incorporation of a SUFA into the UT5 undertaking. The QCA's draft decision is not a determination as to how a SUFA should hold Aurizon Network accountable for a default or negligent act that results in a capacity shortfall.

negligent act, which achieves an appropriate balance between the interests of access seekers and the legitimate business interest of Aurizon Network.

The QCA considers that it is reasonable and appropriate that damages should include damages which are suffered by relevant parties which are within the reasonable contemplation of the parties or reasonably foreseeable at the relevant time (even if falling into categories which some may construe as consequential loss). In reaching its draft decision, the QCA has considered limits which may apply to Aurizon Network's liability and notes that in other circumstances under the undertaking, or in relevant agreements, there may be specific limits on liability or that liability may only arise in limited circumstances. The QCA has had regard to the critical nature of expansion works and to the particular circumstances under which expansions may proceed under the undertaking. The QCA has considered relevant factors and submissions, including:

- the construction of any expansion must be undertaken by Aurizon Network
- adequate mechanisms exist for Aurizon Network to fully consider the scope of works required to achieve the relevant expansion capacity through the pre-feasibility and feasibility studies process
- Aurizon Network is in the best position to control construction and capacity risks
- access seekers (and customers, where relevant) will be making significant financial commitments and entering into significant contracts with third parties on the basis that the relevant expansion will be constructed in a manner to ensure the target capacity is achieved
- a more reasonable allocation of risks in these circumstances is likely to facilitate funding of expansions including from a broader range of financiers on competitive terms consistent with economically efficient investment in relevant infrastructure which is also in the public interest.

The QCA considers it appropriate that there be reasonable limits on the potential liability of Aurizon Network such that:

- liability should only arise where Aurizon Network is in default of relevant agreements or where there has been negligence on its part
- liability should be limited to the extent reasonably attributable to Aurizon Network
- liability should not extend beyond damages which are within the reasonable contemplation of the parties at the time of entry into relevant agreements, or which are reasonably foreseeable.

The QCA also recognises that, depending on the circumstances, Aurizon Network and relevant parties may wish to negotiate different risk allocations and may wish to incorporate wider or more limited liability provisions depending on those relevant circumstances. Such a remedy is not intended to remove Aurizon Network and relevant parties' ability to manage risks through appropriate negotiated contractual provisions. However, the QCA considers that the undertaking should include a provision addressing damages recoverable where a capacity shortfall following an expansion arises due to default or negligence of Aurizon Network, as this provides a reasonable starting point for negotiations.

The QCA considers that the proposed provisions appropriately balance the interests of Aurizon Network, access seekers and access holders (s. 138(2)(b), (e) and (h)) and also are consistent with object of Part 5 and are in the public interest (s. 138(2)(a) and (d)).

The QCA's powers under the QCA Act

Aurizon Network considered that an obligation to rectify a capacity shortfall would be inconsistent with the QCA's powers under the QCA Act, as it creates an obligation for Aurizon Network to bear the cost of "extending" the rail network. As such, the QCA would be acting beyond its powers if it refused to approve the 2017 DAU on the grounds that it should include an obligation to rectify a capacity shortfall.¹³⁹⁰ Aurizon Network submitted that at various times the QCA has conceded that it does not have the legal power to compel Aurizon Network to fund an expansion.¹³⁹¹

Alternatively, the QRC considered that s. 119(2) of the QCA Act could not have been intended to apply to projects that Aurizon Network had already agreed to fund or to negligent acts and omissions of Aurizon Network.¹³⁹² The QCA appreciates the points made by the QRC and others.

The QCA is currently of the view that Aurizon Network's 2017 DAU should incorporate a process to establish accountability for capacity shortfalls resulting from an Aurizon Network default or negligent act that extends to damages suffered by relevant parties to the extent reasonably attributable to those acts or omissions. As discussed above, the QCA Act provides that an undertaking may contain terms relating to extending the rail infrastructure and it is appropriate that these terms allocate risk and liability clearly so as not to discourage investment (s. 138(2)(a),(d)). This is in the interest of access seekers and access holders, and does not inappropriately impinge on Aurizon Network's interests (s. 138(2)(b),(e), and (h)).

Consistent with the treatment of a capacity deficit

Aurizon Network considered that its proposal to meet and discuss with affected access holders the available options to address that capacity shortfall is similar to the way in which a capacity deficit¹³⁹³ (identified under Part 7A) is treated within the regulatory framework.¹³⁹⁴ Aurizon Network considered that this approach, which was implemented in the 2016 Undertaking, provides a useful precedent for dealing with a capacity shortfall.¹³⁹⁵

The QRC considered that a difference in approach for expansions is appropriate, as¹³⁹⁶:

- It may not be appropriate to rectify a capacity deficit that inherently exists in the system — for example, where access holders have over contracted based on an assumption that Aurizon Network would otherwise be incapable of providing the capacity required.
- It will always be appropriate for Aurizon Network to rectify the capacity shortfall for a recently commissioned expansion, as real demand for that capacity must exist for the expansion to occur.

The QRC submitted that it would be more than happy for the two positions to be aligned by creating an obligation for Aurizon Network to rectify any shortfall identified in a capacity

¹³⁹⁰ Aurizon Network, sub. 1: 63.

¹³⁹¹ Aurizon Network, sub. 1: 67.

¹³⁹² QRC, sub. 20: 12.

¹³⁹³ A capacity deficit arises for a coal system if and to the extent that an annual capacity assessment demonstrates that the aggregate access rights for that coal system exceeds that system's capacity.

¹³⁹⁴ Aurizon Network, sub. 1: 69.

¹³⁹⁵ Aurizon Network, sub. 1: 67.

¹³⁹⁶ QRC, sub. 20: 30.

assessment, provided that access holders support the need for investment to rectify the shortfall.¹³⁹⁷

Noting that a capacity deficit may not be due to a default or negligent act from Aurizon Network as constructor of an expansion, the QCA does not consider that the implemented approach for rectifying a capacity deficit under Part 7A necessarily provides a useful precedent for dealing with a capacity shortfall. The QCA considers that specific remedies are required for capacity shortfalls identified post-expansion.

Aurizon Network shortfall

Aurizon Network also considered that an “Aurizon Network shortfall”¹³⁹⁸, as provided in Aurizon Network’s 2016 Undertaking, is an entirely hypothetical assessment, as it compares a desktop assessment against an actual capacity shortfall. Aurizon Network also considered that any obligation to rectify an Aurizon Network shortfall effectively penalises Aurizon Network for having done nothing wrong where well-resourced and sophisticated parties do not take responsibility for the decision on the scope and standard of an expansion.¹³⁹⁹

The QRC submitted a mark-up of the 2017 DAU in which the relevant provisions in the 2016 Undertaking were reinstated, including the concept of an Aurizon Network Shortfall.¹⁴⁰⁰ Anglo American did not support the changes proposed by Aurizon Network to the 2016 Undertaking.¹⁴⁰¹

The intent of the 2016 Undertaking was to distinguish between any shortfall that would have arisen on the basis of the hypothetical scope preferred by Aurizon Network (Aurizon Network Shortfall), and any shortfall that eventuates for the actual expansion when completed. Any Aurizon Network shortfall was deemed to be caused by a negligent act or omission by Aurizon Network.

The QCA accepts that cl. 8.9.3 of the 2017 DAU provides for a simpler and more streamlined process based on consultations and negotiations between the relevant parties. The process also allows scope for alternative potentially more cost effective options for redressing the capacity shortfall to be identified, in consultation with affected access holders. As such, the QCA considers that Aurizon Network’s proposed cl. 8.9.3 is generally appropriate.

However, as noted above, the QCA considers that cl. 8.9.3 of the 2017 DAU should be amended to incorporate a process to establish accountability for capacity shortfalls resulting from an Aurizon Network default or negligent act.

18.4 Development and review of the SUFA

Aurizon Network's proposal

The 2017 DAU includes a mechanism to incorporate a SUFA into the approved UT5 Undertaking.

Aurizon Network proposes to submit a proposed SUFA as part of a voluntary draft amending access undertaking three months after approval date of the UT5 undertaking (cl. 8.8.3(a)). If Aurizon Network does not make a submission within the applicable timeframe, the QCA may

¹³⁹⁷ QRC, sub. 20: 30.

¹³⁹⁸ The Aurizon Network shortfall is the capacity shortfall that would have arisen if the scope and standard of work previously proposed by Aurizon Network had been constructed, as calculated by Aurizon Network.

¹³⁹⁹ Aurizon Network, sub. 1: 66.

¹⁴⁰⁰ QRC, sub. 20: Annexure 1:16, Pacific National, sub. 19: 10-11.

¹⁴⁰¹ Anglo American, sub. 18: 21.

commence the process under Division 7 of Part 5 of the QCA Act, in the manner contemplated by the QCA Act (cl. 8.8.3(c)).¹⁴⁰²

The 2017 DAU does not include a provision for the QCA to commence the process for Aurizon Network to submit a proposed SUFA if it does not agree with Aurizon Network's initial SUFA proposal.

Aurizon Network also proposes that it be required to conduct a review of the approved SUFA following:

- the execution of the first user funding agreement in the form of the SUFA; or
- 120 business days of unsuccessful negotiations over a user funding agreement.

As part of this process, Aurizon Network is required to submit:

- any amendments that it considers would improve the workability of the SUFA in the form of a draft amending access undertaking; or
- a submission detailing why it considers no amendments to the SUFA is required (cl. 8.8.3(d)).¹⁴⁰³

The QCA is to consider any submitted draft amending access undertaking in accordance with s. 142 of the QCA Act (cl. 8.8.3(e)). If Aurizon Network does not make a submission within the applicable timeframe, the QCA may commence the process under Division 7 of Part 5 of the QCA Act (cl. 8.8.3(f)).

The 2017 DAU does not include a provision for the QCA to issue a written request for Aurizon Network to conduct a review of the approved SUFA within a stated time period.

QCA analysis and draft decision

Summary of draft decision 18.3

- **The QCA's draft decision is that the 2017 DAU be amended to:**
 - (a) include a clear process for the development of SUFA, including a means by which the QCA ensures that the process is ultimately implemented**
 - (b) include a clear process for the QCA to request Aurizon Network to conduct a review of an approved SUFA.**

The QCA's suggested drafting amendments to cl. 8.8.3 is provided in Appendix L.

Aurizon Network considered it has proposed a simplified mechanism to incorporate SUFA that more directly reflects the provisions of the QCA Act. Aurizon Network noted that the incorporation of SUFA will operate irrespective of whether or not SUFA has been formally incorporated into the 2016 Undertaking by the UT5 undertaking approval date.¹⁴⁰⁴

Aurizon Network considered that there is no need for the 2017 DAU to include a provision enabling the QCA to request Aurizon Network to conduct a review of the approved SUFA. Aurizon Network considered that this would replicate the power already available to the QCA

¹⁴⁰² Aurizon Network, sub. 1: 83.

¹⁴⁰³ Aurizon Network, sub. 1: 83-84.

¹⁴⁰⁴ Aurizon Network, sub. 1: 84.

under s. 139 of the QCA Act.¹⁴⁰⁵ Aurizon Network also referred to 'relevant access seekers' rather than 'expansion funders' in cl. 8.8.3(d) of the 2017 DAU.¹⁴⁰⁶

The QRC agreed with Aurizon Network's 2017 DAU that the SUFA to be incorporated into the UT5 Undertaking should be based on the UT4 version (see cl. 8.8.3(a) of the 2017 DAU).¹⁴⁰⁷ Pacific National also considered the outcomes of the SUFA regulatory process should be reflected in the 2017 DAU.¹⁴⁰⁸

However, the QRC did not agree with the remaining changes to the 'Development and review of the SUFA' cl. 8.8.3 of Aurizon Network's 2017 DAU. The QRC considered that Aurizon Network's 2017 DAU replaces a specific and clear process for dealing with the consideration of a SUFA draft amending access undertaking with references to processes under the QCA Act. The QRC was concerned that the lack of specificity creates scope for ambiguity, delay and disagreement. Noting that consideration of a user funding regime has been ongoing for some time, the QRC believed that it is important that the robust and specific process for dealing with the consideration of a SUFA draft amending access undertaking be preserved. The QRC submitted that restricting the SUFA approval process in the manner proposed by Aurizon Network would not promote the economically efficient operation of, use of and investment in the rail network.¹⁴⁰⁹

The QRC did not accept Aurizon Network's cl. 8.8.3(d), and submitted an amended version based on cl. 8.8.3(e) of the 2016 Undertaking.¹⁴¹⁰

Anglo American did not support limiting the QCA's oversight of the SUFA arrangements and ability to improve workability of the SUFA documents.¹⁴¹¹ Pacific National considered that the 2016 Undertaking provisions should be reinstated to ensure that there is consistent and appropriate regulatory oversight over the development of the SUFA.¹⁴¹²

The incorporation of SUFA into the undertaking supports a user funding arrangement to provide an alternative financing option to Aurizon Network's financing proposal for any applicable expansion. A credible choice between financing packages provides less opportunity for monopolistic behaviour and encourages competition and therefore efficient investment in the network. This assists in providing access to the CQCN on terms which reflect efficient cost.

As such, the incorporation of a SUFA is an important part of the investment framework. The QCA's considers that an appropriate expansion framework includes the incorporation of an approved SUFA. Aurizon Network's 2017 DAU should include a provision outlining a clear process for developing and reviewing a SUFA. We do not consider the process provided by Aurizon Network provides sufficient certainty for access seekers that an appropriate SUFA will be incorporated into the 2017 DAU.

Ultimately, a clear process will provide an alternative to Aurizon Network's access conditions by having an alternative funding option for expansions. This is consistent with promoting the efficient investment in infrastructure (s. 138(2)(a)), and is also in the interests of access seekers (s.138(2)(e)) and the legitimate business interests of Aurizon Network (s. 138(2)(b)).

¹⁴⁰⁵ Aurizon Network, sub. 1: 84.

¹⁴⁰⁶ Aurizon Network, sub. 1, 2017 DAU mark-up.

¹⁴⁰⁷ QRC, sub. 20: 28.

¹⁴⁰⁸ Pacific National, sub. 19: 10.

¹⁴⁰⁹ QRC, sub. 20: 16.

¹⁴¹⁰ QRC, sub. 20: 16.

¹⁴¹¹ Anglo American, sub. 18: 21.

¹⁴¹² Pacific National, sub. 19: 10.

Similarly, this process should be applied to reviewing SUFA. The QCA's draft decision is therefore to amend cl. 8.8.3 of the 2017 DAU to accommodate a similar process. The QCA has proposed drafting that incorporates a process for the development and review of a SUFA.

Period of unsuccessful negotiation

Aurizon Network considered that a period of unsuccessful negotiations of 40 business days should not constitute a trigger to conduct a review of the approved SUFA. Aurizon Network considered that a duration of 40 business days is materially inadequate in the context of negotiations for a complex structured finance transaction of a large Australian infrastructure project. Aurizon Network stated that the time period should be long enough for bona fide negotiations in this setting to have reached a conclusion. Aurizon Network noted that the financial closure on the WICET project occurred more than a year after the project sponsor engaged its project finance adviser.¹⁴¹³

Aurizon Network proposed a period of 120 days (cl. 8.8.3(d) of the 2017 DAU).

The QCA does not believe that the negotiating time period for WICET is a good indication of time required to negotiate the terms and conditions under a SUFA. The SUFA will provide a standard set of terms and conditions, which should assist with the timeliness of negotiating the arrangements associated with funding an expansion. However, it is recognised that negotiations may be complex, and additional time would facilitate a negotiated outcome and avert an otherwise unnecessary review of the SUFA.

The QCA notes that the QRC submitted a mark-up of the 2017 DAU, which reinstated the 40-day period included in the 2016 Undertaking.¹⁴¹⁴ In the absence of further justification, the QCA considers Aurizon Network's proposal for a longer period appears reasonable on the basis of submitted advice about the potential complexity of variations and the administrative time required.

Therefore, this time period is considered appropriate to promote efficient investment in infrastructure (s. 138(2)(a)) and is in the interests of Aurizon Network (s.138(2)(b)), while not having a material impact on the interests of access seekers (s. 138(2)(e)).

18.5 Study funding agreement

Aurizon Network's proposal

Aurizon Network has submitted a standard study funding agreement as part of its 2017 DAU to allow access seekers and funders to fund the cost of expansion studies.¹⁴¹⁵

QCA analysis and draft decision

Summary of draft decision 18.4

- **The QCA's draft decision is to approve Aurizon Network's proposed 2017 DAU standard study funding agreement.**

Anglo American submitted a draft study funding agreement with suggested amendments as part of the QCA's UT4 investigation. Anglo American reiterated these suggested drafting

¹⁴¹³ Aurizon Network, sub. 1: 84.

¹⁴¹⁴ QRC, sub. 20, 2017 DAU markup.

¹⁴¹⁵ See Volume 3 of the 2017 DAU.

amendments — to the extent that these proposed amendments were not adopted in Aurizon Network’s 2016 Undertaking standard study funding agreement.¹⁴¹⁶

It is not absolutely clear in all instances what issues the amendments proposed by Anglo American are seeking to address. Specified amendments raised by Anglo American are presented in Table 97 below. In the absence of further submissions, the QCA considers that Aurizon Network’s proposed standard study funding agreement in the 2017 DAU is appropriate to approve having regard to the s.138(2) factors.

The QCA considers that Aurizon Network’s 2017 DAU study funding agreement is reasonable and balances the legitimate business interests of Aurizon Network (s. 138(2)(b)) with the interests of access seekers (s. 138(2)(e)). By providing a transparent standard arrangement for funding of pre-feasibility and feasibility studies for expansions, the 2017 DAU meets the object to promote efficient investment (s. 138(2)(a)).

¹⁴¹⁶ Anglo American, sub. 18: 19-20.

Table 97 Anglo American's proposed amendments to the 2017 DAU study funding agreement

<i>Clause</i>	<i>Proposed amendment</i>	<i>QCA response</i>
Clause 2.6	Inserting an additional condition — that a variation has had a material impact on the study.	This amendment makes it unnecessarily difficult for Aurizon Network to potentially vary the scope, target and estimated costs if other funding agreements are terminated.
Clause 7.1	Amendment requiring Aurizon Network to carry out the rail study in accordance with good industry practice.	This amendment is unnecessary and does not need to be expressly stated in the studies funding agreement.
Additional clause	The approval of the scope of works and target study costs.	The scope of works for the rail study is outlined in the access undertaking.
Clause 9.2	Amendment to restrict varying the scope of works without approval of the study funding committee and the process for varying the scope of works.	The scope of works may not be varied without the approval of the study funder committee.
Clause 12	The removal of the requirement for a bank guarantee.	A bank guarantee is in Aurizon Network's legitimate business interests. Aurizon Network may agree to remove the obligation to provide a bank guarantee if: <ul style="list-style-type: none"> (a) the study funder agrees to remedy any non-payment by any other study funder (and vice versa); or (b) Aurizon Network is permitted to cease carrying out the rail study in the event of non-payment by the study funder or any other study funder.
Clause 13.2	The right to give a dispute notice where Aurizon Network does not provide reasonable details of the calculation of the provisional project management Fee.	The amendment opens up the potential for unnecessary disputes to arise regarding the calculation of the amount rather than whether the amount itself is reasonable. A study funder may give Aurizon Network a dispute notice which disputes the amount of the provisional project management fee, the project management fee and/or the adjustment amount.
Clause 18.2	The removal of the limitation on Aurizon Networks liability.	No evidence has been provided to suggest that the limitation on Aurizon Networks liability to the total amount of the project management fee in this instance is not appropriate.
Clause 19.2	The removal of the right for Aurizon Network to assign its rights under the agreement.	Proposed amendment is likely to unnecessarily restrict Aurizon Network's usual business activities.
Clause 20.2(b)	The requirement for Aurizon Network not to disclose information where it would breach its ringfencing obligations under the access undertaking.	No evidence has been provided to suggest that conditions imposed on disclosure are not sufficient.

19 CONNECTING PRIVATE INFRASTRUCTURE

19.1 Aurizon Network’s 2017 DAU proposal

Part 9 of Aurizon Network’s 2017 DAU provides a process for the connection of private infrastructure to the CQCN. This enables third parties to construct, own and operate private infrastructure that can then be connected to the CQCN.

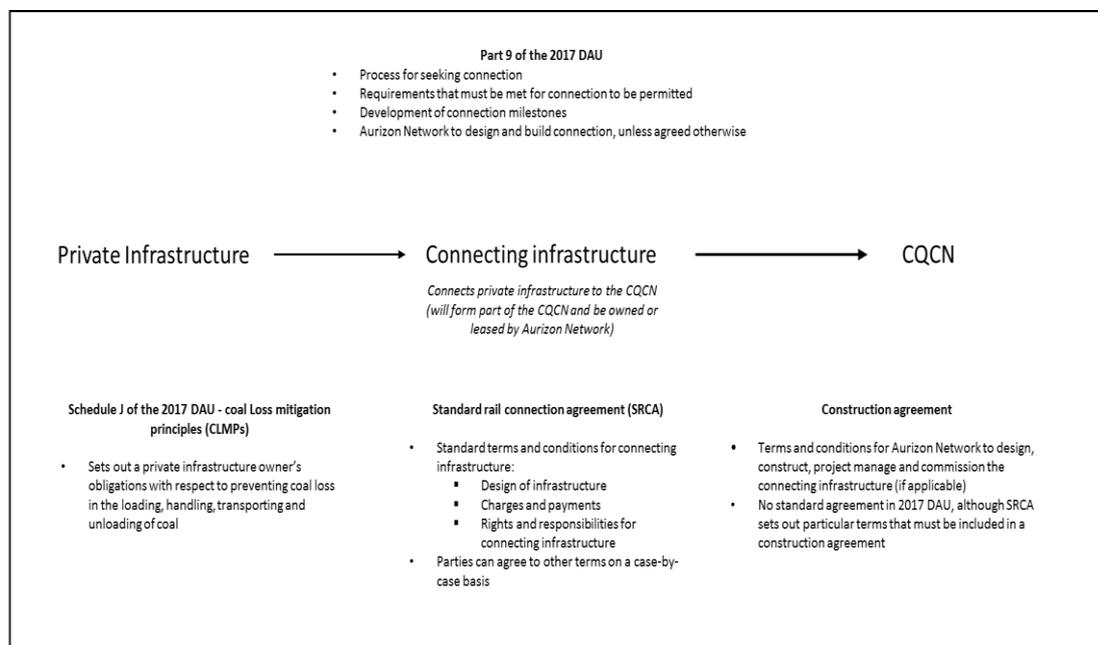
As part of these arrangements, the infrastructure that connects the private infrastructure to the CQCN (i.e. the connecting infrastructure) will be owned by Aurizon Network (or included in its infrastructure lease for the CQCN) and form part of the CQCN.

The framework consists of provisions related to the:

- requirements for connecting infrastructure, including the criteria that Aurizon Network will use to determine whether to approve proposed connecting infrastructure
- process for developing the connecting infrastructure
- application of coal loss mitigation principles to a private infrastructure owner.

The 2017 DAU also includes a standard rail connection agreement (SRCA),¹⁴¹⁷ which sets out standard terms and conditions that underpin the connection of private infrastructure to the CQCN. Figure 38 provides an overview of the 2017 DAU framework for connecting private infrastructure.

Figure 38 The 2017 DAU framework for connecting private infrastructure



The framework for connecting private infrastructure proposed in Aurizon Network’s 2017 DAU is unchanged from Aurizon Network’s existing arrangements.

¹⁴¹⁷ The SRCA is included in Volume 3 of Aurizon Network’s 2017 DAU.

During the collaborative submission process, stakeholders¹⁴¹⁸ reached consensus and proposed to amend the 2017 DAU so that the QCA's complete assessment of the terms of the SRCA will be undertaken after the assessment of the 2017 DAU is completed and the UT5 undertaking is approved. Aurizon Network has undertaken to lodge a new SRCA, after consultation with stakeholders, for assessment and approval by the QCA within 12 months of the approval of the UT5 undertaking. The process for lodgement and approval are contained in a new cl. 9.2, submitted with Aurizon Network's collaborative submission.¹⁴¹⁹

Key issues identified during the QCA's investigation

The QCA has considered all elements of Part 9 of Aurizon Network's 2017 DAU proposal in making this draft decision. The following issues attracted comment from stakeholders, or have been identified for further consideration:

- the process for assessment and development of proposed connecting infrastructure (see section 19.2)
- UT5 review and development of the SRCA (see section 19.3)
- terms and conditions of the SRCA (see section 19.4)
- coal loss mitigation principles (see section 19.5).

19.2 Assessment and development of proposed connecting infrastructure

Aurizon Network's proposal

Part 9 of the 2017 DAU sets out a process for the assessment of proposed connecting infrastructure by Aurizon Network.

Connecting infrastructure is the rail transport infrastructure that connects private infrastructure to the CQCN and which, upon completion, forms part of the CQCN. For a particular connection, the relevant rail connection agreement can define the connecting infrastructure in greater detail (see section 19.4).

A private infrastructure owner (PIO) must give Aurizon Network a written proposal for the proposed connection, which Aurizon Network will assess against specified assessment criteria (see cl. 9.1(a),(b)). Connecting infrastructure must be either owned by Aurizon Network or included in its infrastructure lease for the CQCN (cl. 9.1(c)).

Aurizon Network proposes to make the assessment within two months (or a longer period as agreed with the PIO) and inform the PIO and the QCA of its decision and, if applicable, amendments it requires to the proposal to satisfy the criteria (cl. 9.1(b), (d) and (i)). If Aurizon Network is satisfied the criteria have been met, the process for the development of connecting infrastructure will commence.

¹⁴¹⁸ Aurizon Network, sub. 26: 3, 7–8 and Appendix 1; QRC, sub. 29: 3–4 and Annexure 7, cl. 9.2; Pacific National, sub. 28: 2.

¹⁴¹⁹ Aurizon Network, sub. 26, Appendix 1.

Development of connecting infrastructure

Aurizon Network must agree with the PIO the timeframes for the relevant connection milestones (as set out under cl. 9.1(e)).¹⁴²⁰ These must be agreed within two months, although the parties may agree to delay setting these milestones until the related access agreement has been entered into (cl. 9.1(f)). The agreed milestones (or the decision to delay) must be notified to the QCA (cl. 9.1(g)).

Aurizon Network must permit the connection of the private infrastructure, subject to (cl. 9.1(h)):

- a rail connection agreement being entered into (either on the terms of the SRCA or as varied by agreement between the parties)
- Aurizon Network gaining access (on acceptable terms) to the land necessary for constructing, operating, using and maintaining the connecting infrastructure
- Aurizon Network and the PIO or other relevant person entering into any other required agreements in relation to the design, construction, project management or commissioning of the connecting infrastructure or other works relating to the proposed connection.

If a rail connection is permitted, then, unless otherwise agreed with the PIO, Aurizon Network (cl. 9.1(k)):

- must be responsible for designing, constructing, project managing and commissioning the connecting infrastructure
- must do so in accordance with the relevant rail connection agreement, construction agreement and any other relevant agreement without unreasonable delay
- is entitled to payment for that design, construction, project management and commissioning consisting only of its efficient costs which directly relate to the connecting infrastructure, but only to the extent that such costs have not been, or will not be, included in the regulatory asset base or recovered by Aurizon Network through other means under the undertaking
- must not, in the technical specifications required by Aurizon Network for connection to the rail infrastructure, require higher standards for the design or construction than those required under the relevant legislation and safety standards.

Aurizon Network's 2017 DAU also includes provisions to address any unreasonable delays by Aurizon Network associated with the connecting infrastructure. Aurizon Network must pay all reasonable costs (excluding consequential loss) incurred by the PIO arising directly out of Aurizon Network's unreasonable delay in (cl. 9.1(l)):

- entering into a rail connection agreement or any necessary agreement relating to the design and construction, project management and/or commission of any connecting infrastructure or any other works required for the connection
- designing, constructing and commissioning any connecting infrastructure
- completing any other matters that Aurizon Network and the PIO consider necessary.

¹⁴²⁰ These are the timeframes within which Aurizon Network will (a) enter into a rail connection agreement with the PIO; (b) design and construct any connecting infrastructure; (c) commission any connecting infrastructure; and (d) complete any other matters Aurizon Network and the PIO consider necessary.

Unreasonable delay includes a failure to comply with a connection milestone (unless that failure is a direct result of an event or factor outside Aurizon Network's reasonable control) (cl. 9.1(m)).

QCA analysis and draft decision

Summary of draft decision 19.1

- **The QCA's draft decision is that the 2017 DAU be amended to:**
 - (a) provide for a Rail Connection Agreement to be entered into in the form of the Standard Rail Connection Agreement or, once approved by the QCA, the Revised Standard Rail Connection Agreement (which arises under the QCA's proposed cl. 9.2); and,**
 - (b) clarify that any proposed variation to these agreements that cannot be agreed is resolved by the parties entering into the Standard Connection Agreement or the Revised Standard Connection Agreement (as the case may be).**
- The QCA's suggested drafting amendments to cls. 9.1(h)(i) and 9.2 are provided in Appendix M.**

Stakeholders did not object to Aurizon Network's cl. 9.1.

The QCA's draft decision is that it is appropriate to approve cl. 9.1 of the 2017 DAU in respect of the process for assessment and development of connecting infrastructure, subject to a set of amendments arising from Aurizon Network's proposed cl. 9.2.

It is in the interests of all parties for connecting infrastructure to be developed in a timely and efficient manner, provided it meets the relevant safety and operating standards, and does not adversely affect the CQCN. Assessments of proposed connecting infrastructure should be made in a clear and transparent manner so that a PIO has certainty about what is required for proposed connecting infrastructure.

It is reasonable for Aurizon Network to assess the proposed connecting infrastructure against the criteria outlined in cl. 9.1(b). Aurizon Network's obligations regarding an assessment (e.g. the timeframe and providing reasons and suggested amendments in its decision) are appropriate and should promote timeliness and transparency in the assessment of proposed connecting infrastructure.

Once proposed connecting infrastructure has been assessed as meeting the criteria, the development of the infrastructure should not be unreasonably delayed. Parties should have certainty of the timeframe within which connecting infrastructure will be developed. To that effect, the 2017 DAU includes obligations on Aurizon Network and the PIO to agree the timeframes in which the connection milestones will be completed (cl. 9.1(e) of the 2017 DAU). The 2017 DAU also includes provisions for Aurizon Network to pay the reasonable costs incurred by a PIO (excluding consequential loss) arising out of a failure to meet particular milestones (cl. 9.1(l)). To the extent these will provide an incentive for connections not to be unreasonably delayed (other than for reasons outside Aurizon Network's control), it is appropriate to approve these arrangements.

It is further in the interests of all parties that the framework for the finalisation of the necessary agreements to be clear and effective (cl. 9.1(h)). Those agreements will include the SRCA until such time as the new SRCA is approved under the proposed new cl. 9.2 to replace the SRCA. The QCA also considers that all parties' interests are served by the inclusion of a new clause (new cl. 9.3) making clear that if negotiations to vary the SRCA or new SRCA falter, then any dispute in

relation to varying the terms will be resolved by the parties entering into the relevant standard agreement.

Finally, it is appropriate that Aurizon Network recovers its efficient costs for developing the connecting infrastructure (designing, constructing, project managing, etc.), given that the proposed drafting excludes costs that are otherwise recovered through the UT5 undertaking.

The QCA considers that cl. 9.1 with the required amendments, and cl. 9.3 balances the legitimate business interests of Aurizon Network (s. 138(2)(b)) and the interests of access seekers and the public (s. 138(2)(d) and (e)). It also advances the object of Part 5 (s. 138(2)(a)) by providing a timely, efficient and transparent process.

19.3 Review and development of a revised SRCA

Aurizon Network's collaborative submission proposal

Following the collaborative submission process, Aurizon Network submitted that the 2017 DAU be amended to include a review and development mechanism for a new SRCA during the UT5 undertaking period. Aurizon Network submitted drafting to achieve this outcome, as outlined in Aurizon Network's collaborative submission.¹⁴²¹

Aurizon Network's new cl. 9.2 proposes that Aurizon Network will be required to submit, to the QCA, after stakeholder consultation, a proposed SRCA within 12 months of the approval date of the 2017 DAU¹⁴²². The QCA will then assess the appropriateness of the proposed SRCA after having regard to, amongst other things, the factors listed in s. 138(2) of the QCA Act.

Importantly, Aurizon Network has included provisions that allow the QCA to prepare a new SRCA in the event that:¹⁴²³

- Aurizon Network does not submit a proposed SRCA within the 12-month timeframe
- Aurizon Network does not resubmit a proposed SRCA which the QCA has refused to approve (with reasons)
- the QCA refuses to approve a proposed SRCA that was resubmitted in accordance with the relevant provisions.

QCA analysis and draft decision

Summary of draft decision 19.2

- **The QCA's draft decision that the 2017 DAU be amended to require Aurizon Network to include the development of a new standard rail connection agreement. The QCA's suggested drafting amendments to cl. 9.2 are provided in Appendix M.**

Submissions from Aurizon Network,¹⁴²⁴ the QRC¹⁴²⁵ and Pacific National¹⁴²⁶ supported an amendment of the 2017 DAU to include a process for the development of a new standard

¹⁴²¹ Aurizon Network, sub. 26, Appendix 1.

¹⁴²² Aurizon Network, sub. 26, Appendix 1, cl. 9.2(a).

¹⁴²³ Aurizon Network, sub. 26, Appendix 1, cl. 9.2(d).

¹⁴²⁴ Aurizon Network, sub. 26: 3, 7–8 and Appendix 1.

¹⁴²⁵ While the QRC proposed changes to the SRCA (QRC, sub. 20: 37–39), it subsequently revised its position to support Aurizon Network's new cl. 9.2.

¹⁴²⁶ Pacific National, sub. 28: 2.

connection agreement. This process would take the form submitted by Aurizon Network in its collaborative submission.

The QRC in its initial submission proposed an alternative SRCA, but subsequently withdrew this submission based on an understanding that Aurizon Network would negotiate and lodge a new draft SRCA within 12 months of the approval of the 2017 DAU. Pacific National agreed with this approach.¹⁴²⁷

The QCA agrees with Aurizon Network and stakeholders that the 2017 DAU should, in order to facilitate a new SRCA, include a mechanism for Aurizon Network to submit a proposed revised SRCA within 12 months of the approval date. It is appropriate that, if Aurizon Networks fails to submit a revised SRCA, the QCA can prepare and approve its own (subject to having regard to any stakeholder submissions on the proposed SRCA). While it is accepted that the current SRCA should be revised, the QCA is cognisant of the additional time and effort that would be required to undertake this process in parallel with the rest of the 2017 DAU.

Therefore, the QCA agrees that the amendment, review and approval of a new SRCA should be undertaken via a separate process from the process to consider the 2017 DAU. To this end, the QCA considers it is appropriate to approve a new cl. 9.2, drafted to reflect Aurizon Network's drafting of cl. 9.2 of Appendix 1 in its collaborative submission, subject to amendments to correct a drafting anomaly, to clearly distinguish between the SRCA and the revised SRCA and to delete proposed paragraph (j) which duplicated the effect of cl. 9.1(h)(i). The deletion of proposed paragraph 9.2(j) and the related amendments to cl. 9.1(h)(i) make it clear that the revised SRCA operates within the overall process of cl. 9.1, simply replacing the SRCA in that process, rather than operating independently of that clause.¹⁴²⁸

By providing time for a detailed and considered treatment of the SRCA, through a separate consultative process, the QCA considers that this decision appropriately balances Aurizon Network's legitimate business interests (s. 138(2)(b)) and the interests of access seekers (s. 138(2)(e)) by providing additional time for the stakeholders to consider a new SRCA. This consideration being separate from the consideration of the 2017 DAU also gives rise to efficiencies in the regulatory process in the public interest (s. 138(2)(d)) and which efficiencies advance the object of Part 5 (s. 138(2)(a)).

19.4 Standard rail connection agreement

Aurizon Network's proposal

The PIO and Aurizon Network must enter into a rail connection agreement in order for connecting infrastructure to be permitted. This agreement underpins the connection of private infrastructure, including setting out each party's rights and obligations for the initial development of connecting infrastructure and its ongoing operation.

Aurizon Network's 2017 DAU includes a SRCA, which contains standard terms and conditions in relation to the connection of private infrastructure. While parties may agree variations to these terms, the SRCA provides a standard template agreement to facilitate a timely process for connecting private infrastructure.

Broadly, the SRCA includes provisions with respect to:

- charges payable by the PIO to Aurizon Network under the agreement

¹⁴²⁷ QRC sub. 29: 3–4; Pacific National sub. 28: 2.

¹⁴²⁸ Aurizon Network, sub. 26: Appendix 1, cl. 9.2.

- design and construction of the connecting infrastructure, for which Aurizon Network is responsible unless the PIO agrees otherwise
- each party's rights and obligations in relation to the connecting infrastructure post-commissioning, such as the ongoing maintenance of the infrastructure
- obligations for the PIO with respect to the ongoing maintenance of, and any modifications or upgrades to, the private infrastructure, as well as requirements for the operation of train services that will ultimately operate on the network.
- operational matters, including safety and interface, and train control requirements.

If Aurizon Network is responsible for designing and constructing the connecting infrastructure, a construction agreement between Aurizon Network and the PIO will be required. The 2017 DAU does not contain a standard construction agreement, although the SRCA does specify particular terms that must be included in any construction agreement developed by the parties (see cl. 7(b)(viii) of the SRCA).

QCA analysis and draft decision

Summary of draft decision 19.3

- **The QCA's draft decision is that the proposed SRCA in Aurizon Network's 2017 DAU should be amended to include a correct reference to the 'Site Senior Executive', consistent with the Coal Mining Safety and Health Act 1999.**

The QRC initially proposed a number of changes to the SRCA, which it considered would 'simplify the drafting without seeking to make any material changes to the risk allocation between Aurizon Network and the Private Infrastructure Owner'¹⁴²⁹, and that these should be adopted 'to increase the efficiency of negotiating and administering the RCA'.¹⁴³⁰ Subsequently, the QRC in its collaborative submission¹⁴³¹ withdrew its proposed draft amendments to the SRCA.

The QCA's draft decision is that it is not appropriate to approve the 2017 DAU in respect of the SRCA. The SRCA included as part of the 2017 DAU is unchanged from that included as part of the 2016 Undertaking. Nonetheless, the QCA has considered the SRCA afresh, consistent with the requirements of the QCA Act, and has identified the need for amendment following clarification from Aurizon Network.

Under Aurizon Network's SRCA, 'Senior Site Executive' is defined as 'the senior site executive appointed in accordance with the *Mineral Resources Act 1989* (Qld)' (cl. 1 of the 2017 DAU SRCA).

The QCA notes that it is not appropriate to approve the term as defined in the SRCA.¹⁴³² As clarified by Aurizon Network,¹⁴³³ the term does not appear in the *Mineral Resources Act 1989* (Qld); rather, it appears, and is defined as, a 'Site Senior Executive' in section 25 of the *Coal Mining Safety and Health Act 1999*. It is proposed that this amendment be made to the definitions and cl. 26(d) of the SRCA.

¹⁴²⁹ QRC, sub. 20: 37.

¹⁴³⁰ QRC, sub. 20: 39.

¹⁴³¹ QRC, sub. 29: 4.

¹⁴³² Aurizon Network has confirmed, in a response to a QCA request for information, that this change is appropriate (29 May 2017).

¹⁴³³ Aurizon Network response to QCA information request: dated 29 May 2017.

Other than the above, the QCA considers it appropriate to approve the SRCA as submitted by Aurizon Network. However, the QCA's approval of the SRCA is predicated on the requirement to include provisions as outlined in section 19.3 of this chapter. These will precipitate the review and amendment of the SRCA either by Aurizon Network or the QCA, during the UT5 undertaking period.

The QCA is required by the QCA Act to consider the 2017 DAU submitted by Aurizon Network and either approve, or refuse to approve, that DAU. In coming to that decision, the QCA must have regard to all of the factors under s. 138(2) of the QCA Act. Included in these factors is 'any other issues the authority considers relevant' (s. 138(2)(h)). Insofar as our decision relates to the terms of the proposed SRCA, the fact that stakeholders have reached a consensus position for a review of the SRCA, and that the QCA requires a mechanism in the UT5 undertaking that will ensure that the review takes place, is relevant. Proceeding to approve the SRCA on the basis that there is a mechanism mandating a future revision is also in the interests of Aurizon Network and access seekers (as discussed in section 19.3 of this chapter), who have requested that they be given time, outside of the 2017 DAU process, to concentrate on the terms of the SRCA.

Given the mandatory nature of the required cl. 9.2 process and stakeholder consensus on the proposed course of action, the QCA considers it appropriate to approve the SRCA submitted with the 2017 DAU and then consider, approve or prepare (as the case may be), the proposed new SRCA to be submitted under cl. 9.2. Proceeding in this manner is not only in accordance with stakeholders' submissions but will, by giving stakeholders more time to consider, collaborate and possibly agree on aspects of the SRCA, lead to a more thorough, efficient and considered SRCA (s. 138(2)(b),(e),(h)).

19.5 Coal loss mitigation principles

Aurizon Network's proposal

Schedule J of Aurizon Network's 2017 DAU contains the coal loss mitigation provisions (CLMPs). These set out a PIO's responsibilities to prevent coal loss during the handling, loading and transport of coal. They are focused on meeting the standards, targets and levels for preventing coal loss in accordance with all applicable laws and requirements or directions issued by responsible environmental authorities (see cl. 1.3 of Schedule J of the 2017 DAU).

In particular, Schedule J includes:

- a general obligation for a PIO to use reasonable endeavours to prevent coal loss, taking into account limiting factors, including the prevailing business conditions at the time and the effectiveness of the particular mitigation approach given technology and cost constraints (cl. 1.4(a) of Schedule J of the 2017 DAU). Further compliance obligations apply to a PIO during the handling, loading and unloading of coal using transfer facilities (cl. 1.4(c) of Schedule J of the 2017 DAU)
- specific obligations for the PIO's particular operations and practices associated with coal loading, profiling and veneering (cls. 1.5 and 2 of Schedule J of the 2017 DAU)
- a PIO's reporting requirements and Aurizon Network's rights to monitor a PIO's compliance with its CLMP obligations, including a process for non-compliance to be rectified or otherwise dealt with (cls. 1.6–1.8 of Schedule J of the 2017 DAU)
- a process for continuous improvement of practices for preventing coal loss. This requires parties to periodically meet to discuss the effectiveness of current practices, and new or

modified practices that could be used to improve the prevention of coal loss (cl. 1.9 of Schedule J of the 2017 DAU).

The SRCA includes an obligation on a PIO to ensure that trains transporting coal that enter the CQCN comply with the CLMPs (see cl. 9 of the SRCA). The general characteristics of a reference train service also include using measures to minimise coal spillage and leakage, and coal dust emissions *en route* that are consistent with the CLMPs (cl. 1.3(b)(vii) of Schedule F of the 2017 DAU).

QCA analysis and draft decision

Summary of draft decision 19.4

- **The QCA's draft decision is to approve Aurizon Network's proposed 2017 DAU coal loss mitigation principles in Schedule J of the 2017 DAU.**

Stakeholders did not raise issues with Schedule J.

The arrangements for the CLMPs provide an appropriate balance between the legitimate business interests of Aurizon Network (s. 138(2)(b)) and the interests of PIOs (s. 138(2)(e)). In particular, these arrangements set out a broad range of obligations on the PIO and include various reporting requirements and monitoring rights for Aurizon Network, including processes to rectify non-compliance. These arrangements also include processes for facilitating the continuous improvement of practices for preventing coal loss.

20 REPORTING, COMPLIANCE AND AUDITS

20.1 Aurizon Network's 2017 DAU proposal

Part 10 of Aurizon Network's 2017 DAU sets out the proposed framework for information reporting and demonstrating compliance with the undertaking including auditing requirements. These arrangements include:

- annual and quarterly reporting on network performance and maintenance costs (cl. 10.3)
- reporting on the roll-forward of the regulated asset base (RAB), condition-based assessments, and financial statements (cl. 10.4)
- provisions to demonstrate Aurizon Network's compliance with the undertaking (cl. 10.5)
- procedures and requirements for auditing of reports (cl. 10.6)
- provision of information to the QCA, processes for correcting reporting errors and the certification of reports by Aurizon Network (cl. 10.7).

Under cl. 10.2, Aurizon Network proposes that, unless otherwise required by the undertaking or agreed between Aurizon Network and the QCA, any information to be reported under Part 10 will be reported separately for each:

- coal system
- reference tariff (where applicable)
- user-funded expansion (in respect of the condition-based assessments required by cl. 10.4.3).

Aurizon Network's proposed Part 10 provisions are broadly consistent with its existing reporting arrangements.

20.1.1 Network performance reporting

Aurizon Network proposes to prepare the following reports on its network performance and maintenance:

- annual maintenance plans (cl. 10.3.1)
- quarterly and annual maintenance cost reports (cls. 10.3.2–3)
- quarterly network performance reports (cl. 10.3.4).

These proposed reporting requirements are discussed further below.

Maintenance reporting

Aurizon Network's proposed annual maintenance plans (cl. 10.3.1) will document the planned scope of maintenance and renewals for the forthcoming year, and include details of maintenance costs for the previous year. These reports will be prepared and presented to Aurizon Network's access holders and customers.

Under cl. 10.3.2, Aurizon Network proposes to prepare and submit quarterly maintenance cost reports to the QCA, with the format and content of these reports being subject to QCA approval. Once the QCA has approved the reports, Aurizon Network will publish them on its website.

In contrast to Aurizon Network's 2016 Undertaking, which requires a process for Aurizon Network to develop a draft quarterly maintenance report and seek the QCA's approval¹⁴³⁴, the 2017 DAU proposes to remove this requirement for the UT5 undertaking if the QCA has already approved the report format under the 2016 Undertaking.

Aurizon Network's annual maintenance cost reports (cl. 10.3.3) will be published within four months of the end of each year and will contain detailed information on a range of parameters, including:

- actual maintenance costs compared with the forecast maintenance costs accepted by the QCA (disaggregated by type of maintenance activity)
- the actual scope of maintenance work performed, compared with the forecast scope accepted by the QCA
- an explanation of any significant variations between the forecast and actual scope and cost of maintenance undertaken
- the actual maintenance cost index (MCI) compared with the forecast MCI accepted by the QCA, and the impact of any difference on Aurizon Network's maintenance costs
- annual below-rail transit times, overall track condition index (OTCI) results and major reportable safety incidents
- the number of derailments, including actions taken to restore the rail network and any impacts on planned maintenance work
- details of all capital expenditure related to asset renewals that was incurred in place of planned maintenance work.

Network performance reporting

Under cl. 10.3.4, Aurizon Network proposes to publish a quarterly report on its network performance. This report will present information on the following performance measures:

- the number of train services that operated in the quarter, service reliability (measured by the percentage of services that reached their destination on time) and the reasons for any services failing to reach their destination on time
- average transit times and delays, measured in minutes per 100 train kilometres
- the availability of the network for train services, including the number and percentage of train services cancelled and the party responsible for those cancellations
- safety of train services, including the number of major incidents reported to the safety regulator
- network service quality, including information on speed restrictions, and track quality (measured by a quality index)
- distances travelled and tonnage hauled on coal-carrying train services (measured in gtk, nt, ntk and egtk); average below-rail transit times; and the number of train paths available, contracted and used
- the number of train paths that were scheduled, the number of train paths used for planned and unplanned maintenance, and the percentage of train paths available but not used

¹⁴³⁴ Refer to cl. 10.3.2 of Aurizon Network's 2016 Undertaking.

- instances of contested train paths and the outcomes of these matters.

Aurizon Network also proposes to publish a report comparing network performance in the relevant reporting quarter with performance in the previous quarter and the corresponding quarter of the preceding year (cl. 10.3.4(k)).

- In addition to the report published under cl. 10.3.4(a), Aurizon Network will also provide the QCA with a confidential report presenting the same information disaggregated for each railway operator (cl. 10.3.4(l)).

20.1.2 Other reporting

Under cl. 10.4, Aurizon Network proposes to prepare and publish the following additional reports:

- an annual financial report (cl. 10.4.1)—within six months of the end of each year, Aurizon Network will publish on its website its certified financial statements, prepared in accordance with cl. 3.7 of Part 3 of the 2017 DAU (see Chapter 12)
- a public annual RAB roll-forward report (cl. 10.4.2)—Aurizon Network will publish a report outlining any changes to the RAB for the relevant year, including information on the opening RAB value, indexation, depreciation, capital expenditure, disposals and transfers, the closing RAB value and the capital indicator for the relevant year
- a condition-based assessment of rail infrastructure (cl. 10.4.3)—before the end of the term of the undertaking period, Aurizon Network will appoint an independent assessor, approved by the QCA, to conduct this assessment. The assessor will produce a report on the findings of its assessment, identifying the extent to which the rail infrastructure has deteriorated by more than would be expected if prudent operating, maintenance and asset replacement practices were observed. Aurizon Network will publish the assessor’s report on its website.

Clause 10.4 of Aurizon Network’s 2017 DAU also proposes:

- updated timing for procuring a condition-based assessment of its rail infrastructure (cl. 10.4.3(a))
- clarification of the distinction between confidentiality obligations regarding condition-based assessments for agreements entered into before and after commencement of the 2016 Undertaking, and consequential corrections to cross-references (cl. 10.4.3(j)(ii)).

20.1.3 Compliance with the undertaking

Clause 10.5 sets out Aurizon Network’s proposed approaches to demonstrating compliance with the undertaking. These provisions are discussed in the following sections.

Compliance officer

Under cl. 10.5.1, Aurizon Network proposes to appoint a compliance officer with responsibility for managing the systems and practices required to ensure Aurizon Network complies with its undertaking obligations. The compliance officer will also be responsible for notifying Aurizon Network’s Executive Officer of any material breaches of the undertaking and any remedial action taken to address these breaches.

Annual compliance reporting

Aurizon Network proposes to publish an annual report on its compliance with the UT5 undertaking (cl. 10.5.2). The information to be reported is set out in detail in cl. 10.5.2(c)–(e). In summary, the annual compliance report will contain information about:

- access applications and proposals received
- requests for capacity information received
- timeliness of acknowledging and processing requests and applications
- the number of disputes and complaints received
- use of confidential information by Aurizon Network personnel
- the length of negotiation periods
- the number of capacity transfer requests received and effected.

The annual compliance report will also be accompanied by an audit assurance report that meets the requirements of cl. 10.6.

In addition to publishing the annual compliance report on its website, Aurizon Network must provide the QCA with a supplementary report presenting the same information, but reported separately for its third party access holders (in aggregate) and related party access holders, also in aggregate (cl. 10.5.2 (a)).

Reporting of breaches

Under cl.10.5.3, Aurizon Network will notify the QCA of any breaches of the undertaking that it is aware of, including remedial action taken to address the breaches. When a breach directly and adversely affects the interests of a customer, Aurizon Network will also provide the affected customer with the information reported to the QCA (cl. 10.5.3(b)).

Aurizon Network proposes to maintain an issues register documenting any known, or alleged, breaches of the undertaking that have occurred since its commencement (cl. 10.5.3(c)). The issues register will also document any written complaints by customers regarding Aurizon Network's performance of its undertaking obligations, and the steps that Aurizon Network has taken to address the matters recorded on the issues register. The issues register, and any information or documents referred to in it, will be made available to the QCA or auditors if requested (cl. 10.5.3(d)).

20.1.4 Audit requirements

Clause 10.6 sets out Aurizon Network's proposed arrangements for auditing of the reports required under the undertaking. Aurizon Network proposes to procure audits of its compliance with the Part 10 reporting obligations and Part 3 ring-fencing obligations, annually or as otherwise requested by the QCA.

Under cl. 10.6.3, the QCA may also ask Aurizon Network to procure an audit of any specific conduct or decisions made by Aurizon Network, and whether these comply with the undertaking. To the extent approved by the QCA, Aurizon Network proposes to recover the costs of audits requested under cl. 10.6.3 through adjusted annual revenue allowances.

For all audits under Part 10, the auditor will compile a report identifying whether Aurizon Network has complied with the relevant obligations, including details of any non-compliance, and an explanation of how the audit was conducted.

The audit provisions of Part 10 also have a bearing on Aurizon Network's obligations under Part 3. Specifically, under cl. 3.7.3, Aurizon Network will also procure an audit of its annual financial statements in accordance with cl. 10.6.4. The intent of this audit is to determine whether the financial statements have been developed in accordance with the requirements of the costing manual (see Chapter 12), and the approved undertaking. Under cl. 3.14(f), the QCA may also request an audit of the Aurizon Network's confidential information register. The proposed confidential information register is discussed in more detail in Chapter 12.

Clause 10.6.4 sets out matters of detail regarding the auditing process, including:

- criteria for selecting auditors and the auditors' responsibilities
- planning and consultation regarding the scope and execution of audits
- provision of information required to perform audits
- reporting and implementation of any auditor recommendations.

Further details on these proposed audit processes appear in cl. 10.6.4 of the 2017 DAU.

20.1.5 General provisions

Clause 10.7 includes miscellaneous proposed provisions relating to reporting and compliance with the undertaking. In summary, these provisions establish:

- a requirement for Aurizon Network to provide copies of access agreements to the QCA (when requested) to demonstrate Aurizon Network's compliance with the undertaking, and other information required by the QCA to perform its functions associated with the undertaking (cl. 10.7.1)
- conditions surrounding public disclosure of access agreements (cl. 10.7.1)
- processes for correcting any errors detected in reports (cl. 10.7.2)
- assumptions regarding the certification of reports by Aurizon Network's Executive Officer (cl. 10.7.3).

20.2 QCA analysis and draft decision

Summary of draft decision 20.1

- **The QCA considers it appropriate to approve Aurizon Network's 2017 DAU proposals in respect to Part 10.**

An effective reporting, compliance and audit regime (referred to as the reporting regime) underpins the integrity of the access regime and provides transparency and accountability regarding Aurizon Network's below-rail operations. An effective reporting regime is necessary in order to promote the economically efficient operation of, use of and investment in significant infrastructure (s. 138(2)(a)), the public interest (s. 138(2)(d)), and in the interest of access seekers (s. 138(e)) and access holders (s. 138(2)(h)).

The QCA considers Aurizon Network's Part 10 proposal provides sufficient information about Aurizon Network's operations to allow stakeholders to make informed decisions and have confidence in the regulatory regime. It also provides sufficient transparency and oversight of network performance and Aurizon Network's compliance with the undertaking, along with Aurizon Network's commitment to non-discriminatory behaviour. Accordingly, the QCA considers that it is appropriate to approve Aurizon Network's Part 10.

Issues raised by stakeholders are addressed below.

Quarterly maintenance reporting

Aurizon Network submitted its proposed quarterly maintenance report format to the QCA for approval under cl. 10.3.2 of the 2016 Undertaking in April 2017. The QCA approved the proposed quarterly maintenance report format in June 2017. Since then, the QCA has not proposed any further changes to the information reporting requirements for the quarterly maintenance report.

Noting that the QRC accepted Aurizon Network's proposed amendments to cl. 10.3.2(a)¹⁴³⁵, we consider that there are no obvious reasons to repeat this process once the UT5 undertaking is approved. In our view, Aurizon Network's proposed cl. 10.3.2(a) avoids unnecessary duplication of a process.

Nonetheless, it is important that the undertaking provides the flexibility to revise the format and content of the quarterly maintenance cost report from time to time, if needed. We consider that cl. 10.3.2(b) offers sufficient scope to require such revisions.

For these reasons, the QCA considers it appropriate to approve Aurizon Network's proposed drafting of cl. 10.3.2(a) of its 2017 DAU.

Condition-based assessment reporting

Anglo American supported the condition-based assessment provisions, although it considered that assessment should fall on the original due date, irrespective of whether there is an extension of the undertaking term beyond four years.¹⁴³⁶

The QCA considers that Aurizon Network's 2017 DAU proposal is reasonable, and the proposed provisions provide a clear means to assess the condition of the network with respect to the undertaking term. An important purpose of this assessment is to inform, if necessary, adjustments to the value of assets in the regulatory asset base. Clause 1.2(b) of Schedule E provides, among other things, a process to adjust asset values where:

- the network has deteriorated as a result of Aurizon Network's failure to implement good operating practice and pursue prudent and effective maintenance and asset replacement policies and practices
- Aurizon Network has no plan to remedy that deterioration.
- As such, it is useful for the process to be linked to the end of the regulatory period, as proposed by Aurizon Network, rather than to a fixed term as suggested by Anglo American. This is because the above matters can be assessed in the context of a replacement access undertaking being developed, which includes a forward-looking assessment of Aurizon Network's maintenance and asset practices.

Audit process

Pacific National submitted that the audit process could be improved by requiring the auditor to:

- consult with above-rail operators and other access holders to ensure that any stakeholder concerns regarding compliance are adequately addressed in the audit

¹⁴³⁵ QRC, sub. 20, Annexure 1: 17.

¹⁴³⁶ Anglo American, sub. 18: 22.

- produce a confidential and public audit report, with the public report distributed to relevant stakeholders.¹⁴³⁷

No other stakeholders commented on these matters.

In relation to Pacific National's first suggestion, we note that cl. 10.6.4(f)(iv) of Aurizon Network's 2017 DAU requires that the audit plan include:

a process for consultation with the QCA during the audit to ensure that the audit addresses the matters and standards required by the QCA for the particular audit being conducted. The QCA may consult with Access Holders and Access Seekers over the matters and standards to be addressed in, and required of, the audit;

We consider that this provides an avenue for the QCA to consult with access holders and access seekers on matters relevant to an audit and consider any concerns raised regarding compliance.

Clause 10.6.4(f)(iii) also requires establishment of a liaison group consisting of the auditor, Aurizon Network and the QCA, to provide a forum to resolve any audit issues as they arise.

We consider these provisions together provide scope for access seekers and access holders to have sufficient input into the conduct of audits, through the QCA.

In relation to Pacific National's second suggestion, the QCA is of the view that cl. 10.6.4(j) of Aurizon Network's 2017 DAU provides scope for the QCA to share audit reports with stakeholders. It states:

the Auditor will provide Aurizon Network and the QCA a copy of:

(i) the audit report; and

(ii) any letter or report from the Auditor accompanying the audit report which explains the audit findings in greater detail,

both of which the QCA may, if it considers it appropriate to do so, publish to parties thought appropriate by the QCA having regard to the scope of the audit and its findings;

It is not clear that further revisions to cl. 10.6.4 are necessary to achieve the outcomes sought by Pacific National.

Accordingly, the QCA considers it appropriate to approve Aurizon Network's proposed drafting of cl. 10.6.4 of the 2017 DAU.

¹⁴³⁷ Pacific National, sub. 19: 23.

21 DISPUTE RESOLUTION AND DECISION MAKING

21.1 Aurizon Network's 2017 DAU proposal

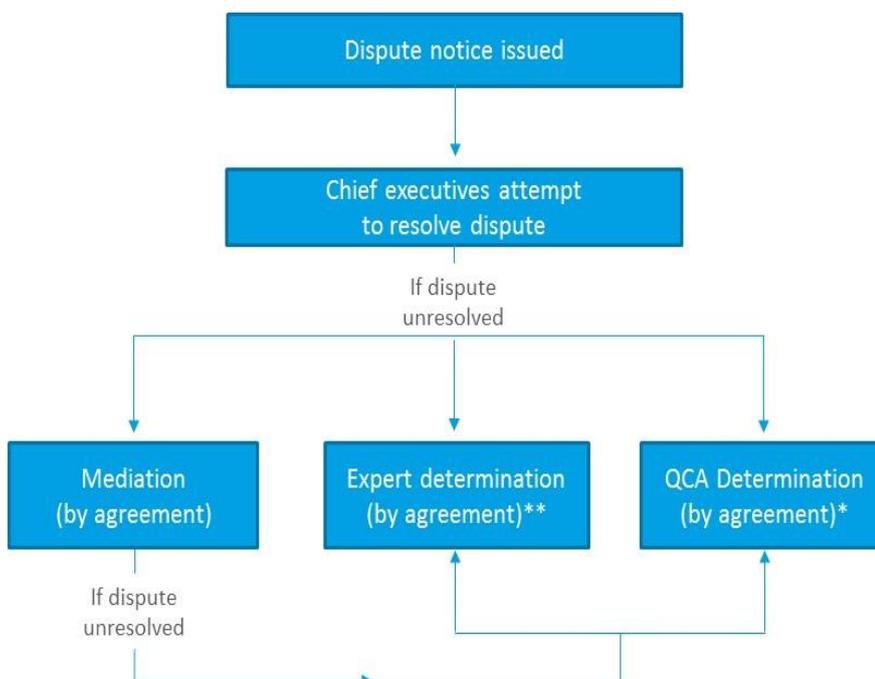
Part 11 of the 2017 DAU establishes a dispute resolution mechanism (cl. 11.1) and sets out the requirements and procedures to apply to the resolution and determination of certain categories of disputes.

Aurizon Network's proposed dispute resolution mechanism is to apply to disputes about:

- the negotiation of a standard agreement between Aurizon Network and the access seeker, train operator or customer that is the proposed party to the agreement¹⁴³⁸
- the negotiation or grant of access between Aurizon Network and an access seeker or prospective access seeker.

Part 11 outlines a staged approach to resolving disputes, starting with the disputing parties attempting to resolve the dispute between themselves, followed by mediation and/or a determination of the dispute by an expert or the QCA.

Figure 39 Overview of the 2017 DAU proposed dispute resolution procedures



Notes:

*After each stage, either party can refer a dispute to the QCA if the parties cannot agree how to proceed.

** The QCA may also refer a dispute to an expert, if requested to do so by the disputing parties.

¹⁴³⁸ Aurizon Network is not proposing to make the mechanism available to other parties.

There are significant differences between Aurizon Network's proposed dispute resolution mechanism in the 2017 DAU and the mechanism in Part 11 of the 2016 Undertaking. Differences include:

- a reduction of the scope of the mechanism, so that it is available to fewer parties and applies to a narrower range of matters
- limiting the QCA's powers in making a determination under the undertaking
- the removal of the requirement to advise the QCA of disputes and keep the QCA informed about progress to resolve disputes and amendments to obligations regarding joinder of parties
- adjustments to the expert nomination process and requirements applying to experts' decisions.

Key issues identified during the QCA's investigation

The QCA has considered all elements of Part 11 of Aurizon Network's 2017 DAU proposal in making its draft decision. The following issues attracted comment from stakeholders, or were identified for further consideration:

- scope of the dispute resolution mechanism (section 21.2)
- QCA's powers in undertaking a determination (section 21.3)
- provision of information and joinder (section 21.4)
- determinations by experts and procedure (section 21.5).

21.2 Scope of the dispute resolution mechanism

Aurizon Network's proposal

Clause 11.1.1(a) establishes the scope of the dispute resolution mechanism. The mechanism is proposed to apply to disputes about:

- the negotiation of a Standard Access Agreement or Standard User Funding Agreement between Aurizon Network and an access seeker that is a proposed party to the agreement
- the negotiation of a Standard Train Operations Deed between Aurizon Network and the train operator that is a proposed party to the deed
- the negotiation of any other standard agreement¹⁴³⁹ between Aurizon Network and an access seeker, customer or train operator that is a proposed party to the agreement
- in all other respects, the negotiation or grant of access between Aurizon Network and an access seeker or prospective access seeker.

Disputes about rights or obligations under agreements (for example, Access Agreements and Train Operations Deeds) are to be dealt with in accordance with the provisions in those agreements, rather than the dispute resolution mechanism in Part 11 (cl. 11.1.1(c)).

¹⁴³⁹ A standard agreement is any agreement that is in the form of an approved Standard Access Agreement, Standard User Funding Agreement, standard studies funding agreement, Standard Train Operations Deed or Standard Rail Connection Agreement.

Aurizon Network, in its collaborative submission, said that refusing to vary the terms of a standard agreement for coal-carrying trains is not a dispute for the purposes of Part 11. However, it agreed that disagreements regarding variations to the terms of a standard agreement for non-coal trains is a dispute for the purposes of Part 11.

There are also a number of clauses throughout the 2017 DAU that refer disputes in relation to specific matters directly to the dispute resolution mechanism in Part 11. However, it is not clear how Part 11 of the 2017 DAU is intended to apply to these particular disputes if they fall outside those disputes listed in cl. 11.1.1(a).

QCA analysis and draft decision

Summary of draft decision 21.1

- **The QCA's draft decision is that the 2017 DAU be amended to:**
 - (a) allow parties to commence disputes in relation to not only the negotiation of access but also any of Aurizon Network's obligations under the undertaking; and to filter out disputes that are vexatious or an abuse of process**
 - (b) include a broader scope of disputes which are subject to the dispute resolution provisions**
 - (c) require disputes arising in relation to particular matters that are expressly referred to in Part 11, to be resolved in accordance with Part 11.**
- The QCA's suggested drafting amendments are provided in Appendix N.**

After considering stakeholder submissions and having regard to the factors set out under s. 138(2) of the QCA Act, our draft decision is that it is not appropriate to approve the 2017 DAU in respect of the proposed scope of the dispute resolution mechanism.

The QCA considers that Aurizon Network's proposal in relation to Part 11 inappropriately restricts the parties to, and scope of, the dispute resolution provisions. Generally, we consider that it is appropriate that parties who receive the benefit of an obligation under an undertaking, have a means to rectify a default or resolve a dispute in relation to that obligation. Similarly, it is appropriate that the limit to the type of issues that can form the subject matter of a dispute under the undertaking, is commensurate with the scope of Aurizon Network's obligations under the undertaking.

Our consideration of these issues are structured as follows:

- parties to a dispute
- matters that can be disputed
- referral of particular disputes to Part 11.

Parties to a dispute

Aurizon Network said that the parties to a dispute can only be access seekers, as they are the only parties (other than a service provider) contemplated as being disputing parties under Division 5, Part 5 of the QCA Act. Moreover, it said allowing additional parties to access the dispute resolution mechanism under the undertaking is detrimental to Aurizon Network and other supply chain participants, because it allows third parties to game the regulatory regime. Furthermore, Aurizon Network said that the 2016 Undertaking provisions could allow for parties

to commence vexatious disputes too easily.¹⁴⁴⁰ Aurizon Network has, however, also included train operators and customers within its proposed dispute resolution provisions on a voluntary basis.

The QCA does not consider that the only parties who should be able to utilise the dispute resolution provisions in an access undertaking are those parties that can utilise the dispute resolution provisions under Part 5, Division 5 of the QCA Act. We do not consider that the dispute resolution regime under Part 5, Division 5 of the QCA Act determines or constrains a dispute resolution regime in an access undertaking. Nor do we consider that it is appropriate to limit the dispute resolution regime to access seekers, train operators and customers. Relevantly, an access undertaking may include obligations on the owner or operator to comply with decisions of the Authority or another person about disputes on matters stated in the undertaking (s. 137(2)(bb)).

Aurizon Network has obligations under the undertaking that extend to parties other than access seekers, train operators and customers. We consider it appropriate that parties who may be affected by Aurizon Network's obligations arising under an approved undertaking should have access to a suitable dispute resolution mechanism under that undertaking. Stakeholders agreed that restricting the parties who can utilise the dispute resolution provisions, as proposed by Aurizon Network, is inappropriate.¹⁴⁴¹

Whilst an access holder has recourse to dispute resolution provisions in its Access Agreement, the access agreement dispute resolution provisions can only be utilised in relation to disputes which arise under that Access Agreement. So, if we were to approve Aurizon Network's proposed dispute resolution provisions, access holders who have a dispute arising under the UT5 undertaking (for one), may be without an ability to seek a practical and efficient remedy via the UT5 undertaking.

The QCA notes Aurizon Network's submission that there is already a mechanism within the QCA Act which allows for the QCA or another person to apply to a court in relation to a purported breach of an undertaking.¹⁴⁴² We do not consider that the inclusion of these remedial provisions in the QCA Act, either explicitly or implicitly, means that there cannot be a mechanism in an undertaking which allows for parties to dispute matters arising under that undertaking. We agree with the QRC's submission that the ability to commence court proceedings is less efficient and commercial than the practical dispute resolution procedures contained in the 2016 Undertaking, such as chief executive resolution and expert determination.¹⁴⁴³ For these reasons we do not consider it appropriate to limit the parties who may utilise the dispute resolution provisions in the 2017 DAU.

The QCA does not consider that, in order to avoid the potential misuse of the dispute resolution procedures, it is appropriate to limit the parties who can raise a dispute to access seekers, train operators and customers. Aurizon Network gives, as an example, the possibility that a coal supply chain participant may misuse the dispute resolution process to favour its own project in the context of an expansion.¹⁴⁴⁴ The QCA has not been provided with any examples of actual gaming of undertaking dispute resolution procedures having taken place. Nor does it appear to be an appropriate response to entirely exclude a large proportion of what may be legitimate

¹⁴⁴⁰ Aurizon Network, sub. 1: 76–78.

¹⁴⁴¹ See: QRC, sub. 20: 32; QCoal, sub. 16: 5; Pacific National, sub. 19: 11; Anglo American, sub. 18: 25.

¹⁴⁴² Aurizon Network, sub. 1: 79. See, for example, s. 158A of the QCA Act.

¹⁴⁴³ QRC, sub. 20: 33.

¹⁴⁴⁴ Aurizon Network, sub. 1: 77.

parties to a dispute, to avoid a hypothetical vexatious dispute. Similarly, the QRC said that it is difficult to understand how Aurizon Network's changes are merely intended to prevent non bona fide disputes. The QRC suggested minimal changes to the relevant definitions could help to avoid vexatious disputes.¹⁴⁴⁵ QCoal supports measures that aim to limit the ability to dispute to only those with a genuine, bona fide interest but does not support any other changes to the dispute resolution provisions.¹⁴⁴⁶

The QCA is also of the view that costs provisions included in the dispute resolution mechanism will serve as a disincentive to vexatious or frivolous claims.

After having regard to all of the factors in s. 138(2) and considering stakeholder submissions on the matter, our draft decision is that it is not appropriate to approve Aurizon Network's proposed cl. 11.1.1(a) and it is appropriate to amend the 2017 DAU as per the drafting in Appendix N of this draft decision. This provision allows for parties to commence disputes in relation to not only the negotiation of access but also any of Aurizon Network's obligations under the undertaking.

The QCA agrees that the goal to avoid disputes that are not genuine is appropriate, but we do not consider that Aurizon Network's proposed means is appropriate. We consider that an appropriate response would be to include, as a threshold issue, that disputes must not be vexatious or an abuse of process. To give effect to this we require Aurizon Network to amend the definition of dispute as per the drafting at Appendix N. This will allow all parties who have a genuine dispute in relation to matters arising under the UT5 undertaking to have a chance to have their dispute heard, whilst operating to filter out disputes that are vexatious or not properly the subject of the dispute resolution mechanism.

Given this required amendment, we do not consider it appropriate or necessary to include cl. 11.1.1(f) as proposed by Aurizon Network.¹⁴⁴⁷ The relevant provision of the QCA Act is already incorporated as a parameter applying to access disputes which are to be determined by the QCA (see cl. 11.1.5), subject to required amendments discussed below. In combination with the above required amendment, this should act to exclude vexatious litigants so the new provision is not required. The pursuit of such claims will also be discouraged through the costs provisions included in the dispute resolution mechanism.

We consider these combined amendments adequately balance the interests of Aurizon Network—in that Aurizon Network should not be subject to vexatious disputes (s. 138(2)(b))—with the interests of access seekers, access holders and other parties affected by obligations in the UT5 undertaking, as well as the public interest—in having genuine disputes determined in accordance with an appropriate dispute resolution regime to which all affected parties have equal access (ss. 138(2)(d), (e), (g) and (h)).

Matters that can be disputed

By way of comparison with the 2016 Undertaking, in addition to reducing the number of parties, Aurizon Network's 2017 DAU has also reduced the scope of the dispute mechanism such that fewer disputes can be the subject of Part 11. Aurizon Network said that the scope of the dispute

¹⁴⁴⁵ QRC, sub. 20: 32.

¹⁴⁴⁶ QCoal, sub. 16: 5.

¹⁴⁴⁷ Stakeholders did not comment on this particular amendment directly. Aurizon Network said a goal is to filter out vexatious litigants. Other stakeholders said that generally, the 2016 Undertaking dispute resolution provisions should be reinstated.

resolution mechanism in the 2016 Undertaking was impermissibly broad, because it was larger than the scope of disputes which can be heard under the QCA Act.¹⁴⁴⁸

Aurizon Network said that the QCA has no jurisdiction to hear disputes about breaches of the undertaking, nor could it vest itself with powers to hear such disputes. Rather, the QCA Act sets out clear remedies for the enforcement of an approved access undertaking.¹⁴⁴⁹

Other stakeholders said that relying solely on the compliance provisions of the QCA Act is insufficient and is not comparable to practical and commercial dispute resolution procedures such as chief executive resolution and expert determination, and that the 2016 Undertaking provisions should be reinstated.¹⁴⁵⁰

QCoal said that, except for changes in relation to limiting the ability to dispute to bona fide parties, it did not support any other changes from the 2016 Undertaking as proposed by Aurizon Network. Further:¹⁴⁵¹

A robust and fair dispute resolution process is essential in any relationship where there is an imbalance of information and power, and the Draft UT5 proposed by Aurizon Network does not provide for a fair and equitable mechanism to enable genuine disputes to be aired.

The QCA agrees with stakeholders that it is appropriate that parties affected by matters arising under an undertaking are able to raise a dispute in relation to those matters. There are practical and efficient avenues for resolving a dispute under the previous 2016 Undertaking provisions which provide opportunities for the parties to a dispute, to seek resolution without having to incur the time and expense required to take a matter to court. We do not agree with Aurizon Network that the scope of the dispute resolution provisions in an undertaking must be limited to the scope of the dispute resolution provisions in the QCA Act. Nor do we agree that, because there are compliance provisions in the QCA Act, it is impermissible to include dispute resolution provisions in an undertaking.

The QCA Act explicitly provides that an undertaking may include details of an obligation on an access provider to comply with decisions (by the QCA or another person) on disputes about matters stated in the undertaking.¹⁴⁵² We note that parties to a Standard Access Agreement agree that, in relation to disputes arising under that access agreement, their disputes can be heard under the dispute resolution provisions of that agreement. Those disputes are therefore outside the scope of the dispute resolution provisions in the undertaking.¹⁴⁵³ However, without including broader dispute resolution provisions than Aurizon Network is proposing, parties who have a bona fide dispute arising under the terms of the undertaking (as opposed to an access agreement) may be without a practical and cost-effective mechanism to resolve the dispute.

In these circumstances the QCA considers that Aurizon Network's 2017 DAU is not appropriate to approve in regard to the scope of disputes which may be subject to the dispute resolution provisions in Part 11. Our draft decision is that it is appropriate to include broader dispute resolution provisions. This is because broader dispute resolution provisions are appropriate after having regard to all the factors in s. 138(2) of the QCA Act, in particular the interests of access seekers, access holders, Aurizon Network and the public interest (ss. 138(2)(b), (d), (e), (g) and (h)). Furthermore, including broad dispute resolution provisions supports the object of

¹⁴⁴⁸ Aurizon Network, sub. 1: 77, 79.

¹⁴⁴⁹ Aurizon Network, sub. 1: 75–79.

¹⁴⁵⁰ QRC, sub. 20: 33; QCoal, sub. 16: 5; Pacific National, sub. 19: 11.

¹⁴⁵¹ QCoal, sub. 16: 5.

¹⁴⁵² See QCA Act s. 137(2)(bb).

¹⁴⁵³ See QCA Act s. 112.

Part 5 of the QCA Act (s. 138(2)(a)), as investment in the network and dependent market competition is likely to be promoted by the regulatory certainty arising from a stated dispute resolution process for parties whose interests are affected by an access undertaking.

Our draft decision is therefore to require Aurizon Network to amend the dispute resolution provisions as provided in Appendix N.

In addition, participating stakeholders reached consensus, in the collaborative submission process, that an amendment to cl. 11.1.1(b) should be included to ensure that non-coal-carrying train service agreements are not inadvertently exempted from the dispute resolution provisions because the dispute relates to a refusal by a party to vary the terms of a Standard Access Agreement.¹⁴⁵⁴ We consider that this proposed amendment is appropriate, given that the Standard Access Agreement is drafted as if all access seekers will be negotiating for coal-carrying train services and, as such, access seekers for non-coal-carrying train services will inevitably be required to vary the Standard Access Agreement.

It is otherwise appropriate to exclude disputes about refusing to vary the Standard Access Agreement because Part 5 of the 2017 DAU provides that, if the parties cannot agree variations, any dispute will be resolved by entry into the Standard Access Agreement. Keeping this structure maintains the integrity of the 'safe-harbour' purpose of the standard agreements.

For consistency in the 2017 DAU, our draft decision is that it is also appropriate to require Aurizon Network to amend cl. 5.1(e) as provided in Appendix I, to make clear that:

- where the terms of an Access Agreement for coal carrying services cannot be agreed, the dispute is resolved by entry into the Standard Access Agreement and is not a dispute for the purposes of Part 11; and
- where the terms of access for non-coal carrying services cannot be agreed, the dispute is resolved pursuant to the dispute resolution mechanism in Part 11, by the QCA or an expert completing an Access Agreement which is consistent with the Standard Access Agreement, amended to reflect the fact that the access is for non-coal carrying services.

Moreover, disputes about the completion of the schedules to a Standard Access Agreement should also be able to be resolved within the dispute resolution regime to avoid stifling access and this is reflected in the required amendments in Appendix I.

Referral of particular disputes to Part 11

In the 2016 Undertaking, cl. 11.1.1(a)(iii) provided that disputes arising in relation to particular matters expressly required to be resolved in accordance with Part 11 must be resolved in accordance with Part 11. The 2017 DAU did not include a similar provision. However, there are multiple instances of particular matters throughout the 2017 DAU which expressly refer disputes to Part 11.¹⁴⁵⁵ Without a similar provision, and given Aurizon Network otherwise has sought to limit the scope of disputes (both as to subject matter and parties), there is likely to be confusion as to whether or not referred disputes can benefit from the dispute resolution provisions. Stakeholders did not comment on this issue directly other than to note generally that the 2016 Undertaking dispute resolution provisions should be reinstated (see discussion above). We do not consider it appropriate to approve this aspect of the 2017 DAU. The uncertainty created is not in the interests of any of the parties, including Aurizon Network or

¹⁴⁵⁴ See Aurizon Network, sub. 26: 8; Pacific National, sub. 28: 2. The QRC did not comment on this particular amendment.

¹⁴⁵⁵ See for example, cls. 2.6(c), 6.2.5(a), 7A.2.1, 7A.6(f) and 9.1(n).

any other party impacted by obligations under the 2017 DAU. Rather, it is appropriate to amend the 2017 DAU as set out in Appendix N.

21.3 QCA's powers in undertaking a determination

Aurizon Network's proposal

In cl. 11.1.5 of the 2017 DAU, Aurizon Network proposes to align the dispute resolution procedures, in respect of determinations by the QCA, to those contained in the relevant parts of the QCA Act. This includes:

- making disputes under the undertaking subject to, and in accordance with, Division 5, Part 5 of the QCA Act (cl. 11.1.5(c) 2017 DAU)
- providing that dispute notices under the undertaking must comply with ss. 112 and 113 of the QCA Act (cl. 11.1.5(d)(ii) 2017 DAU)

Aurizon Network did not propose to include clauses requiring it to provide notifications or correspondence to the QCA about disputes.¹⁴⁵⁶

¹⁴⁵⁶ See, for example, cl. 11.1.5(g) of the 2016 Undertaking.

QCA analysis and draft decision

Summary of draft decision 21.2

- **The QCA's draft decision is that the 2017 DAU be amended so that:**
 - (a) **access disputes that arise under the UT5 undertaking provisions should be determined by the QCA as if the dispute arose under Division 5, Part 5 of the QCA Act**
 - (b) **disputes that are not about access are to be determined by the QCA through any process it considers appropriate, subject to some limitations (discussed further below)**
 - (c) **when the QCA is appointed as the arbiter of a dispute under the 2017 DAU the QCA may hear disputes in relation to matters and between parties that may not be within the scope of the dispute resolution provisions of Division 5, Part 5 of the QCA Act**
 - (d) **before a determination by the QCA can commence, the parties must agree, in a legally binding way, to be bound by the outcome of the Dispute, including agreeing to pay any costs ordered by the QCA**
 - (e) **it is made clear that the QCA may make a determination as to how and by whom the costs of an arbitration should be paid, consistent with s. 208 of the QCA Act**
 - (f) **the interpretation provision in clause 12.2 be broadened to make provision for the possibility that the relevant Queensland legislation is repealed and replaced**
 - (g) **specific examples are included of when a determination made by the QCA under Part 11 is not inconsistent with the undertaking.**

The QCA's suggested drafting amendments are provided in Appendix N.

Having regard to all of the factors in s. 138(2) of the QCA Act and after considering stakeholder submissions on this matter, our draft decision is to refuse to approve cl. 11.1.5 of the 2017 DAU in respect of determinations made by the QCA.

We do not consider it appropriate to approve Aurizon Network's proposal that determinations made by the QCA in relation to disputes under the 2017 DAU are confined by the scope of the QCA's dispute resolution powers regarding access disputes under Division 5, Part 5 of the QCA Act. However, we consider that, where possible, access disputes under the undertaking and Division 5, Part 5 of the Act ought to be handled in a consistent manner. Therefore, access disputes that arise under the UT5 undertaking provisions should be determined by the QCA as if the dispute arose under the Division 5, Part 5 of QCA Act. Similarly, it is appropriate that determinations made by the QCA arising under an undertaking are not inconsistent with the determinations the QCA could make under Division 5, Part 5 disputes.

Aurizon Network said:

- Dispute resolution under the QCA Act for access disputes must form the framework for any proposed dispute resolution process.
- UT5 cannot be inconsistent with the dispute resolution powers of the QCA and the dispute resolution requirements under the QCA Act.

- Aurizon Network cannot vest the QCA with powers it does not have under the QCA Act and the QCA cannot vest itself with any such powers.
- The QCA only has power to resolve disputes to which Division 5, Part 5 of the QCA Act applies. Therefore, provisions that purport to permit the QCA to determine disputes which cannot be the subject of Division 5, Part 5 of the QCA Act have not been included in the 2017 DAU.¹⁴⁵⁷

We do not agree that the dispute resolution mechanism within an undertaking must necessarily be consistent with the dispute resolution provisions in Division 5, Part 5 of the QCA Act. Nor that the QCA only has the power to resolve disputes under Division 5, Part 5 of the QCA Act.

As stated above, the QCA Act contemplates (for example, in s. 137(2)(bb)) that an undertaking may include dispute resolution provisions and that disputes utilising an undertaking's dispute resolution provisions may be determined by the QCA or another person. The QCA, when determining disputes under an undertaking is not merely applying, and conforming to, the QCA Act provisions in relation to a dispute but rather is separately appointed to determine disputes which arise under the undertaking. These disputes are distinct from disputes heard under the QCA Act. If the QCA could only hear access disputes under the QCA Act, there would be no need for separate dispute resolution provisions in an undertaking. On the contrary, the QCA Act contemplates that dispute resolution provisions may be included in an undertaking (and could be determined by the QCA).

The QRC said that an undertaking is not required to be limited to the matters specifically called out under the QCA Act. If that were the case, there would be little point in requiring an undertaking at all.¹⁴⁵⁸ Likewise, while other stakeholders did not comment directly on this aspect of the 2017 DAU, they said that, generally, the UT4 disputes resolution provisions should be reinstated or the 2017 DAU provisions expanded.¹⁴⁵⁹

The QCA does not consider Aurizon Network's proposed cl. 11.1.5 is appropriate to approve. We consider that it is appropriate for the 2017 DAU to have dispute resolution provisions that allow for the QCA—when it is appointed as the arbiter of a dispute under an undertaking—to hear disputes in relation to matters and between parties that may not be within the scope of the QCA Act dispute resolution provisions.

The dispute resolution provisions under Division 5, Part 5 of the QCA Act are limited to access disputes—there are many aspects of an undertaking about which there may be disputes but that are not necessarily about access. For example, and amongst other things:

- capacity assessments
- expansions
- line diagrams
- system rules
- system operating parameters

¹⁴⁵⁷ See Aurizon Network, sub. 1: 75.

¹⁴⁵⁸ QRC, sub. 20: 31.

¹⁴⁵⁹ QCoal, sub. 16: 5; Pacific National, sub. 19: 11; See also Anglo American, sub. 18: 25 whereby Anglo American said that the undertaking dispute resolution provisions should be expanded to include access holders. Access holders cannot utilise the QCA Act dispute resolution provision except in relation to disputes regarding increased access (s. 112 QCA Act).

- network development plans
- ring-fencing
- other technical matters.

As noted above, we consider it appropriate that the dispute resolution provisions in the 2017 DAU apply to a broader range of parties and subject matters than is contemplated in Aurizon Network's 2017 DAU. It would not be appropriate for disputing stakeholders having no avenue of recourse if the dispute cannot properly come under the aegis of the undertaking (for example, due to the operation of s. 112 of the QCA Act) or the relevant access agreement's dispute resolution provisions. Furthermore, we consider it appropriate that the QCA is designated as the arbiter under the 2017 DAU for disputes (subject to those disputes considered appropriate to be resolved by way of expert determination discussed in section 21.5 below).

It is recognised in cl. 11.1.6(b) of the 2017 DAU that a determination by the QCA is final and binding (subject to the limitations in clause 11.2). However, to ensure this is given effect to and all parties to a dispute are bound by the outcome, we consider it is appropriate to include a requirement that before a determination commences, all parties agree in a legally binding way to be bound.

It is also appropriate that it is clearly stated in the undertaking that the arbiter also has the power to award costs and that the parties agree to pay any costs ordered by the QCA. Without this being stated explicitly in the undertaking, there may be further disputes as to who will bear the costs of an arbitration.

Therefore, the QCA also requires that the 2017 DAU be amended to:

- require the parties to a dispute to agree to be legally bound by the outcome before the QCA can commence with a determination. To ensure the determination process is not stifled, the parties should be required to act reasonably and in good faith to reach agreement as soon as reasonably practicable;
- include provision for the QCA to make a determination as to how and by whom the costs of an arbitration should be paid and require the parties to agree to pay any costs ordered to be paid by the QCA.

For the reasons set out above, it is more efficient (s. 138(2)(a)) and in the public interest that the QCA hears disputes arising under an undertaking (s. 138(2)(e)). It is also in the interests of all parties to have equal access to the dispute procedure, certainty that they will have an independent and knowledgeable arbiter and clarity as to costs and the binding nature of the process (ss. 138(2)(b), (e) and (h)). These considerations outweigh any interest that Aurizon Network may have in seeking to restrict the operation of dispute provisions.

It is also not appropriate to include Aurizon Network's proposed cl. 11.1.5(d)(ii), requiring that s. 112 of the QCA Act is satisfied, as access holders will be excluded from the dispute resolution provisions in the undertaking (see s. 112(1)(b) of the QCA Act) and only disputes about access would be justiciable (see above for more in relation to parties to a dispute).

The amendments required to be made in relation to the determination of non-access disputes include a requirement that the QCA must not make a determination that is inconsistent with the undertaking (see cl. 11.1.5(c)(iii)(A)(2) in Appendix N). The QCA also considers it appropriate to include examples of determinations which are not inconsistent with the undertaking as set

out in Appendix N, for example, determinations relating to the interpretation or application of the undertaking or compliance with the undertaking.

Consistency with safety management system and legislative requirements

Aurizon Network said that any determination by the QCA must not be inconsistent with Aurizon Network's safety management system and applicable safety or environmental legislation.¹⁴⁶⁰

Pacific National was concerned that the safety management system is a document controlled by Aurizon Network.¹⁴⁶¹ The relevant safety legislation (for example the current *Transport (Rail Safety) Act 2010 (Qld)*) prescribes that an approved safety management system is required for accreditation. However, the actual content of a safety management system could potentially differ between service providers. That is, different safety management systems could satisfy the requirements and be approved under the relevant Act. Because of this, Pacific National said it is inappropriate that the QCA, when making a determination, is constrained by a document which may be produced by one of the parties to that dispute.

Clause 11.1.5 requires the QCA to, amongst other things, seek the advice of the rail safety regulator in relation to any safety aspects of a dispute and must not make decisions that are inconsistent with that advice. Further, the QCA cannot make a determination that is inconsistent with Division 5, Part 5 of the QCA Act. Provisions within that part of the QCA Act require the QCA to have regard to the operational and technical requirements necessary for the safe and reliable operation of the network—undoubtedly, one of these requirements is Aurizon Network's safety management system and any applicable legislation.

For clarity the interpretation section of the 2017 DAU should be amended to address any possible successor legislation or otherwise make provision for the possibility that the relevant Queensland legislation will be repealed and replaced.

21.4 Provision of information and joinder

Aurizon Network's proposal

Under cl. 11.1.1(d), either party to the dispute may invite the following party(s) to join the dispute if the inviting party is of the reasonable opinion that the dispute (or the outcome or consequences of the dispute) may be relevant to that party:

- For disputes between Aurizon Network and a prospective access seeker, access seeker or customer (who is not also a railway operator), either party to the dispute may invite the relevant railway operator.
- For disputes between Aurizon Network and a railway operator, either party may invite the relevant prospective access seeker, access seeker or customer.

Aurizon Network has not included the requirement to keep the QCA and relevant operators or access seekers (as the case may be) regularly informed in respect of disputes and to provide the QCA with copies of formal correspondence between the parties to a dispute.¹⁴⁶²

¹⁴⁶⁰ Aurizon Network, sub. 1: 81-82 and Appendix 1: 21.

¹⁴⁶¹ Pacific National, sub. 19: 11.

¹⁴⁶² See, for example, cl. 11.1.5(g) of the 2016 Undertaking.

QCA analysis and draft decision

Summary of draft decision 21.3

- **The QCA's draft decision that the 2017 DAU be amended to:**
 - (a) require Aurizon Network or the other initial party to a dispute to provide relevant train operators, access seekers or access holders (as applicable) with a copy of the dispute notice.**
 - (b) allow the relevant party to make an application to join the dispute, provided the application is not vexatious or an abuse of process.**
 - (c) Require the QCA to give notice in accordance with s. 114 of the QCA Act when a dispute is referred to the QCA in accordance with the undertaking.**
- The QCA's suggested drafting amendments are provided in Appendix N.**

After having regard to all the factors listed under s. 138(2) of the QCA Act and the submissions received on this matter, our draft decision is to refuse to approve the 2017 DAU in respect of joinder and provision of information in relation to disputes. Our assessment of these issues are separated into two sections:

- joinder of parties
- provision of notices and information.

21.4.2 Joinder of parties

Aurizon Network said that it is neither necessary nor beneficial to require Aurizon Network to invite train operators or access seekers (as applicable) to join a dispute if the outcome or consequences of the dispute would not be relevant to that joined party.¹⁴⁶³

The QRC disagreed with the proposed change. The QRC said that allowing parties to elect to become part of a dispute reflects the integrated nature of disputes.¹⁴⁶⁴ Other stakeholders did not comment on this matter directly, but said that, generally, the 2016 Undertaking dispute resolution provisions should be reinstated.

We consider that any potential invited party would be in a better position to determine whether or not the outcome or consequences of a particular dispute is relevant to them. As noted by the QRC, disputes, and indeed the entire network, is of an integrated nature. Disputes and disagreements are likely to have an impact on more than just the two most immediate parties to that dispute. Parties who receive notice of a dispute are not required to enter into the dispute and are not likely to enter into disputed matters lightly. Because of this, our draft decision is to refuse to approve this aspect of Aurizon Network's 2017 DAU and consider it appropriate to be amended in the way set out in Appendix N.

We consider that inviting parties who are likely to have some related interests to the disputing parties will also result in disputes being resolved based on all relevant information in the first instance. This should also extend to Access Holders. This approach should result in timely decisions, which is in the interests of all parties and the public interest (s. 138(2)(b), (e) and (h)). It is also likely to prevent similar matters being disputed by parties who should have been involved in a dispute from the beginning.

¹⁴⁶³ Aurizon Network, sub. 1: 78.

¹⁴⁶⁴ QRC, sub. 20: 32.

However, we consider that any such joinder applications should be subject to a requirement that the joinder to the dispute is not vexatious or an abuse of process as set out in the amendment to cl. 11.1.1(e) in Appendix N. This is consistent with the requirement for the commencement of any dispute under Part 11.

21.4.3 Provision of information

Aurizon Network said that it is not necessary to keep the QCA regularly informed in relation to disputes and provide all formal notices. Also, that it may be problematic in respect of matters like waiver of legal professional privilege.¹⁴⁶⁵

We consider that there is significant merit in retaining an open and transparent dispute resolution process. This will encourage the timely resolution of disputes and also provide useful information in respect of the operation of the undertaking, which is in the interests of Aurizon Network, access seekers and users as well as the public interest (ss. 138(2)(b),(e) and (h)). Therefore our draft decision is that it is not appropriate to approve Aurizon Network's proposed cl. 11.1.1(e) in this regard.

However, we do not consider that Aurizon Network should be required to continue to provide subsequent notices to the relevant railway operator or access seeker in a dispute to which that party has elected not to be joined (cl. 11.1.1(d)(iii) of the 2017 DAU). The relevant party will have been given the opportunity to join and so in this instance the administrative burden is not outweighed by other factors. Therefore, we consider that Aurizon Network's proposal to not be required to provide to the relevant party all notices and correspondence subsequent to a dispute notice is appropriate. If a party has elected to join the dispute, they will receive all subsequent notices via the dispute process.

Further, we are not convinced that providing the QCA with dispute notices, subsequent correspondence, notices that a dispute is referred to mediation or an expert, or otherwise keeping the QCA regularly informed, adds to the efficiency of the dispute resolution process. Therefore, we accept Aurizon Network's proposal in this regard.

However, we consider it is appropriate for the QCA to inform relevant parties of the referral of a dispute for determination consistent with s. 114 of the QCA Act. It is in the public interest and in the interest of access seekers and users for a consistent notification procedure to apply to disputes being determined by the QCA (ss. 138(2)(d), (e), and (h)). Our draft decision is to include the notice requirement for referrals of disputes to the QCA under the undertaking as set out in Appendix N.

21.5 Determinations by experts and procedure

Aurizon Network's proposal

Clauses 11.1.4 and 11.1.6 cover matters relating to determinations by an expert or the QCA. Under Aurizon Network's proposal, an expert will no longer be nominated by the QCA (in default of agreement by the parties as to an expert). Instead, Aurizon Network included a specific selection of relevant people who will nominate experts in their relevant fields. This expert selection regime is similar to the corresponding regime contained in the current approved Standard Access Agreement. An expert's determination is also constrained by safety matters and the QCA Act.

¹⁴⁶⁵ Aurizon Network, sub. 1: 78 and Appendix P.1: 19.

Expert determination (cl. 11.1.4)

If a dispute is referred to an expert, the expert must be appointed by agreement between the parties to the dispute. If the parties fail to reach agreement, the expert will be appointed according to the process in cl. 11.1.4(b). Under this process, the expert to be appointed (cl. 11.1.4(b)) is the person nominated by:

- the President of the Institute of Chartered Accountants in Australia, if the parties agree the dispute is purely of a financial or accounting nature
- the President of the Resolution Institute, if the parties agree the dispute is purely of a technical nature
- the President of the Queensland Law Society, in all other cases.

Clause 11.1.4 sets out the requirements that apply to the expert when it makes a determination. These requirements include not making a determination that is inconsistent with the QCA Act or Aurizon Network's obligations under safety or environmental legislation, and only making a determination the QCA could make if the matter in dispute were arbitrated by the QCA under the QCA Act. The dispute must also be determined in accordance with the expert determination rules of the Resolution Institute, to the extent those rules are not inconsistent with the terms in cl. 11.1.4. The clause also places obligations on the disputing parties.

Unless otherwise agreed, the expert's costs must be borne equally between the parties (cl. 11.1.4(b)(iv)) and each party must bear its own costs of participating in the process (cl. 11.1.4(i)).

When determinations are binding (cl. 11.1.6)

Under cl. 11.1.6(b), determinations by the QCA or an expert are binding, unless:

- in the case of a determination by an expert, the QCA determines that there has been a manifest error or fraud in the expert's decision or the expert has not complied with certain requirements relating to the expert's ongoing independence and impartiality¹⁴⁶⁶
- in the case of a determination by the QCA, the determination is successfully challenged on the basis of a breach of a requirement in cl. 11.2.¹⁴⁶⁷

Procedural matters

Aurizon Network has deleted the provision that governs the interplay between Part 11 and Part 8 disputes and has included a number of amendments to account for the fact that there may be more than two parties to a dispute (cls. 11.1.2, 11.1.3, 11.1.4(h) and 11.1.6).

¹⁴⁶⁶ A party to the dispute may ask the QCA to decide whether the determination is binding (cl. 11.1.4(h)).

¹⁴⁶⁷ See section 21.5 for an explanation of the requirements in cl. 11.2.

QCA analysis and draft decision

Summary of draft decision 21.4

- **The QCA's draft decision is that the 2017 DAU be amended to:**
 - (a) include an obligation for CEO-level discussions to have failed before a dispute is referred to an expert**
 - (b) include the Queensland Law Society as a fall-back nominator if the parties fail to agree on the nature of the dispute**
 - (c) the term 'Institute of Chartered Accounts in Australia' be changed to 'Chartered Accountants Australia and New Zealand'**
 - (d) require the parties to agree to be bound by the outcome of the expert determination before it commences and agree how the costs and disbursements will be paid**
 - (e) remove the requirement for an expert to not make a determination that is inconsistent with the QCA Act**
 - (f) include that those matters which are specific to a dispute arising under Part 8 prevail over the provisions of Part 11 to the extent of any inconsistency.**
- The QCA's suggested drafting amendments are provided in Appendix N.**

After having regard to all of the factors in s. 138(2) of the QCA Act and considering all stakeholder submissions on the subject matter, our draft decision is to not approve Aurizon Network's proposal.

21.5.1 Expert determination

Expert nomination process

Aurizon Network said that it is in the legitimate business interests of itself and the parties who have a right to raise a dispute to have certainty about how the expert nomination process works.¹⁴⁶⁸ Aurizon Network also raised the possibility of complicating factors brought about by the QCA nominating an expert and being required to determine if there has been a manifest error made by that expert.¹⁴⁶⁹

For these reasons, Aurizon Network proposes that the expert nomination process should be pre-agreed in the 2017 DAU and the decisions should be made by independent third parties in the absence of agreement by the parties to the dispute.

The QRC said that it is willing to accept the changes to the appointment of an expert.¹⁴⁷⁰ However, the QRC did include some variations to the relevant provisions in its proposed DAU drafting. These include inserting the obligation for CEO-level discussions to have failed and deleting nomination for financial matters by the Institute of Chartered Accountants. The QRC has also suggested that the Queensland Law Society operates as a fall-back nominator if the parties fail to agree on the nature of the dispute.¹⁴⁷¹

¹⁴⁶⁸ Aurizon Network, sub. 1: 80.

¹⁴⁶⁹ Aurizon Network, sub. 1: 80.

¹⁴⁷⁰ QRC, sub. 20: 33.

¹⁴⁷¹ See cl. 11.1.4 of QRC, sub. 20. Annexure 2.

We consider that it is appropriate to amend Aurizon Network's expert nomination process, in the way set out in Appendix N.

Aurizon Network's nomination process largely replicates the equivalent process under the Standard Access Agreement. It is in the parties' interests to have certainty regarding the nomination process, and given that stakeholders generally agree, we consider that the proposal is appropriate.

However, we also agree with the QRC that the parties should be required to exhaust CEO-level discussions first. This is more cost effective for all involved and may avoid bringing in third parties. We consider it appropriate to amend Aurizon Network's 2017 DAU in this regard.

The nomenclature of the 'Institute of Chartered Accountants in Australia' is not current and should be amended to 'Chartered Accounts Australia and New Zealand'. Further, and also in the interest of certainty to all parties, if there is a failure to agree the nature of the dispute, the Queensland Law Society is a prudent choice to provide a suitable nomination. Without this fall-back position, the expert resolution process could be stifled by a failure to agree.

Expert decisions

As is the case for disputes referred to the QCA for determination, we consider that it is appropriate and in the interests of all parties that there is clarity as to the binding nature of the expert determination process (ss. 138(2)(b), (e) and (h)). To ensure all parties are bound by the outcome of the expert determination (subject to the limitations in cl 11.1.6(b) of the 2017 DAU), we consider it appropriate to amend cl. 11.1.4 to require the parties to agree, in a legally binding way, to be bound by the expert determination. The parties should also agree as to how the costs and disbursements of the expert determination are to be paid. Unless agreed otherwise, cl. 11.4.1(i) establishes the default position. To ensure the determination process is not stifled, the parties should be required to act reasonably and in good faith to reach agreement as soon as reasonably practicable.

Aurizon Network said that experts' determinations should be required to be made within the confines of Division 5, Part 5 of the QCA Act.¹⁴⁷² Moreover, that an expert's decision must not be inconsistent with Aurizon Network's safety management system and applicable safety legislation.¹⁴⁷³ The QRC said that the requirements and procedures for a QCA determination under the QCA Act were never intended to apply to an expert determination, nor is it appropriate for those requirements and procedures to be imposed in such a way.¹⁴⁷⁴

We agree with the QRC; the obligations on the QCA when it is determining disputes under the QCA Act are not appropriate for the resolution of disputes by an expert. Expert determinations by their nature are confined to a narrow and specific subject matter. The QCA Act requirements are drafted specifically to apply to the QCA when making determinations under that Act. Further, under the 2017 DAU, the expert's decision must not be inconsistent with the undertaking and the expert must have regard to the matters specified in ss. 120(1)(a)–(l) of the QCA Act. Section 120(1)(i) includes the operational and technical requirements that Aurizon Network must comply with. These include Aurizon Network's accreditation and other legislative requirements. To otherwise incorporate the arbitration framework onto an expert's determination process is likely to inappropriately constrain the expert's decision and weigh it down with procedural matters. The QRC said that it would accept the amendments in relation

¹⁴⁷² Aurizon Network, sub. 1: 80.

¹⁴⁷³ Aurizon Network, sub. 1: 80 and Appendix P.1: 19.

¹⁴⁷⁴ QRC, sub. 20: 33.

to consistency with safety matters if the rest of Part 11 is reinstated as it is under the 2016 Undertaking.¹⁴⁷⁵

For these reasons, we do not consider it appropriate to approve Aurizon Network's proposal. Rather, we consider it appropriate to require Aurizon Network to amend the 2017 DAU in the way set out in Appendix N.

21.5.2 Procedural matters

Aurizon Network proposed that a mechanism for the QCA to determine whether or not the expert has complied with cl. 11.1.4(e).¹⁴⁷⁶ We consider the proposal appropriate to approve.

We do not approve Part 11 not having a clause that provides for those matters which are specific to a dispute arising under Part 8 to prevail over the provisions of Part 11 to the extent of any inconsistency. Part 8 sets out certain requirements in relation to disputes about expansions. It is important to clarify that these provisions will not be hindered due to any inconsistency with Part 11. This will provide for more efficient resolution of Part 8 disputes and avoid unnecessary arguments about process. It is therefore in the interests of Aurizon Network and access seekers to retain this provision (s. 138(2)(b) and (e)).

¹⁴⁷⁵ QRC, sub. 20: 33.

¹⁴⁷⁶ Aurizon Network, sub. 1, Appendix P.1: 20.

APPENDIX A: LIST OF SUBMISSIONS

The QCA received the following submissions during its investigation of Aurizon Network's 2017 DAU. The submission numbers below are used in this draft decision for referencing purposes. The submissions are available on the QCA website unless otherwise indicated

Stakeholder	Submission	Sub. number	Date submitted
Anglo American Coal Australia (Anglo American)	Submission on Aurizon Network's 2017 DAU	18	17 Feb 2017
Aurizon Network	Submission of the 2017 Draft Access Undertaking (UT5)	1	30 Nov 2016
	<i>Best estimate of inflation: revaluations and revenue indexation</i> , report by Competition Economists Group (CEG)	2	30 Nov 2016
	<i>Aurizon Network IT Market Services Price</i> , report by IT Newcom	3	30 Nov 2016
	<i>Aurizon Network 2016 Access Undertaking—Aspects of the WACC</i> , report by The Brattle Group	4	30 Nov 2016
	<i>Debt risk premium of coal transporters</i> , report by CEG	5	30 Nov 2016
	<i>Equity beta</i> , report by Frontier Economics	6	30 Nov 2016
	<i>Estimating gamma for regulatory purposes</i> , report by Frontier Economics	7	30 Nov 2016
	<i>Market evidence on the cost of equity</i> , report by EY	8	30 Nov 2016
	<i>Market risk premium</i> , report by Frontier Economics	9	30 Nov 2016
	<i>Review of Self Insurance Risk Premium—Access Undertaking UT5</i> , report by Finity	10	30 Nov 2016
	<i>Conceptual insurance program design and pricing</i> , report by JLT	11	30 Nov 2016
	Presentation to the QCA	12	6 Dec 2016
	Presentation to the QCA: UT5 maintenance allowance	13	6 Dec 2016
	Presentation to the QCA	14	6 Dec 2016
	Presentation to the QCA	25	2 Mar 2017
	Submission following collaboration with stakeholders	26	17 Mar 2017
	<i>Recent evidence on the market risk premium</i> , final report by Frontier Economics	30	10 May 2017
	Submission of updated information on the 2017 DAU	31	22 Sep 2017
	<i>Estimating gamma within the regulatory context</i> , final report by Frontier Economics	32	22 Sep 2017
	<i>Best estimate of inflation for regulatory purposes</i> , report by CEG	33	22 Sep 2017
<i>Appropriateness of the external credit ratings</i> , report by EY	34	22 Sep 2017	

Stakeholder	Submission	Sub. number	Date submitted
	<i>Risk comparison between Aurizon Network and water and energy networks, report by Synergies Economic Consulting</i>	35	22 Sep 2017
	Submission of updated information on the 2017 DAU	36	29 Sep 2017
	<i>The term of the risk-free rate, final report by Frontier Economics</i>	37	29 Sep 2017
	<i>An updated estimate of the market risk premium, report by Frontier Economics</i>	38	29 Sep 2017
	<i>Required returns for infrastructure assets: market-based evidence, report by Deloitte</i>	39	29 Sep 2017
Aurizon Operations	Submission on Aurizon Network's 2017 DAU	15	17 Feb 2017
	Submission following collaboration	27	17 Mar 2017
BHP Billiton Mitsubishi Alliance (BMA)	Submission on Aurizon Network's 2017 DAU	24	17 Feb 2017
Dalrymple Bay Coal Chain Coordinator (DCCC)	Submission on Aurizon Network's 2017 DAU	17	17 Feb 2017
Fitzroy Australia Resources (Fitzroy)	Submission on Aurizon Network's 2017 DAU	22	17 Feb 2017
Pacific National	Submission on Aurizon Network's 2017 DAU	19	17 Feb 2017
	Submission following collaboration	28	17 Mar 2017
QCoal Group (QCoal)	Submission on Aurizon Network's 2017 DAU	16	17 Feb 2017
Queensland Resources Council (QRC)	Submission on Aurizon Network's 2017 DAU, Volume 1: Policy	20	17 Feb 2017
	Submission on Aurizon Network's 2017 DAU, Volume 1: Pricing	21	17 Feb 2017
	Submission following collaboration	29	17 Mar 2017
Rio Tinto Coal Australia (Rio Tinto)	Submission on Aurizon Network's 2017 DAU	23	17 Feb 2017

APPENDIX B: REFERENCE TARIFFS AND ALLOWABLE REVENUES

Blackwater System

Table 98 QCA draft decision on UT5 Reference Tariff inputs - Blackwater System

<i>Reference Tariff input</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020-21</i>
AT1	0.92	0.93	0.95	0.97
AT2	2,212.44	2,264.88	2,318.56	2,373.51
AT3	6.14	5.69	5.51	5.68
AT4	1.98	1.83	1.78	1.83
AT5	3.15	2.99	2.99	3.01
EC	1.03	1.04	1.06	0.81

Note: 2017–18 tariff includes the impact of 2015–16 revenue cap adjustment. The difference between 2017–18 transitional and approved SAR has not been accounted for.

Table 99 QCA draft decision on UT5 System Discounts for Train Services using Nominated Unloading Facilities - Blackwater System

<i>Nominated Unloading Facilities</i>	<i>System Discount¹ (\$/'000 ntk)</i>			
	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020-21</i>
Stanwell Power Station	2.08	1.99	1.93	1.99

Note: (1) the discount is on the AT3 component. 2017–18 tariff includes the impact of 2015–16 revenue cap adjustment.

Table 100 QCA draft decision on Reference Tariff inputs for Train Services using Nominated Loading Facilities - Blackwater System

<i>Nominated Loading Facilities</i>	<i>System Premium¹ (\$/ '000 ntk)</i>			
	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020-21</i>
Rolleston ²	1.68	1.96	2.36	2.18

Note: (1) the premium is on the AT3 component (2) includes non-WIRP and WIRP Rolleston. 2017–18 tariff includes the impact of 2015–16 revenue cap adjustment.

Table 101 QCA draft decision on Gtk Forecasts and Allowable Revenues - Blackwater System

<i>Year</i>	<i>Gtk Forecast ('000 gtk)</i>	<i>Allowable Revenue – AT2–4 (\$'000)¹</i>	<i>Allowable Revenue – AT5 (\$'000)¹</i>
2017–18	36,569,093	314,907	86,177
2018–19	36,687,209	301,021	81,933
2019–20	37,423,770	301,616	83,066
2020–21	37,475,080	308,506	83,664

Note: (1) 2017–18 SAR includes the impact of 2015–16 revenue cap adjustment. The difference between 2017–18 transitional and approved SAR has not been accounted for.

Goonyella System

Table 102QCA draft decision on UT5 Reference Tariff inputs - Goonyella System

<i>Reference Tariff input</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020-21</i>
AT1	0.63	0.65	0.66	0.67
AT2	1,401.71	1,434.93	1,468.94	1,503.76
AT3	3.62	4.14	4.34	4.18
AT4	0.75	0.84	0.87	0.84
AT5	1.60	1.66	1.69	1.71
EC	1.03	1.04	1.06	0.81

Note: 2017–18 tariff includes the impact of 2015–16 revenue cap adjustment. The difference between 2017–18 transitional and approved SAR has not been accounted for.

Table 103QCA draft decision on Reference Tariff inputs for Train Services using Nominated Loading Facilities - Goonyella System

<i>Nominated Loading Facilities</i>	<i>Reference Tariff input</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020-21</i>
Middlemount	AT3	2.21	2.80	2.87	2.86
	AT4	0.63	0.75	0.77	0.77
	AT5	0.86	0.91	0.93	0.93
Caval Ridge	AT3	2.16	2.67	2.87	2.70
	AT4	0.44	0.54	0.57	0.53
	AT5	1.27	1.32	1.35	1.37

Note: these tariff components replace the tariff components in Table 102. 2017–18 tariff includes the impact of 2015–16 revenue cap adjustment.

Table 104QCA draft decision on Gtk Forecasts and Allowable Revenues - Goonyella System¹

<i>Year</i>	<i>Gtk forecast ('000 gtk)</i>	<i>Allowable Revenue – AT2–4 (\$'000)</i>	<i>Allowable Revenue – AT5 (\$'000)</i>
2017–18	40,913,083	222,216	64,408
2018–19	41,492,159	254,321	67,445
2019–20	41,555,516	267,103	68,709
2020–21	41,521,633	259,544	69,539

Note: (1) 2017–18 SAR includes the impact of 2015–16 revenue cap adjustment. The difference between 2017–18 transitional and approved SAR has not been accounted for.

Moura System

Table 105QCA draft decision on UT5 Reference Tariff inputs - Moura System

<i>Reference Tariff input</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020-21</i>
AT1	1.70	1.73	1.77	1.80
AT2	655.26	670.79	686.69	702.97
AT3	6.82	5.71	5.68	5.78
AT4	1.07	0.87	0.84	0.86

Note: 2017–18 tariff includes the impact of 2015–16 revenue cap adjustment. The difference between 2017–18 transitional and approved SAR has not been accounted for.

Table 106QCA draft decision on Reference Tariff inputs for Train Services using Nominated Loading Facilities - Moura System

<i>Nominated Loading Facilities</i>	<i>Reference Tariff input</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020-21</i>
Baralaba	AT3	–	–	–	–

Table 107QCA draft decision on Gtk Forecasts and Allowable Revenues - Moura System^{1,2}

<i>Year</i>	<i>Gtk Forecast ('000 gtk)</i>	<i>Allowable Revenue – AT2–4 (\$'000)¹</i>
2017–18	3,597,924	33,460
2018–19	4,316,402	34,693
2019–20	4,518,765	36,422
2020–21	4,518,765	37,084

Note: (1) 2017–18 SAR includes the impact of 2015–16 revenue cap adjustment (2) includes WIRP NCL.

Newlands System

Table 108QCA draft decision on UT5 Reference Tariff inputs - Newlands System

<i>Reference Tariff input</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020-21</i>
AT1	1.77	1.81	1.84	1.88
AT2	296.31	303.33	310.52	317.88
AT3	6.25	6.70	6.98	7.51
AT4	0.82	0.84	0.88	0.94

Note: 2017–18 tariff includes the impact of 2015–16 revenue cap adjustment. The difference between 2017–18 transitional and approved SAR has not been accounted for.

Table 109QCA draft decision on Gtk Forecasts and Allowable Revenues - Newlands System

<i>Year</i>	<i>Gtk Forecast ('000 gtk)</i>	<i>Allowable Revenue – AT2–4 (\$'000)¹</i>
2017–18	2,439,079	19,983
2018–19	2,852,144	25,039
2019–20	2,852,144	26,046
2020–21	2,852,144	27,960

Note: (1) 2017–18 SAR includes the impact of 2015–16 revenue cap adjustment. The difference between 2017–18 transitional and approved SAR has not been accounted for.

Goonyella to Abbot Point System

Table 110QCA draft decision on UT5 Reference Tariff inputs - Goonyella to Abbot Point System

<i>Reference Tariff input</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>
AT1	1.43	1.45	1.48	1.51
AT2	13,755.21	14,081.21	14,414.93	14,756.57
AT3	1.38	1.46	1.22	1.16
AT4	2.67	1.69	0.45	(0.34)

Note: 2017–18 tariff includes the impact of 2015–16 revenue cap adjustment. The difference between 2017–18 transitional and approved SAR has not been accounted for.

Table 111QCA draft decision on Gtk Forecasts and Allowable Revenues - Goonyella to Abbot Point System

<i>Year</i>	<i>Gtk Forecast ('000 gtk)</i>	<i>Allowable Revenue – AT2–4 (\$'000)¹</i>
2017–18	9,296,491	106,990
2018–19	10,199,535	109,414
2019–20	11,704,607	107,543
2020–21	13,209,679	108,124

Note: (1) 2017–18 SAR includes the impact of 2015–16 revenue cap adjustment. The difference between 2017–18 transitional and approved SAR has not been accounted for.

Colton

Table 112QCA draft decision on UT5 Reference Tariff inputs - WIRP NCL System

<i>Reference Tariff input</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>
AT1	–	1.73	1.77	1.80
AT2	–	1,898.83	1,813.97	1,856.09

Note: 2017–18 tariff includes the impact of (Moura System) 2015–16 revenue cap adjustment. The difference between 2017–18 transitional and approved SAR has not been accounted for.

APPENDIX C: QCA PROPOSED MAXIMUM ALLOWABLE REVENUES

System-by-system break-down of QCA proposed maximum allowable revenues

Blackwater System

Table 113 QCA proposed maximum allowable revenue - non-electric (\$'000, nominal)

<i>Building block</i>	2017–18	2018–19	2019–20	2020–21
Opening Asset Value (for pricing)	2,277,039	2,273,477	2,262,008	2,241,301
Capital Expenditure	80,513	67,959	61,693	63,999
Return on capital (WACC)	124,332	123,482	122,547	121,577
Return of capital (depreciation)	136,308	131,409	133,894	140,215
Less Inflationary gain	(54,420)	(54,048)	(53,639)	(53,214)
Maintenance expenditure allowance	82,162	82,285	79,754	78,983
Operating expenditure allowance	42,226	42,321	43,457	44,271
Working capital	992	976	978	995
Tax allowance (gamma adjusted)	9,660	10,446	11,872	13,697
Total annual (unsmoothed) MAR	341,259	336,872	338,864	346,524
2016 Undertaking capital carryover account	(1,596)	(1,634)	(1,673)	(1,712)
Total (Adjusted) MAR	339,663	335,238	337,191	344,812

Table 114 QCA proposed maximum allowable revenue - electric assets (\$'000, nominal)

<i>Building block</i>	2017–18	2018–19	2019–20	2020–21
Opening Asset Value (for pricing)	440,711	429,866	417,981	405,013
Capital Expenditure	3,690	3,690	3,690	3,690
Return on capital (WACC)	23,437	22,865	22,238	21,554
Return of capital (depreciation)	24,415	25,178	25,958	26,757
Less Inflationary gain	(10,258)	(10,008)	(9,734)	(9,434)
Maintenance expenditure allowance	4,694	4,663	4,633	4,604
Operating expenditure allowance	36,762	37,372	37,948	37,953
Working capital	237	240	243	244
Tax allowance (gamma adjusted)	1,251	1,403	1,553	1,754
Total annual (unsmoothed) MAR	80,537	81,713	82,841	83,433
2016 Undertaking capital carryover account	215	220	225	230
Total (Adjusted) MAR	80,751	81,933	83,066	83,664

Goonyella System

Table 115 QCA proposed maximum allowable revenue - non-electric (\$'000, nominal)

<i>Building block</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>
Opening Asset Value (for pricing)	1,546,658	1,578,285	1,596,711	1,605,055
Capital Expenditure	92,818	79,193	71,857	66,424
Return on capital (WACC)	86,462	87,412	87,997	88,150
Return of capital (depreciation)	97,444	97,446	100,376	94,479
Less Inflationary gain	(37,845)	(38,260)	(38,516)	(38,583)
Maintenance expenditure allowance	75,990	76,324	84,960	83,862
Operating expenditure allowance	46,933	47,533	47,939	48,729
Working capital	807	811	848	830
Tax allowance (gamma adjusted)	7,628	9,088	10,115	9,132
Total annual (unsmoothed) MAR	277,418	280,353	293,719	286,598
2016 Undertaking capital carryover account	741	759	777	795
Total (Adjusted) MAR	278,160	281,112	294,495	287,393

Table 116 QCA proposed maximum allowable revenue - electric assets (\$'000, nominal)

<i>Building block</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>
Opening Asset Value (for pricing)	241,751	239,964	238,266	235,844
Capital Expenditure	6,743	6,743	6,743	6,743
Return on capital (WACC)	13,105	13,011	12,921	12,794
Return of capital (depreciation)	14,043	13,916	14,582	15,263
Less Inflationary gain	(5,736)	(5,695)	(5,656)	(5,600)
Maintenance expenditure allowance	5,627	5,590	5,554	5,520
Operating expenditure allowance	36,141	36,909	37,348	37,354
Working capital	190	191	194	196
Tax allowance (gamma adjusted)	626	723	898	1,078
Total annual (unsmoothed) MAR	63,995	64,645	65,842	66,605
2016 Undertaking capital carryover account	2,736	2,801	2,867	2,935
Total (Adjusted) MAR	66,731	67,445	68,709	69,539

Goonyella to Abbot Point System

Table 117 QCA proposed maximum allowable revenue - non-electric (\$'000, nominal)

<i>Building block</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>
Opening Asset Value (for pricing)	935,321	894,165	850,499	804,262
Capital Expenditure	--	--	--	--
Return on capital (WACC)	49,327	47,156	44,853	42,415
Return of capital (depreciation)	61,676	63,169	64,667	66,199
Less Inflationary gain	(21,590)	(20,640)	(19,632)	(18,565)
Maintenance expenditure allowance	16,421	16,509	14,604	15,140
Operating expenditure allowance	10,441	11,437	13,210	15,163
Working capital	349	353	353	361
Tax allowance (gamma adjusted)	7,691	8,370	8,993	9,574
Total annual (unsmoothed) MAR	124,314	126,354	127,048	130,287
2016 Undertaking capital carryover account	(2,062)	(2,110)	(2,160)	(2,212)
Total (Adjusted) MAR	122,252	124,244	124,888	128,075

Moura System

Table 118 QCA proposed maximum allowable revenue - non-electric (\$'000, nominal)

<i>Building block</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>
Opening Asset Value (for pricing)	263,143	265,616	266,005	264,994
Capital Expenditure	9,052	7,641	6,929	6,952
Return on capital (WACC)	14,355	14,411	14,394	14,342
Return of capital (depreciation)	12,691	13,371	14,033	14,712
Less Inflationary gain	(6,283)	(6,308)	(6,300)	(6,277)
Maintenance expenditure allowance	12,413	13,018	14,152	14,074
Operating expenditure allowance	4,041	4,840	5,100	5,187
Working capital	112	118	124	126
Tax allowance (gamma adjusted)	1,739	1,963	2,121	2,260
Total annual (unsmoothed) MAR	39,068	41,413	43,625	44,422
2016 Undertaking capital carryover account	746	764	782	800
Total (Adjusted) MAR	39,814	42,177	44,407	45,223

Newlands System

Table 119 QCA proposed maximum allowable revenue - non-electric (\$'000, nominal)

<i>Building block</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>
Opening Asset Value (for pricing)	195,324	214,848	232,068	247,619
Capital Expenditure	26,202	25,012	24,521	25,536
Return on capital (WACC)	11,683	12,650	13,532	14,406
Return of capital (depreciation)	11,618	13,126	14,660	16,280
Less Inflationary gain	(5,114)	(5,537)	(5,923)	(6,305)
Maintenance expenditure allowance	4,308	4,616	3,559	3,269
Operating expenditure allowance	2,739	3,198	3,219	3,274
Working capital	76	84	87	93
Tax allowance (gamma adjusted)	1,624	1,657	1,757	1,880
Total annual (unsmoothed) MAR	26,934	29,795	30,891	32,896
2016 Undertaking capital carryover account	385	394	404	413
Total (Adjusted) MAR	27,319	30,189	31,295	33,309

APPENDIX D: UT5 RAB ROLL-FORWARD

Table 120QCA draft decision on RAB by value system—non-electric (\$ million, nominal)¹

System	2017–18	2018–19	2019–20	2020–21
1. Blackwater (excluding WIRP)				
Opening asset value	1,603.0	1,618.1	1,626.5	1,626.9
<i>Plus capital indicator</i>	80.5	68.0	61.7	64.0
<i>Plus indexation</i>	39.9	40.0	40.0	40.1
<i>Less depreciation</i>	105.4	99.5	101.2	106.9
Closing asset value	1,618.1	1,626.5	1,626.9	1,624.1
2. WIRP in the Blackwater System²				
Opening asset value	674.0	655.4	635.6	614.4
<i>Plus capital indicator</i>	-	-	-	-
<i>Plus indexation</i>	16.0	15.5	15.1	14.6
<i>Less depreciation</i>	34.6	35.4	36.2	37.1
Closing asset value	655.4	635.6	614.4	591.9
3. Goonyella				
Opening asset value	1,546.7	1,578.3	1,596.7	1,605.1
<i>Plus capital indicator</i>	92.8	79.2	71.9	66.4
<i>Plus indexation</i>	38.9	39.3	39.5	39.6
<i>Less depreciation</i>	100.0	100.0	103.1	97.0
Closing asset value	1,578.3	1,596.7	1,605.1	1,614.1
4. Newlands (excluding GAPE and NAPE deferrals)				
Opening asset value	195.3	214.8	232.1	247.6
<i>Plus capital indicator</i>	26.2	25.0	24.5	25.5
<i>Plus indexation</i>	5.3	5.7	6.1	6.5
<i>Less depreciation</i>	11.9	13.5	15.1	16.7
Closing asset value	214.8	232.1	247.6	262.9
5. GAPE³				
Opening asset value	935.3	894.2	850.5	804.3
<i>Plus capital indicator</i>	-	-	-	-
<i>Plus indexation</i>	22.2	21.2	20.2	19.1
<i>Less depreciation</i>	63.3	64.9	66.4	68.0
Closing asset value	894.2	850.5	804.3	755.4

System	2017–18	2018–19	2019–20	2020–21
6. Moura (excluding WIRP deferrals)				
Opening asset value	263.1	265.6	266.0	265.0
<i>Plus capital indicator</i>	9.1	7.6	6.9	7.0
<i>Plus indexation</i>	6.5	6.5	6.5	6.4
<i>Less depreciation</i>	13.0	13.7	14.4	15.1
Closing asset value	265.6	266.0	265.0	263.3
7. Total CQCN (excluding deferrals)				
Opening asset value	5,217.5	5,226.4	5,207.3	5,163.2
<i>Plus capital indicator</i>	208.6	179.8	165.0	162.9
<i>Plus indexation</i>	128.6	128.1	127.3	126.2
<i>Less depreciation</i>	328.3	327.0	336.4	340.8
Closing asset value	5,226.4	5,207.3	5,163.2	5,111.6

1 Opening asset value includes equity raising cost. 2 WIRP in the Blackwater System consists of WIRP Blackwater and WIRP Rolleston. 3 Includes electric costs on the GSE segment as these costs are recovered through AT1 to AT4.

Table 121QCA draft decision on RAB by value system—electric (\$ million, nominal)

System	2017–18	2018–19	2019–20	2020–21
1. Blackwater				
Opening asset value	372.0	363.1	353.2	342.3
<i>plus capital indicator</i>	3.7	3.7	3.7	3.7
<i>plus indexation</i>	8.9	8.7	8.4	8.2
<i>less depreciation</i>	21.5	22.2	23.0	23.7
Closing asset value	363.1	353.2	342.3	330.5
2. WIRP in the Blackwater System¹				
Opening asset value	68.7	66.8	64.7	62.6
<i>plus capital indicator</i>	0.0	0.0	0.0	0.0
<i>plus indexation</i>	1.6	1.6	1.5	1.5
<i>less depreciation</i>	3.5	3.6	3.7	3.8
Closing asset value	66.8	64.7	62.6	60.3
3. Goonyella				
Opening asset value	241.8	239.9	238.2	235.7
<i>Plus capital indicator</i>	6.7	6.7	6.7	6.7
<i>Plus indexation</i>	5.8	5.8	5.8	5.7
<i>Less depreciation</i>	14.4	14.3	15.0	15.7
Closing asset value	239.9	238.2	235.7	232.5

<i>System</i>	<i>2017–18</i>	<i>2018–19</i>	<i>2019–20</i>	<i>2020–21</i>
4. Total CQCN (excluding deferrals)				
Opening asset value	682.5	669.8	656.1	640.6
<i>Plus capital indicator</i>	10.4	10.4	10.4	10.4
<i>Plus indexation</i>	16.3	16.0	15.7	15.4
<i>Less depreciation</i>	39.5	40.1	41.6	43.1
Closing asset value	669.8	656.1	640.6	623.3

1 WIRP in the Blackwater System consists of WIRP Blackwater and WIRP Rolleston.

APPENDIX E: QCA APPROVED ASSET LIVES

Asset type		Goonyella	Blackwater	Moura	Newlands
Track	<i>Heavy</i>	35	35	30	30
	<i>Medium</i>	45	45	30	30
	<i>Light</i>	45	45	40	44
Turnouts	<i>Heavy</i>	20	25	20	25
	<i>Medium</i>	20	25	20	25
	<i>Light</i>	20	25	20	25
Bridges		50	50	50	50
Culverts (concrete)	<i>Heavy</i>	30	30	30	30
	<i>Medium</i>	50	50	50	50
Culverts (steel)	<i>Heavy</i>	30	30	30	30
	<i>Medium</i>	50	50	50	50
Cuttings		50	50	50	50
Embankments		50	50	50	50
Administration Buildings		20	20	20	20
Building Facilities		10	10	10	10
Computer Systems		3	3	3	3
Training Equipment		10	10	10	10
Fences		20	20	20	20
Floodlighting		20	20	20	20
Unsealed Roads		38	38	38	38
Control Systems (signals - non-vital)		15	15	15	15
Train/Track/Environment Monitoring Systems		15	15	15	15
Crossing Systems		20	20	20	20
Level Crossing Protection		20	20	20	20
Train Protection Systems		15	15	15	15
Signal Interlockings	<i>Relay</i>	30	30	30	30
	<i>Mechanical</i>	30	30	30	30
	<i>Processor</i>	30	30	30	30
Field Equipment and Cables		25	25	25	25
Telecommunications Equipment	<i>Data Network</i>	15	15	15	15
	<i>Linking Network</i>	15	15	15	15

<i>Asset type</i>		<i>Goonyella</i>	<i>Blackwater</i>	<i>Moura</i>	<i>Newlands</i>
Telephone Exchanges Equipment		20	20	20	20
Electrical System Equipment	<i>Traction Supply Transformers</i>	20	20	20	20
	<i>Traction Power System Equipment</i>	20	20	20	20
Power Distribution/Traction Power Distribution		30	30	30	30
Expensed		5	5	5	5

APPENDIX F: QCA MRP ESTIMATION METHODOLOGIES AND COMMENTS

Stakeholders also made numerous comments regarding aspects of the individual estimation methods and how the QCA applies them.¹⁴⁷⁷

Terms of the risk-free rate and the MRP

The Brattle Group said that the risk-free rate used in the CAPM should be consistent with the one used in measuring the MRP; otherwise, the cost of equity and the WACC would be biased due to a maturity premium. The Brattle Group noted Lally's suggestion that there could be a term structure for market return, so that the expected market return would be higher if defined over a 10-year horizon rather than a four-year horizon. The Brattle Group said even if Lally's claim was true, it would only apply to a forecast MRP, not to the MRP based on historical data.¹⁴⁷⁸

Aurizon Network also said that the QCA should ensure that the MRP is consistently estimated using a risk-free rate for the same term. It said that SFG estimated a difference of 0.27 per cent between five-year and 10-year risk-free rates between 1995 and 2014, and the average difference in the 20-day period to 31 October 2013 was 0.85 per cent. Aurizon Network said a difference of this magnitude must be corrected.¹⁴⁷⁹

In the UT5 context, as well as in other recent undertaking considerations, some stakeholders have raised the concern that the QCA uses a risk-free rate matching the term of the regulatory cycle in the first term in the cost of equity but a 10-year rate in estimating the MRP. As indicated in decisions to date, there are only imperfect options for applying the CAPM, and inconsistency is unavoidable.¹⁴⁸⁰

We have undertaken further analysis of historical bond rates for the purpose of estimating a four-year risk free rate for the MRP.¹⁴⁸¹ Specifically, we constructed a synthetic four-year government bond yield series spanning 1958–2017 based on the linear interpolation of RBA data. For 1958–1975, the relevant data was sourced directly from the RBA's *Statistical Bulletin*. For 1976–2017, the relevant data was sourced from the RBA's web site.

The average differential over the entire 1958–2017 period is approximately 34 basis points (0.34%) per annum. However, in investigating this matter, it became apparent that none of the

¹⁴⁷⁷ We note that Frontier (Aurizon Network's consultant) has proposed to use a set of market indicators (i.e. earning yields, corporate bond spreads, etc.) to provide a point estimate of the MRP. This point estimate is included in Frontier's framework as one of the contemporaneous estimates. Given that Aurizon Network has not used such an estimate in arriving at its MRP estimate of 7.0 per cent, we have not considered Frontier's estimate based on the set of market indicators.

¹⁴⁷⁸ Aurizon Network, sub. 4: 27–28.

¹⁴⁷⁹ Aurizon Network, sub. 1: 292–293.

¹⁴⁸⁰ Aurizon Network's and Frontier's preferred approach of applying a 10-year risk-free rate throughout the CAPM and applying this model to all regulatory problems (even those with a four or five-year regulatory cycle) is particularly inconsistent. This is because the CAPM would only be applicable to regulatory situations with cycles matching the fixed period to which the CAPM applied, and it would also violate the NPV=0 principle whenever the regulatory cycle differs from this fixed period.

¹⁴⁸¹ Our previous analysis of this issue in our Market Parameters decision was constrained by the availability of data on the RBA's web site.

relevant RBA bond data in the source material is annualised (but it should be).¹⁴⁸² Annualising the bond yield data over the entire 1958–2017 period results in bond yields increasing on average by about 17 basis points and the average MRP decreasing by the same amount. Therefore, the net impact of both of these factors is approximately 17 basis points.

We have taken both factors into account. In estimating the Ibbotson and Siegel MRPs, we have applied the average, historical 10-to-four year bond differential of 0.34 per cent (and annualised the historical bond data).

We have also applied this differential to the independent experts' estimate (i.e. a component of the 'survey method') as experts' reports presumably define the MRP relative to the 10-year risk-free rate. However, our view is that the adjustment should reflect the historical, not current, bond differential. This is because, when independent experts provide an explicit estimate, that estimate is typically 6.0 per cent. Therefore, such estimates are highly likely to be based on historical (i.e. Ibbotson) estimates, rather than DGM estimates (for example).

We also hold the view that there is no basis to assume that survey respondents define the MRP relative to the 10-year risk-free rate. Further, some respondents might even provide responses to very short-term rates. Therefore, we make no adjustment to this component of the survey method.

The adjustment to the Wright estimate reflects the June 2017 difference, about 0.53 per cent, as the Wright estimate is estimated with respect to a current, not historical, risk-free rate.

Finally, the Cornell estimate has not been adjusted to reflect a four-year risk-free rate because the combination of the DGM perpetuity framework with a four-year (or five-year) risk-free rate will bias the estimate of the Cornell MRP relative to an estimate based on a 10-year risk-free rate.¹⁴⁸³

Ibbotson method

The Ibbotson method is an historical averaging method that measures the nominal historical (excess) market rate of return above the risk-free rate, including applicable adjustments for dividend imputation credits. In general, the Ibbotson method has relatively broad support from stakeholders as a basis for estimating the MRP.¹⁴⁸⁴

The QCA's Ibbotson estimate is 6.6 per cent for the preferred sampling period of 1958–2017.^{1485,1486} This estimate takes into account a four-year risk-free rate and annualisation of the relevant historical data (as described previously).

The Brattle Group calculated an historical, average MRP for Australia of 6.6 per cent without accounting for imputation credits, and 6.8 per cent adjusting for imputation credits. Its estimates drew from the work of Dimson et al 2016, published by Credit Suisse.¹⁴⁸⁷

While we note The Brattle Group's resulting estimate is close to our estimate, we do not accept The Brattle Group's method, particularly:

¹⁴⁸² Standard regulatory applications typically rely on the methodology set out in Brailsford et al. 2008 and the dataset in Brailsford et al. 2012. The historical bond data in the latter source is not annualised either.

¹⁴⁸³ This matter is discussed in more detail in the subsequent section on the Cornell DGM.

¹⁴⁸⁴ Aurizon Network, sub. 4: 16–18; Aurizon Network, sub. 9: 26.

¹⁴⁸⁵ This period represents the longest period of continuous, high quality data that is available (QCA 2014a: 56–59).

¹⁴⁸⁶ The QCA's MRP estimates are rounded to one decimal point for presentation purposes.

¹⁴⁸⁷ Aurizon Network, sub. 4: 18.

- The Brattle Group's estimate is based on the expected geometric difference between the return on equity and the return on 10-year government bonds.¹⁴⁸⁸ This is inconsistent with the mathematical expectation for return in the CAPM. On the other hand, our estimates are based on the arithmetic mean of the annual return on equities net of the contemporaneous yield on four-year government bonds.
- The Brattle Group's estimate is based on Australian data from 1900 and equally weighting all data points, despite implicitly acknowledging the superiority of the post-1958 data. By contrast, our estimate arises from an assessment of the quality of all available data for Australia (from 1883), with our preferred times series being the post-1958 data.¹⁴⁸⁹
- The Brattle Group's adjustment for imputation credits is based on a formula in Officer, which is a special case of the more general formula applied by the QCA.¹⁴⁹⁰ As the former is a special case of the latter, it only holds under a set of restrictive conditions. The most restrictive of these are that there is no inflation and that the firm distributes all net cash flows as dividends rather than retaining these cash flows.¹⁴⁹¹

In Aurizon Network's September 2017 submission, Frontier considered that the Ibbotson approach should be regarded as a conservative estimate of the MRP on the basis that:

- It can only produce an estimate that is consistent with average market conditions
- Current market conditions differ from the historical average market conditions as reflected in government bond yields that have been at historical lows since 2014.
- There can be a negative relationship between the risk free rate and the MRP in certain market conditions. Thus, it is possible that the MRP may increase to at least partially offset falls in the risk-free rate.¹⁴⁹²

The QCA accepts that the Ibbotson method is a long-term historical average that may not reflect recent changes in market conditions that could be expected to continue into the UT5 period. However, for this reason, the QCA does not solely rely on it. By combining the estimates from historical and contemporaneous methods, the QCA is able to balance the strengths and weaknesses of the individual methods.

Siegel method

The second method for informing the estimate of the MRP is the Siegel method. This method is a variant of the Ibbotson method, based on the premise that, historically, unexpected inflation has reduced the observed real return on bonds but not the real return on equities. To take account of this effect, the Siegel method replaces the historical average real bond yield implicit in the Ibbotson estimate with an estimate of the expected long-run real bond yield.¹⁴⁹³

¹⁴⁸⁸ The Dimson et al. 2016 method estimates the MRP by arithmetic averaging over the annual geometric difference between the return on equity and the return on 10-year government bonds (Lally 2017a: 30).

¹⁴⁸⁹ Lally 2017a: 30–31.

¹⁴⁹⁰ See Officer 1994. For a detailed discussion of this point, see the Market Parameters decision (QCA 2014a: 83–85).

¹⁴⁹¹ In applying an empirical estimate of gamma of 0.25, The Brattle Group is also applying an empirical estimate of the distribution rate of credits of 0.7, and this assumption alone means The Brattle Group's adjustment is incorrect.

¹⁴⁹² Aurizon Network, sub, 38: 15.

¹⁴⁹³ For a discussion of the Siegel method, see QCA 2014c: 59–62.

After considering stakeholders' comments, we continue to view the Siegel method as a relevant method for estimating the MRP. The Siegel estimate is 5.9 per cent for the preferred sampling period of 1958–2017. This estimate takes into account a four-year risk-free rate and annualisation of the relevant historical data (as described previously).

Aurizon Network said the Siegel method should not be afforded any weight in estimating the MRP.¹⁴⁹⁴ Aurizon Network's primary concerns are that the Siegel method:

- is inconsistent with the principle of using long-term historical times series without adjustment (e.g. for specific events like the GFC)
- relies on the strong assumption of a stable expected real government bond return.

Frontier elaborated on these concerns, specifically that the Siegel method conflicts with the notion that the historical average excess return is an unbiased estimate of the long-run average MRP. Frontier pointed out that, while many shocks have affected market returns and government bond yields over time, analysts do not make adjustments to the time series on the basis that returns were above/below what investors expected at the time. By way of example, Frontier said that over the six-year period, 2007–2012, aggregate returns on the Australian market were zero. While these outcomes were below investors' expectations, the historical time series is not adjusted for this shock.¹⁴⁹⁵ Frontier said that over time these events will tend to average out, and that for example, the low real rates observed in the 1970s look no more out of place than the high real rates of the 1980s and 1990s. Frontier concluded that, by giving weight to the Siegel estimate, the QCA has accepted that the historical average excess return is not unbiased due to one particular explanation, unexpected inflation.¹⁴⁹⁶

Frontier further submitted that making adjustments to historical yields on government bonds to reflect the regulator's estimate of what investors expected the yields to be, is unorthodox. Frontier said there is no objective standard by which historical data may be said to be unexpected and therefore in need of adjustment.

The QCA does not agree with this criticism of the Siegel method. While we acknowledge that shocks of short duration might tend to offset over a long time period, not all shocks, or sources of bias, are necessarily equal. This point can be illustrated with reference to Frontier's example, where the period in question is six years. A six-year period represents 4.5 per cent of the entire Ibbotson series of data (1883–2017) and 10 per cent of the Ibbotson sub-series (1958–2017) on which the QCA places primary weight.¹⁴⁹⁷ In contrast, the high inflation period identified by Lally is 1940–1990, which is about 38 per cent of the entire Ibbotson series of data and 55 per cent of the Ibbotson 1958–2017 sub-series.¹⁴⁹⁸ These differences are very substantial.

This analysis is consistent with Lally's observation that the Siegel method is adopted to address a persistent bias in a large proportion of the Ibbotson time series rather than a bias over some short period within that series—biases of the latter type could be expected to wash out over a

¹⁴⁹⁴ Aurizon Network, sub. 1: 288–289, sub. 38: 20.

¹⁴⁹⁵ Aurizon Network, sub. 9: 27–28.

¹⁴⁹⁶ Aurizon Network, sub. 38: 19–20.

¹⁴⁹⁷ The last year of data includes January to June 2017 (inclusive, with the last 20 days of June corresponding to Aurizon Network's averaging period), so 2017 only includes a half year of data. So the entire data series (1883–June 2017) comprises 134.5 years of data.

¹⁴⁹⁸ The high inflation period (1940–1990) overlaps the preferred time period of 1958–2017 for 33 years (i.e. 1958–1990). Therefore, the calculation is $33/59.5 = 55\%$.

long time series.¹⁴⁹⁹ Therefore, in our view, the persistence of high inflation over this extended period merits an explicit adjustment to account for it.

Frontier further said that the required data to implement the Siegel method is not available as inflation-indexed government bonds only began trading in 1987. Frontier said that the QCA's assumption that the post-1987 average real yield is the same as the average real yield for the period 1958–1986 is not reasonable, due to the volatility in the real yields on indexed bonds. Frontier said that this assumption is a factor that is relevant to determining the weight (if any) that should be given to the Siegel estimate.¹⁵⁰⁰

We consider that extrapolating the average real government bond yield from the more recent data (1986–2017) to apply over 1958–1985 is reasonable and supported by the empirical evidence.¹⁵⁰¹ As indicated by Lally 2015, Australia's experience over 1883–2017 can be divided into three distinct sub-periods: a low inflation era (1883–1939); a high inflation era (1940–1990); and a second low inflation era (1991–2013).¹⁵⁰² Table 1 summarises the evidence on realised inflation and the real yield on 10-year government bonds over these sub-periods (updated to 2017).

Table 122 Historical inflation and 10-year CGS real yields

<i>Historical sub-period</i>	<i>Inflation (mean)</i>	<i>10-yr CGS real yield (mean)</i>
1883–1939	0.9%	3.6%
1940–1990	6.4%	0.9%
1991–Jun17	2.4%	3.3%

Clearly, in the high inflation sub-period, the real yield on 10-year government bonds was substantially lower than in the earlier sub-period and with low 'compensation' in the subsequent low inflation sub-period (due to 10-year inflation forecasts being too high). Further, and as indicated previously, this phenomenon affects a large proportion of the dataset.

Given the need for an adjustment, we use the average real yield on inflation-indexed bonds since their issue (July 1986–June 2017), which is approximately 3.4 per cent. We disagree with Frontier that extrapolating this estimate to the earlier period (1958–1985) is unreliable. By comparison, this estimate is very close to the average real risk-free rate of 3.6 per cent for the first sub-period (1883–1939) of low inflation. The latter period featured low inflation (0.9% per cent) in comparison to the subsequent high-inflation period of 1940–1990 (6.4 per cent). Accordingly, we conclude that the empirical evidence supports the extrapolation of the real bond yield data to the earlier period.

Table 123 outlines our responses to other specific issues raised by stakeholders regarding the Siegel method.

Table 123 QCA consideration of issues relating to the Siegel method

<i>Issue</i>	<i>Analysis</i>
Frontier said that the Siegel method relies on the	We disagree with this criticism. The primary

¹⁴⁹⁹ Lally 2017a: 21.

¹⁵⁰⁰ Aurizon Network, sub. 38: 19–20.

¹⁵⁰¹ Australian government indexed bond yields are available from July 1986 to the present. Therefore, our averaging period is 1986–2017. Frontier appears to use an averaging period commencing in 1987.

¹⁵⁰² Lally 2015a: 29.

<i>Issue</i>	<i>Analysis</i>
<p>assumption that actual inflation exceeded investors' expectation of inflation.¹⁵⁰³ While Siegel himself proposed several explanations for the low, real government bond yields observed since the 1920s, the QCA's approach focuses on only one of those explanations—unanticipated inflation. As a result, the QCA's Siegel approach overstates the importance of unanticipated inflation.</p>	<p>consideration is not necessarily the reason for the low, real government bond yields, but whether an adjustment is warranted.</p> <p>The explanations Frontier alludes to presumably are: i) the legacy of fear from the Great Depression; ii) interest rate controls from the end of World War II to the 1980s; iii) redistributive government policies after the Great Depression; and iv) increased liquidity in the market for government bonds.</p> <p>However, none of the four explanations can explain the negative real returns that arose during the late 20th century, with Siegel (2011) reporting an average of -3.9 per cent on bonds for 1966–1981.¹⁵⁰⁴</p> <p>Lally also added that the first two of Siegel's explanations—the legacy of fear from the Great Depression and internal rate controls from World War II until the 1980s—were temporary.¹⁵⁰⁵ This reinforces the conclusion that low real yields on bonds in the late 20th century were temporary, leading to an upward but temporary effect on the estimated MRP, and thereby justifying a downward adjustment to the Ibbotson estimate.</p>
<p>Frontier said the QCA's implementation of the Siegel method makes a very strong assumption—the average real government bond yield using data from 1896 to the present is the best estimate of what investors would have expected across all historical periods—given differences across periods in economic development, fiscal policy and central banking objectives.¹⁵⁰⁶</p>	<p>We consider our assumption is reasonable and supported by empirical evidence. As noted above, the basis of our adjustment is the average real yield on inflation-indexed bonds since their issue (July 1986–June 2017), which is about 3.4 per cent. By comparison, this estimate is very close to the average real risk-free rate of 3.6 per cent for the first low inflation sub-period of 1883–1939.</p> <p>Lally has previously confirmed that our assumption is reasonable.¹⁵⁰⁷</p>
<p>Frontier said the Siegel adjustment to the Ibbotson estimate is likely to be overstated as it fails to account for likely illiquidity premiums within the yields on inflation-protected bonds that are used to estimate the expected real yield on conventional bonds.¹⁵⁰⁸</p>	<p>No evidence has been presented to support Frontier's claim.</p> <p>Furthermore, we do not agree with Frontier that using real yields on inflation-protected bonds would necessarily lead to overestimating the real yield on conventional bonds due to a premium for inferior liquidity (which raises their real yield). Lally said using the yield of inflation-protected bonds to estimate the expected real rate on conventional bonds might underestimate the expected real yield on conventional bonds. This is because the real yield on conventional bonds is uncertain (because inflation is uncertain), and the same does not apply to inflation-protected bonds. Therefore, we conclude that the net effect of these forces is unclear.¹⁵⁰⁹</p>

¹⁵⁰³ Aurizon Network, sub. 9: 28–29.

¹⁵⁰⁴ Siegel 2011: 146, Table 1.

¹⁵⁰⁵ Lally 2017a: 21–22.

¹⁵⁰⁶ Aurizon Network, sub. 9: 28–29.

¹⁵⁰⁷ Lally 2015a: 28.

¹⁵⁰⁸ Aurizon Network, sub. 9: 29.

¹⁵⁰⁹ Lally 2017a: 22–23.

<i>Issue</i>	<i>Analysis</i>
<p>Frontier said the prediction based on the Siegel method (that the real government bond yields would rise relative to 1990 levels) has turned out to be completely wrong.¹⁵¹⁰ The current 10-year and 20-year averages of real government bond yields in Australia are 2.0 and 2.7 per cent, which are below the QCA's 3.8 per cent estimate of investor expectations for real government bond yields.</p>	<p>The QCA does not agree with Frontier's characterisation of Siegel's prediction.</p> <p>As pointed out by Lally, Siegel said that real yields are 'likely to be significantly higher than that estimated on earlier data'.¹⁵¹¹ This statement can only be reasonably interpreted in the context of a long time series (e.g. not over the past 10 years only). Over the period since inflation-protected bonds have been available (1986–2017), the average real yield has been 3.4 per cent. By contrast, for the period of the 'earlier data' (1940–1990), the average realised yield on conventional 10-year government bonds was 0.9 per cent. This time series data therefore provides a strong validation of Siegel's prediction.</p>
<p>The Brattle Group said that the Siegel method was developed for the period 1940–1990, which was characterised by high inflation. The Brattle Group said Lally has not shown that the relationship post-1990 remains the same.¹⁵¹²</p>	<p>We disagree with The Brattle Group's claim that it is necessary to update Siegel's study. The Siegel methodology is based on the premise that the inflation shock in the late 20th century induced an overestimate of the MRP from the Ibbotson method, which warrants correction.¹⁵¹³ If the premise is valid, and the correction addresses the problem, there is no reason to repeat the study beyond 1990 because the inflation shock has not persisted beyond 1990.</p>

For the reasons above, we remain of the view the Siegel method is a relevant method for estimating the MRP.

Survey evidence

The QCA has used survey evidence that includes the Fernandez et al. international survey¹⁵¹⁴, the KPMG valuation practice survey¹⁵¹⁵ and information from independent expert reports. We consider that these sources provide useful information to inform an estimate of the MRP.

The Fernandez et al. 2017 survey estimate is 7.6 per cent (median), and the KPMG survey estimate is 6.0 per cent (median), which gives a mean for the survey component of 6.8 per cent. These estimates do not include an explicit adjustment for imputation credits. As explained previously, we do not make an adjustment for the risk-free rate differential.

The baseline MRP estimate reported by independent experts is 6.0 per cent. This estimate does not include an explicit adjustment for imputation credits. For the reasons provided below, we do not make uplifts to the baseline estimate from the experts' reports. Also, as explained previously, the adjustment for the bond rate differential is 0.34 per cent. Therefore, the experts' median estimate adjusted for the four-year differential is 6.34 per cent.

¹⁵¹⁰ Aurizon Network, sub. 9: 29.

¹⁵¹¹ Siegel 1999: 15.

¹⁵¹² Aurizon Network, sub. 4: 19–20.

¹⁵¹³ Lally 2017a: 34.

¹⁵¹⁴ The QCA has taken into account Aurizon Network's submission (sub. 30), including the most recent Fernandez MRP survey results.

¹⁵¹⁵ KPMG 2017b.

The equally-weighted mean of the survey estimate and the experts' estimate is 6.6 per cent, without an explicit adjustment for imputation credits and 7.4 per cent with an explicit adjustment—the midpoint is 7.0 per cent.

In its original submission, Aurizon Network did not support the consideration of the Fernandez international survey results, but said that we should refer to the evidence from independent expert reports.¹⁵¹⁶ However, Aurizon Network subsequently submitted a second report in May 2017 by Frontier that encourages the QCA to take into account the most recent (i.e. 2017) Fernandez survey result (which was released after Frontier's first report, dated November 2016). The Fernandez et al. 2016 median MRP for Australia was 6.0 per cent, but the Fernandez et al. 2017 median result was 7.6 per cent.¹⁵¹⁷

In the September 2017 submission, Frontier said that the Fernandez et al. 2017 survey results yield a raw estimate of the MRP of 7.6 per cent (median), equivalent to 8.3 per cent adjusted for dividend imputation. Frontier added that the survey respondents used a risk-free rate above the prevailing government bond yield so the MRP should be above 8.2 per cent.¹⁵¹⁸

In considering the Fernandez et al. 2017 result of 7.6 per cent, we note this survey estimate is markedly higher than previous Fernandez results for Australia, which are in the range of 5.1%–6.0% for 2011–2017. Further, and as pointed out by Lally, this estimate is greater than all estimates of the MRP for developed countries over this entire period, with the exception of several estimates for Portugal (which, unlike Australia, has experienced severe market-wide economic crises in recent years).¹⁵¹⁹ The sample size (26) is also the smallest sample size across all of the markets for the previous three years (2015–2017) and is not large in any absolute sense.¹⁵²⁰

Therefore, while we have taken the Fernandez et al. 2017 estimate into account, we conclude it should be treated with caution. Accordingly, as a cross-check, we also examined survey results from the most recent KPMG valuation survey (2017), which surveys a number of valuation practitioners. In this survey, the most commonly adopted estimate for the MRP was 6.0 per cent (also the median).¹⁵²¹ We have taken this estimate into account to complement the Fernandez et al. 2017 estimate when computing the survey component of the overall survey estimate.

Frontier's second report also included information based on four expert valuation reports, on the basis that these reports are timelier than the earlier set of expert reports previously referenced by us. The new reports are authored by four different valuation experts—Lonergan Edwards, Grant Samuel, Deloitte, and KPMG—and are dated between February and July 2016.¹⁵²² Frontier said that all four experts set the required return on equity materially above a 'mechanistic' estimate (i.e. obtainable by inserting the current government bond yield and a fixed MRP into the CAPM) in one of three ways:¹⁵²³

- applying a risk-free rate above the contemporaneous bond yield

¹⁵¹⁶ Aurizon Network, sub. 1: 290.

¹⁵¹⁷ See Fernandez et al. 2016 and Fernandez et al. 2017.

¹⁵¹⁸ Frontier references 8.3% in its Table 5 but refers to 8.2% in the text. See Aurizon Network, sub. 38: 30.

¹⁵¹⁹ These crises have resulted in bailouts by both the International Monetary Fund and the European Union (Lally 2017b: 20).

¹⁵²⁰ Lally 2017b: 19–20.

¹⁵²¹ KPMG 2017b: 11.

¹⁵²² Aurizon Network, sub. 30: 8–9.

¹⁵²³ Aurizon Network, sub. 30: 8.

- applying an ad hoc increase to the mechanistic CAPM estimate
- using an estimate of the MRP higher than 6.5 per cent.

Frontier calculated a 'required market return' from each expert report by adding the risk-free rate and MRP (applying an equity beta of 1.0 for the market). Frontier then calculated an 'effective MRP' by deducting a contemporaneous government bond yield. Based on this process, Frontier reported that these four independent experts are currently using MRPs in the range of 6.9 per cent to 8.7 per cent, with a mean of 7.9 per cent.¹⁵²⁴ Frontier said that including an imputation adjustment would increase the mean estimate to 8.7 per cent.¹⁵²⁵

We have reviewed the four experts' reports provided by Frontier. Our view is that all that one can confidently conclude from these reports is that the median, baseline MRP estimate is 6.0 per cent.¹⁵²⁶ While these reports apply a cost of equity that is higher (than one based on a 6.0% MRP), they obtain the higher cost of equity by using one or more ad hoc uplifts.

As a general principle, we consider that analysts' uplifts to the MRP are generally not appropriate in a regulatory context for a number of reasons. In some cases, these uplifts might be used to address non-systematic risks or risks not captured in cash flow forecasts. They also could reflect the 'one-off' nature of the particular valuation for which the expert is providing advice. In the case where the valuation is for a regulated firm, the uplift might take into account the analyst's expectation that the firm in question will out-perform regulatory benchmarks. These are all reasons to treat uplifts with caution.

Relevantly, in the present reports, the uplifts tend to reflect either the analyst's concern with currently 'low' risk-free rates or a preferred term structure for the risk-free rate. For example, KPMG's report implies a required return for the market of 10.4 per cent, comprising a risk-free rate of 4.4 per cent and an MRP of 6 per cent. KPMG states that the 4.4 per cent is a "blended risk free rate (of the spot Australian government bond rate and long term forecast rate)".¹⁵²⁷ Therefore, this 'long term forecast rate' likely reflects the fact that KPMG's relevant valuation period exceeds the term of the available bond rate (among other factors).

As we have previously indicated, applying such a long-term risk-free rate is not consistent with the regulatory task, which reassesses the rate of return at each regulatory cycle. Further, KPMG describes its MRP assumption of 6.0 per cent as the "appropriate market risk premium for investments in Australia".¹⁵²⁸ Given this statement, as well as the stated rationale for the 4.4 per cent risk-free rate, it does not seem reasonable to us to conclude that this information supports an 'effective MRP' of 8.0 per cent, at least for regulatory purposes.¹⁵²⁹

As explained above, valuation reports are concerned with valuing equities involving cash flows out to infinity. Therefore, experts tend to speculate on the term structure of interest rates beyond 10 years and apply an average, long-term rate.¹⁵³⁰ For these reasons, we reaffirm our view that adjusting the rate in this way has no implications for the QCA, as the risk-free rate in the regulatory context will be revised periodically at regular resets.

¹⁵²⁴ Frontier calculated 'effective MRPs' of: 6.9% (Lonergan Edwards), 8.7% (Grant Samuel), 7.8% (Deloitte), and 8.0% (KPMG). See Aurizon Network, sub. 30: 9.

¹⁵²⁵ Aurizon Network, sub. 30: 9; sub. 38: 30–31.

¹⁵²⁶ Only Deloitte provides a baseline estimate (7.75%) above 6.0 per cent. See Deloitte 2016: 39.

¹⁵²⁷ KPMG 2016: 85.

¹⁵²⁸ KPMG 2016: 85.

¹⁵²⁹ Frontier calculated an 'effective MRP' for KPMG of 8.0%. See Aurizon Network, sub. 30: 9.

¹⁵³⁰ As the term structure of interest rates is currently upward-sloping, the term structure beyond the four-year period that is relevant for regulatory purposes will result in an average rate that exceeds the regulatory rate.

Table 124 QCA consideration of issues related to the survey method

<i>Issue</i>	<i>Analysis</i>
Aurizon Network and Frontier said that the Fernandez survey consistently produces an MRP estimate close to 6.0 per cent regardless of the market circumstances. ¹⁵³¹	This statement is wrong—the Fernandez survey has produced varying estimates of the MRP over time. For example, it produced a median MRP estimate of 5.1 per cent in 2015, which was a fall from a median of 6.0 per cent for the previous year. ¹⁵³²⁻¹⁵³³ The most recent Fernandez survey (2017) produces an estimate of 7.6 per cent, which Aurizon Network and Frontier support.
Regarding the independent expert reports, Aurizon Network and Frontier said that we should use the mean, rather than the median, when inferring the MRP estimate from these reports as there is no outlier in the sample. ¹⁵³⁴	Our general preference is to use the median rather than the mean to reduce the influence of outliers. We consider that making an exception in this case would introduce debate about what constitutes an outlier.
Frontier provided a list of reasons (e.g. lack of information about the respondents) that it previously submitted to justify its view that the Fernandez surveys should be afforded no weight. ¹⁵³⁵ However, Frontier acknowledged that the arguments about the limitations of the Fernandez surveys have already been addressed by the QCA in previous decisions.	We refer to the relevant points as expressed in our previous decisions. ¹⁵³⁶ We remain of the view that the Fernandez survey results are relevant to our consideration of an appropriate MRP for Aurizon Network.

Cornell dividend growth model

The fourth method we have used to inform our estimate of the MRP is the Cornell version of the dividend growth model (DGM). Like the standard DGM, the market return is the rate of return that reconciles the current value of the market portfolio with the present value of the expected future stream of dividends.

Our Cornell dividend growth estimates range from 5.6 per cent to 7.5 per cent, with a median estimate of 6.4 per cent. These estimates are based on inputs over the relevant June 2017 averaging period, including a 10-year risk-free rate (for the reasons explained below). The estimates differ from previous estimates in that they include an explicit adjustment for share repurchases (also explained below).

The key features of our Cornell-type DGM are described in detail in our Market Parameters decision.¹⁵³⁷ There are two principal features of our Cornell-type DGM that are most relevant here. First, while the standard DGM assumes that the market return on equity is the same in all future years of the analysis, our method allows for the possibility that the market return on equity reverts to a long-term average value after the first 10 years (i.e. a 'two-discount-rate'

¹⁵³¹ Aurizon Network, sub. 1: 290; Aurizon Network, sub. 9: 30–31.

¹⁵³² Fernandez et al. 2015.

¹⁵³³ We note that for the DBCT final decision we stated that the survey evidence supported an estimate of 6.0% excluding imputation credits, and 6.8% including imputation credits. The change between the draft and final decisions was due to the more recent Fernandez survey results becoming available, which we then took into account for the DBCT final decision.

¹⁵³⁴ Aurizon Network, sub. 1: 290; Aurizon Network, sub. 9: 31–32.

¹⁵³⁵ Aurizon Network, sub. 9: 30.

¹⁵³⁶ QCA 2014e: 231–232.

¹⁵³⁷ QCA 2014c: 67–73.

model).¹⁵³⁸ Second, our Cornell-type DGM model applies a downward adjustment to the expected long-run growth rate of GDP to accommodate new equity issues and the formation of new companies over time.

Aurizon Network (and its consultants, Frontier and The Brattle Group) raised particular concerns regarding these two features of the model, as well as two additional concerns:

- *two-discount-rate model*—the model assumes that equity holders require a low return for the first 10 years but then a higher, long-run return on equity thereafter; however, the MRP estimate is based on the low return for the first 10 years.¹⁵³⁹
- *growth rate dilution*—the model assumes that corporate dividends and earnings do not grow as fast as Gross Domestic Product (GDP) (i.e. the QCA's MRP estimate is based on a growth rate that is less than the long-run GDP growth rate), which is inconsistent with recent empirical evidence.¹⁵⁴⁰
- *share repurchases*—an adjustment should be made to the cash dividends input of the model to allow for the future repurchases of shares¹⁵⁴¹
- *term of the risk-free rate in the DGM*—the risk-free rate used in estimating the MRP from the Cornell DGM is inconsistent with the risk-free rate used in the first term of the CAPM.¹⁵⁴²

Two-discount-rate model: term structure for the return on equity

Frontier raised several objections to the use of two discount rates in our Cornell-type DGM.

Frontier said it is not standard practice to use the two-discount-rate model. Frontier observed that independent experts and other regulators use a single discount rate (i.e. assume that the term structure of the return on equity is 'flat'), as their objective is to estimate a long-run return on equity (and the QCA should do likewise).¹⁵⁴³

Our view is that it is important to obtain the best estimate of the current MRP from the Cornell DGM. It is very likely that the true term structure for the (market) cost of equity at times significantly deviates from a flat term structure. Frontier's proposed approach applies a stronger assumption—that the current cost of equity is always equal to the long-term cost of equity. We prefer not to adopt this strong assumption. Our view is the better approach is to set the expected 10-year cost of equity in 10 years to an estimated long-run average value and then use the Cornell DGM to obtain the current 10-year cost of equity.¹⁵⁴⁴

Relevantly, the justification for two discount rates (i.e. a 'non-flat' term structure) will be stronger when market conditions substantially differ from the long-term average, which is the case at present (as argued by Aurizon Network and Frontier).¹⁵⁴⁵ Moreover, in such a situation,

¹⁵³⁸ As stated in the Market Parameters decision, as at October 2013, this rate comprised a long-run MRP of 6.0% and a 10-year risk-free rate of 5.8%, giving a long-run return on equity of 11.8% (see QCA 2014a: 71, footnote 88). The risk-free rate is regularly updated by extending the time series to include current information.

¹⁵³⁹ Aurizon Network, sub. 38: 24–25.

¹⁵⁴⁰ Aurizon Network, sub. 1: 291–292; Aurizon Network, sub. 9: 32–33.

¹⁵⁴¹ Aurizon Network, sub. 4: 20–22.

¹⁵⁴² Aurizon Network, sub. 1: 291.

¹⁵⁴³ Aurizon Network, sub. 38: 27.

¹⁵⁴⁴ If the true current cost of equity is actually equal to the long-run, 10-year cost of equity, then the data will admit this possibility.

¹⁵⁴⁵ Aurizon Network, sub. 1: 256; Aurizon Network, sub. 38: 13–14.

Lally demonstrates that the benefit, in the form of reduced estimation error, of applying two discount rates is material.¹⁵⁴⁶

Frontier also said that the two-discount-rate model results in a systematic downward bias because the discount rate is reset at the start of each regulatory period (e.g. every four years) and therefore the higher, long-run average return that applies after 10 years is never achieved. As an example, Frontier said that suppose investors require a return of 10 per cent over 20 years (and market conditions remain stable). If the regulator determines the return over the last 10 years to be 11 per cent and therefore, sets the rate of return over the first 10 years to 9 per cent (i.e. to 'balance things out'), investors never receive the average of 10 per cent because the regulator resets the return to 9 per cent at the start of each regulatory period. As the later period never arises, the average allowed rate of return is underestimated.¹⁵⁴⁷ Frontier therefore concluded there is no accountability for the assumption about required returns in the post-10 year period.

We do not agree with this view. The result from applying the Cornell DGM could result in a short-term MRP estimate that is higher, lower, or equal to the long-run estimate. For example, for the UT4 averaging period of October 2013, the Cornell DGM estimate of the MRP, using a 20-year convergence period and a 0.5 per cent dilution rate was 8.28 per cent. The RFR over that period was 4.06 per cent. Therefore the short-run return on equity was 12.34 per cent, which is greater than the long-run return on equity of 11.8 per cent at that time. The outcome depends on the data, and Frontier's example only illustrates one possibility.

This conclusion leads to the third objection raised by Frontier, namely that there is no basis for the 11.8 per cent long-run required return. In particular, Frontier said the long-run average risk-free rate of 5.8 per cent is based on average 10-year bond yields starting in 1993, but government bond yields have fallen consistently since that time. For example, the 10-year government bond yield at the time of the Market Parameters decision was 4.29 per cent but was 2.6 per cent as of August 2017. Frontier said it is therefore logical that the likelihood of the yield increasing to 5.8 per cent over the next 10 years is now materially lower than at the time of that decision. On this basis, Frontier concluded that a better estimate of the government bond yield 10 years from now is the forward rate (based on Bloomberg data).¹⁵⁴⁸

The QCA also disagrees with Frontier on this point. We explained in our Market Parameters decision that the risk-free rate of 5.8 per cent was an average of (annualised) yields of 10-year government bonds over a long period of time. We remain of the view that this underlying period of estimation remains appropriate, in particular that a long-run, historical average is preferable to a forward rate. As interest rate processes are mean-reverting, and we require a long-run rate to apply 10 years into the future, an historical average over the longest period, for which the 10-year rate is stable, is appropriate.¹⁵⁴⁹ Lally also concurs with this view.¹⁵⁵⁰

Dilution of the long-run expected growth rate

Frontier raised two fundamental objections to our dilution of the long-run expected growth rate. First, Frontier disagreed with the conceptual basis of our deduction (of 0.5%–1.5%) from

¹⁵⁴⁶ Lally 2013b: 11–12.

¹⁵⁴⁷ Aurizon Network, sub. 38: 24–25.

¹⁵⁴⁸ Aurizon Network, sub. 38: 24–26.

¹⁵⁴⁹ As explained in the Market Parameters decision, the averaging period starts in 1993 because this year coincides with the commencement of central bank inflation targeting and accordingly, can be reasonably considered the starting point of a stable process. This average changes as it is updated for new information.

¹⁵⁵⁰ Lally 2017b: 16.

the long-run expected growth rate on the basis that empirical evidence suggests that the effect is very small (and therefore can be ignored). To illustrate this point, Frontier estimated pre-tax corporate profits at 11.6 per cent of GDP as at 2013 and said that, if GDP grows at 5.6 per cent for 50 years and pre-tax corporate profits grow faster at 6.1 per cent (for example) for 50 years, then pre-tax profits will only reach 14.7 per cent of GDP after this time.¹⁵⁵¹

However, in the Cornell DGM perpetuity framework, the relevant growth rate in the model is a long-term rate, and it applies to the (aggregate) earnings of all shares in currently existing and future companies. That is, aggregate earnings are distributed among existing shares, new shares issued in the future by existing firms, and (new) shares issued by new firms formed in the future. Therefore, the long-run growth rate of earnings of existing shares must be less than the long-run growth rate in GDP to accommodate new share issues and the formation of new companies over time. As a consequence, we disagree with Frontier's claim that this feature of the Cornell DGM is simply a 'conceptual proposition'. Rather, our view is that this feature is a matter of mathematical logic in applying the model.

Moreover, the relevance of empirical evidence is not about whether a deduction should be made but about informing the amount of the deduction. The Market Parameters decision suggests a possible range of 0.5%–1.5%, with a midpoint of 1.0 per cent for the dilution effect (and our model examines all three possibilities).

In this context, Frontier's second objection was that there is no empirical support for a deduction based on data from recent decades. Specifically, Frontier said post-1990 data indicates a real earnings per share growth rate of 5.0 per cent and a real GDP growth rate of 3.4 per cent. Further, Frontier said that our deduction from the GDP growth rate assumes that investors form their expectations about future growth in dividends on the basis of data from the 1970s and 1980s (i.e. in the period prior to central bank inflation targeting), when the real earnings per share growth rate was 1.8 per cent and the real GDP growth rate was 3.0 per cent.¹⁵⁵²

Frontier's preference for no dilution arises from its preferred sample period (1990–2013), also previously proposed by SFG Consulting.¹⁵⁵³ The QCA's view is that, in the context of a relevant long-term rate, an earnings per share growth rate of 5.0 per cent is materially too high, as the real GDP growth rate over the same period was 3.4 per cent. Clearly, this relativity cannot hold over the long run, and what is required for the model is a long-run rate, not a short-run rate. By analogy, if we are seeking an estimate of the MRP using the Ibbotson method, and we believe (for example) that the last 25 years is the best sample period (due to inflation targeting affecting the cost of equity)—but the *ex post* realised MRP over this period is negative—then this outcome would preclude sole reliance on that period for estimating the Ibbotson MRP.

Accordingly, we support using a longer period of data to smooth out such effects. Relevantly, SFG Consulting's full time period of 1969–2013 shows a real earnings per share growth rate of 1.5 per cent, relative to a real GDP growth rate of 3.2 per cent.¹⁵⁵⁴ These figures imply a deduction for dilution of 1.7 per cent, which is greater than our current deduction (midpoint) of 1.0 per cent. This data suggests our adjustment for dilution might be conservative.

¹⁵⁵¹ Aurizon Network, sub. 38: 23.

¹⁵⁵² Aurizon Network, sub. 38: 23–24.

¹⁵⁵³ SFG Consulting 2014: 19–26.

¹⁵⁵⁴ SFG Consulting 2014: 20.

Adjustment for share repurchases

The Brattle Group said the QCA's Cornell DGM would underestimate the MRP to the extent there are cash flows to investors other than dividends, such as cash returned via share repurchases. Accordingly, The Brattle Group said that the model should include an adjustment to cash dividends to reflect the effect of share repurchases and that its analysis of share-buyback yield at the ASX 200 is consistent with (approximately) an additional 0.5 percent in yield.¹⁵⁵⁵

We agree with The Brattle Group that an adjustment should be made for share repurchases. However, in considering this matter in UT4, we identified data availability as problematic. Since that time, we have undertaken additional work to obtain and analyse the relevant data to estimate an adjustment. Our analysis indicates that, based on the most recent data available, share repurchases comprise about 7 per cent of cash dividends.¹⁵⁵⁶ Taking this factor into account increases the cash dividend yield by about 0.3 per cent, or 30 basis points.

We note Lally's comment that any adjustment for the effect of share repurchases should take into account that repurchases (rather than dividends) would have raised the earnings per share growth rate, and this increment should be deducted from the historical earnings per share growth rate in the model.¹⁵⁵⁷ However, The Brattle Group's response is that no adjustment to the historical growth rate is necessary because analysts would form a view about growth rates with the knowledge of any expected repurchases. We are inclined to accept The Brattle Group's view on this point, as these activities are typically reported through market announcements and are therefore public knowledge.¹⁵⁵⁸

Term of the risk-free rate in the DGM

In the case of Aurizon Network, we apply a four-year risk-free rate in the first term of the CAPM to satisfy the NPV=0 principle. We deduct a current, 10-year risk-free rate when estimating the Cornell-type MRP. Aurizon Network's view is that the two risk-free rates should have consistent terms; that is, our estimate of the Cornell MRP should be based on a four-year risk-free rate.

As indicated in our discussion of 'term-matching', we consider it appropriate to make this adjustment to the Ibbotson, Siegel and Wright estimates and to the estimate from experts' reports. However, we consider it inappropriate to make the adjustment to the Cornell MRP as doing so will increase the bias of the Cornell MRP estimate.

Specifically, in the regulatory context of estimating the MRP, an MRP estimate is sought for a finite time period. Standard estimates of the MRP from the DGM involve estimating the market cost of equity for an infinite period but then deducting a risk-free rate for a finite period. Lally demonstrates that the inconsistency between the infinite term for the market cost of equity and the finite term for the risk-free rate will bias the resulting estimate of the MRP.¹⁵⁵⁹ However, this bias can be reduced by matching, to the greatest extent possible, the term of the market cost of equity to the term of the risk-free rate. As the term of the market cost of equity is infinite, satisfying this condition means using the yield of the longest-term bond available (i.e. 10 years) for the risk-free rate. Following this process will produce an estimate of the MRP that

¹⁵⁵⁵ Aurizon Network, sub. 4: 20–22.

¹⁵⁵⁶ See Brown and Davis 2012: 109–135. Updated data has been kindly provided by Professors Christine Brown and Kevin Davis.

¹⁵⁵⁷ Lally 2015a: 40–41.

¹⁵⁵⁸ Brown and Davis 2012: 117.

¹⁵⁵⁹ Lally 2015c.

is less biased than an estimate that arises from a process that deducts a shorter-term risk-free rate.

Frontier's updated DGM estimates

Frontier presented its own set of DGM estimates as at July 2017, which it stated are based on the AER's preferred construction of the DGM. Like our Cornell-type DGM, the AER's approach utilises a three-stage model but only considers a 10-year transition path.¹⁵⁶⁰ In contrast to our approach, the AER only estimates MRPs based on a single market cost of equity ('single-discount-rate' model).¹⁵⁶¹

While Frontier did not support our two-discount-rate approach, for comparison, it also presented MRP estimates using this method. In doing so, Frontier said it applied a 10-year forward rate, rather than an historical rate, in estimating the long-run risk-free rate in the long-run cost of equity. Frontier reported that the majority of its MRP estimates are in the range of 7.0 to 8.0 per cent. In particular, Frontier reported that, with a growth rate of 4.6 per cent (reflecting a 1% deduction from expected long-run growth for dilution) and a long-run risk-free consistent with market conditions, MRP estimates are 7.54 per cent and 7.42 per cent for 10-year and 20-year convergence periods, respectively.¹⁵⁶²

However, Frontier concluded that an MRP of 7.5 per cent would be a lower bound when applying the Cornell method on the basis that no deduction should be made for dilution and that a single cost of equity should apply.¹⁵⁶³

The Cornell estimates of 7.54 per cent and 7.42 per cent derived by Frontier compare to QCA estimates of 6.63 per cent and 6.23 per cent (median of 6.43%) for the 1.0 per cent dilution rate. The divergence in estimates is explained by both methodological and timing differences. Frontier's submission does not provide its estimate of the forward 10-year bond rate that it applied when estimating the long-run cost of equity and does not detail other inputs that underlie its MRP estimates. As a result, we are unable to reproduce Frontier's estimates.

In examining the model and comparing results with the information at hand, it is apparent that Frontier's assumption of a materially lower 10-year risk-free rate in the long-run cost of equity substantially changes the results. For the reasons given previously, we do not agree with using a 10-year forward rate. Further, the time period selected by Frontier for obtaining its inputs (i.e. July 2017) does not align with Aurizon Network's averaging period (June 2017). We note that analysts' growth forecasts were materially higher in July 2017 than in June 2017 (i.e. about 4.1% in comparison to 3.6%), which contributes to Frontier's higher estimates.

Stakeholders also made other comments in relation to our version of the DGM. The table below provides our responses to the issues raised by stakeholders.

¹⁵⁶⁰ In addition, the AER also considers a two-stage model. In a two-stage model, the forecast short-term growth rates apply for the first few years after which the short-term rate immediately reverts to the long-term, constant growth rate. In a three-stage model, the forecast short-term growth rates apply for the first few years, after which there is a multi-year transition path over which the short-term rate gradually converges to the long-term, constant growth rate (AER 2017d: 234).

¹⁵⁶¹ AER 2017d: 233–238.

¹⁵⁶² Aurizon Network, sub. 38: 28.

¹⁵⁶³ Aurizon Network, sub. 38: 28–29.

Table 125 QCA consideration of issues relating to the Cornell DGM

<i>Issue</i>	<i>QCA analysis</i>
The two-discount-rate approach has the effect of increasing the volatility of the estimate of the MRP. ¹⁵⁶⁴	Lower volatility is not necessarily a desirable property <i>per se</i> . What is relevant is whether that (lower) volatility matches the true situation. The single-discount-rate model preferred by Frontier will result in lower volatility but greater error in the estimate of the return on equity when returns are unusually low or unusually high. Lally provides an example to support this point. ¹⁵⁶⁵
The Brattle Group prefers the Bloomberg model because it uses all cash flows distributed to shareholders, rather than only dividends, and because it uses different convergence rates (to the GDP growth rate) for immature versus mature firms. ¹⁵⁶⁶ According to The Brattle Group, Bloomberg currently forecasts an MRP of 7.6 per cent for Australia without the value of imputation credits. ¹⁵⁶⁷ The Brattle Group found an MRP estimate of 8.6 after adjusting for imputation credits.	We note the full details of the Bloomberg model are not disclosed. However, Lally notes that, in the Bloomberg model, the long-run expected growth rate in cash flows is set equal to the long-run growth rate of GDP. ¹⁵⁶⁸ As stated previously, we do not agree with this assumption. The Brattle Group has used a different approach to estimating the effects of imputation credits. However, the adjustment is coincidentally equal to the QCA's adjustment. ¹⁵⁶⁹
Given the effects of share repurchases, The Brattle Group said that an upward adjustment of 50 basis points to the estimated MRP is required. ¹⁵⁷⁰	The Brattle Group does not explain how it arrives at an estimate of 50 basis points. In any case, the QCA has now directly addressed share repurchases in its DGM approach.
The Brattle Group said that standard dividend growth models ignore option values inherent in equities, the effect of which is to underestimate the MRP. ¹⁵⁷¹	We agree that standard dividend growth models ignore option values. However, as demonstrated by Lally, the effect is to instead overestimate the MRP, rather than underestimate the MRP, as claimed by The Brattle Group. ¹⁵⁷²

For the reasons above, we continue to prefer our Cornell-type DGM to inform our estimate of the MRP.

Wright method

The Wright method assumes that the risk-free rate and MRP are perfectly negatively correlated, resulting in a constant return on equity. In other words, when the (observable) risk-free rate decreases (increases), the (unobservable) MRP increases (decreases) by an offsetting amount.

The QCA's Wright estimate is 9.5 per cent for the preferred sampling period of 1958–2017, and this estimate takes into account the four-year risk-free rate. Frontier estimated a Wright MRP of 8.9 per cent based on a 10-year risk-free rate.¹⁵⁷³

¹⁵⁶⁴ Aurizon Network, sub. 38: 25.

¹⁵⁶⁵ Lally 2017b: 17–18.

¹⁵⁶⁶ Aurizon Network, sub. 4: 20–22.

¹⁵⁶⁷ Aurizon Network, sub. 4: 21.

¹⁵⁶⁸ Lally 2017a: 32.

¹⁵⁶⁹ Lally 2017a: 32.

¹⁵⁷⁰ Aurizon Network, sub. 4: 22.

¹⁵⁷¹ Aurizon Network, sub. 4: 22.

¹⁵⁷² Lally 2017a: 33.

¹⁵⁷³ Aurizon Network, sub. 38: 32–33.

Aurizon Network said that the Wright method should be considered, along with the Ibbotson method, to estimate the MRP from historical information.¹⁵⁷⁴ In particular, Frontier considered that both the Ibbotson and Wright methods should be afforded material weight as they sit at either end of a theoretical spectrum:

- The Ibbotson method assumes that the best estimate of the MRP is the average excess return and the required return on equity rises and falls one-for-one with changes in government bond yields.
- The Wright approach assumes the best estimate of the real required return on equity is the average real return on equity, which means that the MRP changes over time due to variation in government bond yields and inflation expectations.¹⁵⁷⁵

Frontier also said that, in determining the MRP, it is important to have regard to all methods in a manner that is reflective of their applicability to current market conditions. In this context, Frontier noted that Lally supported giving both the Ibbotson and Wright methods equal weight and that current market conditions are substantially different from average. For these reasons, Frontier said that the weight applied to the Ibbotson and Siegel methods on a combined basis should be equivalent to the weight applied to the Wright approach.¹⁵⁷⁶ However, Frontier said the QCA's draft decision on DBCT gave very low weight to the Wright method.¹⁵⁷⁷ Frontier concluded:

...there is no basis for the QCA's effective rejection of the Wright evidence—it has provided no cogent reason for rejecting the Wright evidence and it has done so against the advice of its consultant.¹⁵⁷⁸

We agree that we have given estimates from the Wright method low weight in previous decisions.¹⁵⁷⁹ However, we disagree with Frontier's claim that we have provided no 'cogent reason' for doing so; Frontier has simply misrepresented our position.

We explained in our Market Parameters decision that we considered arguments relating to the Wright method. In particular, we examined theoretical and empirical evidence relating to the relationship between bond yields and the MRP. In doing so, we noted that drawing definitive conclusions is difficult due to the unobservability of the MRP.¹⁵⁸⁰

In evaluating the evidence, we also noted that Wright et al. 2003 originally argued for the stability of the return on equity in the context of data for the United Kingdom. Accordingly, we sought to examine the relative stability of the MRP and the real return on equity for Australia (i.e. using data for Australia). The variability in computed 30-year rolling averages of the MRP estimate and the cost of equity estimate suggested that the MRP is less variable over time than

¹⁵⁷⁴ Aurizon Network, sub. 1: 290.

¹⁵⁷⁵ Aurizon Network, sub. 9: 34.

¹⁵⁷⁶ Aurizon Network, sub. 38: 33–34.

¹⁵⁷⁷ Aurizon Network, sub. 9: 34–35.

¹⁵⁷⁸ Aurizon Network, sub. 9: 35.

¹⁵⁷⁹ QCA 2016b: 78.

¹⁵⁸⁰ QCA 2014c: 78–81.

the cost of equity.¹⁵⁸¹ This analysis was a principal factor in informing our view at the time that the Wright method should receive relatively low weight.¹⁵⁸²

Given stakeholder submissions on the Wright method, we have again reviewed material related to this method, including this previous analysis. In doing so, we have concluded that a limitation of the earlier analysis is that it did not test the statistical significance of the difference between the variances of the MRP and the real return on equity time series. Accordingly, we consider such testing should be undertaken. However, across the 100 years of data used in the analysis, there are too few independent observations to strongly conclude that the MRP is less variable over time than the cost of equity.

As a result, we have revised our position on the Wright method. While our analysis shows relatively greater stability in the MRP than the real return on equity over time, our view is that this analysis is not determinative, given the limitations identified. In this regard, we note Lally's advice that the empirical evidence on this matter, while favouring the Ibbotson method over the Wright method, is not decisive.¹⁵⁸³ For these reasons, and taking into account Dr Lally's advice, we have now given more regard to estimates from the Wright method.

¹⁵⁸¹ Using historical data from 1883–2013, the analysis involved computing rolling 30-year averages for the real rate of return on equity, long-term government bond yield and MRP. The relative stability of each series can be determined by comparing the standard deviations. The standard deviation of the real equity return is 1.61 per cent, while the standard deviation of the MRP is 0.86 per cent. QCA 2014c: 86–87.

¹⁵⁸² QCA 2014c: 85–88.

¹⁵⁸³ Lally 2013a: 66.

APPENDIX G: PROPOSED AMENDMENTS TO SCHEDULE F

This appendix provides the QCA's suggested drafting amendments in relation to Schedule F of Aurizon Network's 2017 DAU (see Chapter 9 of this draft decision).

Suggested drafting amendments in relation to Schedule F, cl. 2.2 Calculations for Reference Train Services

EC is the electric energy charge which is initially (from the Commencing Date) as specified as the EC input for the nominated Reference Train Service as specified for the relevant Reference Tariff (for example, as specified in **clauses 7.2 and 8.2**, as applicable), and after the Approval Date as otherwise published by Aurizon Network on the Website on or about each 31 May during the Term after Aurizon Network seeks and obtains the QCA's approval (in accordance with clause 2.2(f)) for a new electric energy charge (taking into account any over or under recovery in the previous Year),

(f) The QCA may approve an EC for the purposes of clause 2.2(a) if it considers that the EC is reasonable and the consequential adjustments to [Allowable Revenues] [and Reference Tariffs] (if any) are calculated properly.

Suggested drafting amendments in relation to Schedule F, cl. 3.3 Application of new Take or Pay arrangements

- (e) To calculate nt and ntk for the purpose of **clause 3.3(d)(iii)(B)(1) and (2)**, Aurizon Network must:
- (i) identify from the Access Agreement the number of Train Services that would have operated had the full contracted entitlement been used; and
 - (ii) determine the number of Train Services that did not operate under that contracted entitlement due to an Aurizon Network Cause, provided that if an Access Holder has more than one Access Agreement for the same origin to destination pair, Aurizon Network must allocate those Train Services as between the relevant Access Agreements in the order in which those Access Agreements were executed (unless the relevant Access Holder has nominated a different order, in which case that order must be applied),
- and calculate the nt and ntk by using ~~the Nominal Train Payload a~~ train payload as reasonably determined by Aurizon Network in respect of applicable for the relevant Reference Tariff.

Suggested drafting amendments in relation to Schedule F, cl. 4.3(c)(ii) and cl. 4.4(a)(ii)

Calculation of Adjusted Allowable Revenue

- (c) The Adjusted Allowable Revenue for AT₂₋₄ or the AT₅ component of Access Charges in relation to a Reference Tariff is the sum of the following components of the applicable Allowable Revenue (as relevant to the applicable Allowable Revenue):
- (i) the component relating to the recovery of Aurizon Network's maintenance costs, adjusted to reflect the difference between:
 - (A) the actual MCI value for the relevant Year; and
 - (B) the forecast MCI value that was used for the purpose of determining the relevant Reference Tariff for the relevant Year;
 - (ii) the component relating to the recovery of Aurizon Network's operating costs, excluding those costs referred to in **clause 4.3(c)(i)**, adjusted to reflect the difference between:
 - (A) the actual CPI and WPI values for the relevant Year; and
 - (B) the forecast CPI and WPI values that was used for the purpose of determining the relevant Reference Tariff for the relevant Year (respectively);

4.4 Revenue adjustment

- (a) Where a Revenue Adjustment Amount has been approved by the QCA under **clause 4.3**:
- (i) the equivalent Allowable Revenue to that used in the calculation of that Revenue Adjustment Amount for the relevant Reference Tariff for the Year after the Year in which that Revenue Adjustment Amount was calculated (that is, the **Second Year Allowable Revenue**) must be adjusted in accordance with this **clause 4.4**; and
 - (ii) the Allowable Revenue for all subsequent Years must also be adjusted to reflect the actual change in the MCI ~~and~~ CPI and WPI as used in the calculation of the approved Revenue Adjustment Amount.

APPENDIX H: PROPOSED AMENDMENTS TO PART 2

This appendix provides the QCA's suggested drafting amendments in relation to Part 2 of Aurizon Network's 2017 DAU (see Chapter 11 of this draft decision).

Suggested drafting amendments to definitions

- Terminating Date** The earlier of:
- (a) 30 June 2021;
 - (b) the ~~date~~end of the day on which the service to which this Undertaking relates, ceases to be taken to be a service declared for the purposes of Part 5 of the Act but only where the relevant Minister has not made a declaration as referred to in clause 12.5 of this Undertaking; and
 - (c) the date on which this Undertaking is withdrawn in accordance with the Act.

Suggested drafting amendments, new clause 12.5 (Interpretation)

12.5 New declaration

If the service to which this Undertaking relates ceases to be taken to be declared under section 250(1)(a) of the Act, and if, the relevant Minister makes a declaration in relation to that service or part of the service which is itself a service, under Part 5 of the Act which is to start with effect from the expiry date referred to in section 87A(1) of the Act, then, from that date:

- (a) subject to paragraph (c) below, this Undertaking will continue to apply to any service (or part thereof) which was originally declared by section 250(1)(a) of the Act and which service (or part thereof) is later declared by the Minister under Part 5 of the Act;
- (b) subject to paragraph (c) below, any reference in this Undertaking to "service taken to be declared under section 250(1)(a) of the Act" (and words having similar effect) will be taken to also refer to a service to which this Undertaking continues to apply pursuant to paragraph (a) above;
- (c) paragraphs (a) and (b) above apply only where the declaration by the Minister under Part 5 of the Act takes effect from the expiry date (referred to in section 87A(1) of the Act) of the declaration under section 250(1)(a) of the Act.

APPENDIX I: PROPOSED AMENDMENTS TO PART 5

This appendix provides the QCA's suggested drafting amendments in relation to Part 5 of Aurizon Network's 2017 DAU (see Chapter 21 of this draft decision).

Part 5: Access Agreements

5.1 Development of Access Agreement

- (a) The granting of Access will be underpinned by an Access Agreement that will be developed and finalised under **Part 4** of this Undertaking (**Negotiation Process**).
- (b) The parties to the Access Agreement will be Aurizon Network and the Access Holder. The Access Holder need not be the Railway Operator for the relevant Train Services.
- (c) The terms of an Access Agreement must be:
 - (i) for coal carrying services, the Standard Access Agreement; and
 - (ii) for non-coal carrying services, an Access Agreement consistent with the Standard Access Agreement amended to reflect the fact that the Access is for non-coal carrying services.
- (d) Despite **clause 5.1(c)**, the Access Seeker may agree with Aurizon Network during the Negotiation Process to vary the terms of the Standard Access Agreement and any provision of this Undertaking incorporated by reference into the Standard Access Agreement (including **clauses 7.4.2** (Transfers), **7.4.3** (Relinquishments) and **7.6** (Capacity resumption)), in which case, any amendments proposed to those terms must be negotiated by both Aurizon Network and the Access Seeker acting reasonably and in good faith.
- (e) Where the terms of an Access Agreement cannot be agreed within the time set out in **clause 4.11.1(c)(iv)**, ~~and the matter is referred for dispute resolution under Part 11~~, any ~~Dispute~~ dispute will be resolved by ~~the QCA or an expert, as applicable, by completion of~~:
 - (i) where Access is required for coal carrying services, the parties completing and entering into the Standard Access Agreement ~~and Part 11 does not apply~~; and
 - (ii) where Access is required for non-coal carrying services, in accordance with the dispute resolution mechanism in Part 11, by the QCA or an expert, as applicable, completing an Access Agreement which is consistent with the Standard Access Agreement, amended to reflect the fact that the Access is for non-coal carrying services.
- (f) Aurizon Network must not agree to include in an Access Agreement a term that limits its ability to require the Access Holder to disclose to Aurizon Network all information required by Aurizon Network (acting reasonably) to prepare and publish the MTP.

- (g) Once the Access Seeker notifies Aurizon Network that it is satisfied with the terms and conditions of the Access Agreement provided to it, Aurizon Network must, as soon as reasonably practicable, provide the Access Agreement (or, where appropriate, an amendment to an existing Access Agreement) in final form, which reflects the agreement reached between Aurizon Network and the Access Seeker, to the Access Seeker for execution.
- (h) The parties must execute the final form of the Access Agreement:
 - (i) produced by the QCA or an expert in resolving a Dispute referred to in **clause 5.1(e)(ii)**; or
 - (ii) accepted by the Access Seeker under **clause 5.1(g)**,
 as soon as reasonably practicable after resolution of the Dispute or Aurizon Network delivers it to the Access Seeker (as applicable).
- (i) Aurizon Network must execute an Access Agreement with an Access Seeker up to two (2) years prior to the commencement of Train Services under the Access Agreement or such longer period as may be agreed.
- (j) Where an Access Seeker is seeking Access Rights that are additional rights to, or a variation of, an existing Access Agreement to which the Access Seeker is a party, nothing in this Undertaking obliges Aurizon Network to agree to terms in respect of those Access Rights that are consistent with that existing Access Agreement.

5.2 Access Charges under Access Agreements

- (a) An Access Holder's Train Service Entitlement may be comprised of various different types of Train Services described by reference to the characteristics set out in Part A, Schedule 2 of the Standard Access Agreement. The Standard Access Agreements refer to each type of Train Service as a "Train Service Type".
- (b) In the circumstances described in **clause 5.2(a)**, the Access Charges may be calculated by reference to each type of Train Service.

5.3 Development of Train Operations Deed

- (a) To use the Access Rights granted under an Access Agreement, the Access Holder must procure a Train Operations Deed is negotiated as part of the Negotiation Process.
- (b) The parties to the Train Operations Deed will be Aurizon Network and the Train Operator for the relevant Train Services.
- (c) The terms of the Train Operations Deed must be the Standard Train Operations Deed.

APPENDIX J: PROPOSED AMENDMENTS TO PART 7

Suggested drafting amendments in relation related definitions

Notice of Intention to Transfer The meaning given to that term in **clause 7.4.2(a)**.
~~to~~
~~Transfer~~Transfer
Notice

Suggested drafting amendments in relation related definitions

Cl. 10.5.2(e) Annual compliance report - consequential amendment

- (iv) the average length of time (in days) from the date of receipt of a ~~Notice of Intention to Transfer~~Transfer
Notice for a Transfer (completed and submitted in accordance with the requirements of the relevant Access Agreement), to the commencement of the Transferee's new or varied Access Agreement giving effect to the Transfer; and

APPENDIX K: PROPOSED AMENDMENTS TO PART 7A

This appendix provides the QCA's suggested drafting amendments in relation to Part 7A of Aurizon Network's 2017 DAU (see Chapter 17 of this draft decision).

7A.4 Capacity assessments

7A.4.1 *[not used]*

7A.4.2 *Capacity Assessment*

- (a) Aurizon Network must undertake a static or dynamic (as appropriate) Capacity Analysis and determine the Capacity:
 - (i) for each Coal System on each anniversary of the date the QCA published Aurizon Network's Baseline Capacity Assessment Report under the 2016 Undertaking; and
 - (ii) for a Coal System if the System Operating Parameters are varied in a way that Aurizon Network, acting reasonably, considers can be expected to materially change the Existing Capacity in that Coal System.
- (b) A Capacity Assessment must:
 - (i) include consideration of outcomes of any consultation by Aurizon Network with Access Holders and Access Seekers (and their Customer and Train Operator, as applicable) for Train Services operating in that Coal System in relation to that assessment;
 - (ii) include the STP for each Coal System;
 - (iii) include consideration of outcomes of any consultation with any Supply Chain Group for the relevant Coal System;
 - (iv) include consideration of the following factors:
 - (A) the terms of Access Agreements relating to Train Services operating in that Coal System; and
 - (B) the interfaces between the Rail Infrastructure and other facilities forming part of, or affecting, the relevant Supply Chain; and
 - (v) utilise the same modelling methodology utilised by Aurizon Network in its previous Capacity Assessment (or Baseline Capacity Assessment, if applicable), or if that methodology is not utilised, include a statement of reasons for the departure(s) from that methodology; and
 - (vi) include a report that sets out Aurizon Network's assumptions affecting Capacity and relied upon for the Capacity Assessment.

- (c) Aurizon Network will promptly make the outcomes of a Capacity Assessment, including Aurizon Network's assumptions affecting Capacity and relied upon for the Capacity Assessment (including the STP for each Coal System), (**Preliminary Capacity Assessment Report**) available to the QCA, Access Holders, Access Seekers and, if applicable, Customers.
- (d) If, within thirty (30) Business Days after Aurizon Network makes a Preliminary Capacity Assessment Report available in accordance with **clause 7A.4.2(c)**, either:
- (i) the QCA; or
 - (ii) the Access Holders (or Customers):
 - (A) for at least 60% of the Train Paths in relation to a Coal System (as determined in accordance with **clause 7A.4.2(f)**); or
 - (B) representing in number 60% of the Access Holders (or Customers) with Access to the Coal System (as determined in accordance with **clause 7A.4.2(g)**),

notify Aurizon Network that they wish to have the Capacity Assessment (including the STP) in relation to that Coal System ~~audited~~ reviewed by an independent expert, then:

- (iii) Aurizon Network must engage an appropriately qualified and experienced expert acceptable to the QCA to ~~audit~~ review the Capacity Assessment (including the STP);
- (iv) **clause 7A.4.4** applies; and
- (v) Aurizon Network will, after receiving the expert's final ~~audit~~ review report, promptly provide the expert's final ~~audit~~ review report to:
 - (A) the QCA on an unredacted basis; and
 - (B) Access Holders, Access Seekers and, if applicable, Customers:
 - (1) in respect of agreements entered into after the Approval Date of the 2016 Undertaking and to the extent permitted by any confidentiality obligations it may have in relation to the information contained in the expert's final ~~audit~~ review

- report (and if those obligations permit disclosure if required by this Undertaking then Aurizon Network is required to disclose the information contained in the expert's final [audit-review](#) report), on an unredacted basis; and
- (2) in respect of agreements entered into prior to the Approval Date of the 2016 Undertaking or if complete disclosure is not permitted by Aurizon Network's confidentiality obligations, Aurizon Network must use all reasonable endeavours to obtain the consent of the relevant Third Party to disclose the information contained in the expert's final [audit-review](#) report on an unredacted basis;
- (3) in respect of the information for which consent is obtained under **clause 7A.4.2(d)(v)(B)(2)**, Aurizon Network is required to disclose the information contained in the expert's final [audit-review](#) report on an unredacted basis; and
- (4) in respect of the information for which consent is not obtained under **clause 7A.4.2(d)(v)(B)(2)**, Aurizon Network is required to disclose the information contained in the expert's final [audit-review](#) report:
- to the extent possible on an unredacted basis but aggregated so as to avoid disclosing the information that is confidential and unable to be disclosed; and
 - to the extent not possible, on a redacted basis.
- (e) Within 20 Business Days of the provision of the expert's final [audit-review](#) report under **clause 7.6(d)(v)**, Aurizon Network will make available to the QCA, Access Holders, Access Seekers and, if applicable, Customers its response to that report, which shall, in respect of each recommendation in that report, provide:
- (i) Aurizon Network's view as to whether it is a reasonable recommendation;

- (ii) if Aurizon Network considers that it is not a reasonable recommendation, Aurizon Network's reasons for that view; and
 - (iii) if Aurizon Network considers that it is a reasonable recommendation, how Aurizon Network intends to modify its modelling process to take account of that recommendation.
- (f) Aurizon Network will amend the Preliminary Capacity Assessment Report to the extent required to take account of any modifications to the modelling process that may be made by Aurizon Network in accordance with **clause 7.6(e)(iii)**.
- (g) If an expert's report under clause 7A.4.5(a)(vii) determines that there is no Available Capacity and Aurizon Network subsequently seeks to contract any Capacity in respect of that Coal System or Expansion, Aurizon Network must provide prior written notice to each Access Holder in respect of the relevant Coal System or Expansion as well as the QCA.
- ~~(g)~~(h) For the purpose of **clause 7A.4.2(d)(ii)(A)**, the relevant Train Paths must be determined in a manner consistent with the following principles:
- (i) the Train Paths for an Access Holder only include those Train Paths for the Access Holder relating solely to the relevant Coal System;
 - (ii) the Train Paths must be calculated as at the date on which Aurizon Network receives a notice under **clause 7A.4.2(d) (Notice Date)**;
 - (iii) subject to **clause 7.6(h)(iv)**, the Train Paths must be determined (based on the Access Rights specified in that Access Agreement) for a 12 Month period starting on the Notice Date; and
 - (iv) where:
 - (A) the Access Agreement is due to expire less than twelve (12) Months after the Notice Date; and
 - (B) there has been a Renewal in relation to the relevant Access Rights under that Access Agreement,
- the Train Paths must be determined (based on the Access Rights specified in the relevant Access Agreements) for a twelve (12) Month period starting on the Notice Date.

~~(h)~~(i) For the purpose of **clause 7A.4.2(d)(ii)(B)**, the number of Access Holders (or Customers) with Access Rights in the Coal System must be determined in a manner consistent with the following principles:

- (i) an Access Holder who holds Access to the Coal System on behalf of more than one Customer ~~it~~ will have the number of votes equal to the number of Customers in that Coal System for which it holds the Access Rights under the relevant Access Agreements;
- (ii) if an Access Holder or Customer is a Related Party of another Access Holder or Customer in that Coal System, it will be counted once only;
- (iii) the number of Access Holders or Customers must be calculated as at the date on which Aurizon Network receives a notice under **clause 7A.4.2(d) (Notice Date)**;
- (iv) subject to **clause 7.6(i)(v)**, the number of Access Holders or Customers must be determined for a twelve (12) Month period starting on the Notice Date; and
- (v) where:
 - (A) the Access Agreement is due to expire less than twelve (12) Months after the Notice Date; and
 - (B) there has been a Renewal in relation to the relevant Access Rights under that Access Agreement,

the number of Access Holders or Customers must be determined (based on the Access Rights specified in the relevant Access Agreements) for a twelve (12) Month period starting on the Notice Date.

~~(h)~~(i) Aurizon Network must, for each Coal System, publish on the Website in a prominent place readily accessible by the QCA and Access Seekers and Access Holders (and their Customer and Train Operator, as applicable):

- (i) the Capacity Assessment Report (including the STP);
- (ii) the statement of reasons referred to in **clause 7A.4.2(b)(v)**; and
- (iii) any final audit review report provided by an expert engaged by Aurizon Network pursuant to **clause 7A.4.2(d)(iii)**.

~~(k)~~ Aurizon Network must provide, or make available in accordance with this **clause 7A.4.2**, the Capacity Assessment Report (which includes the STP for each Coal System) as a complete and transparent document to:

- (i) the QCA on an unredacted basis; and
- (ii) stakeholders and when published on its Website:
 - (A) in respect of agreements entered into after the Approval Date of the 2016 Undertaking and to the extent permitted by any confidentiality obligations it may have in relation to the information contained in the Capacity Assessment Report (and if those obligations permit disclosure if required by this Undertaking then Aurizon Network is required to disclose the information contained in the Capacity Assessment Report), on an unredacted basis; and
 - (B) in respect of agreements entered into prior to the Approval Date of the 2016 Undertaking or if complete disclosure is not permitted by Aurizon Network's confidentiality obligations:
 - (1) Aurizon Network must use all reasonable endeavours to obtain the consent of the relevant Third Party to disclose the information contained in the Capacity Assessment Report on an unredacted basis;
 - (2) in respect of the information referred to in **paragraph (i)** or for which consent is obtained under **paragraph (ii)(A)**, on an unredacted basis; and
 - (3) in respect of the information that does not satisfy **paragraph (i)** or for which consent is not obtained under **paragraph (ii)(A)**:
 - to the extent possible on an unredacted basis but aggregated so as to avoid disclosing the

- information that is confidential and unable to be disclosed; and
 - to the extent not possible, on a redacted basis.
- ~~(k)~~(l) Aurizon Network must use reasonable endeavours to agree to confidentiality obligations that:
- (i) do not prevent the disclosure of the information contained in the Capacity Assessment Report; and
 - (ii) permit disclosure of information required by this Undertaking,
- but:
- (iii) in any event, must not agree to any confidentiality obligations that prevent disclosure of the information contained in the Capacity Assessment Report to the QCA,

provided that Aurizon Network will be deemed to have complied with its obligations under this **clause 7.6(l)** if it has requested during the negotiation of an Access Agreement that the Access Seeker agrees to confidentiality obligations in accordance with **clause 7.6(l)(i)** and **clause 7.6(l)(ii)**, whether or not the Access Seeker actually agrees to the inclusion of such obligations in the Access Agreement.

7A.4.3 System Capacity Assessment

- (a) Aurizon Network must undertake a static or dynamic (as appropriate) Capacity Analysis and determine System Capacity for each Coal System within six (6) months of the date that Aurizon Network publishes its Capacity Assessment Report and thereafter on each anniversary thereof.
- (b) A System Capacity Assessment will be undertaken for information purposes only for the benefit of Access Holders and Access Seekers (and their respective Customers and Train Operators) for a Coal System.
- (c) A System Capacity Assessment must include:
 - (i) consideration of outcomes of any consultation by Aurizon Network with Access Holders and Access Seekers (and their Customer and Train Operator, as applicable) for Train Services operating in that Coal System;
 - (ii) consideration of outcomes of any consultation with any Supply Chain Group for the relevant Coal System;
 - (iii) consideration of outcomes of any consultation with port operators; and

- (iv) a report that sets out Aurizon Network's assumptions affecting System Capacity and relied upon for the System Capacity Assessment which must be consistent with those assumptions listed in the definition of System Capacity under Part 12 and may include such other assumptions as are agreed between Aurizon Network and any Supply Chain Group for the relevant Coal System.
- (d) Aurizon Network must promptly, for each Coal System, publish on the Website in a prominent place readily accessible by the QCA and Access Seekers and Access Holders (and their Customer and Train Operator, as applicable) the outcomes of a System Capacity Assessment (System Capacity Assessment Report), including Aurizon Network's assumptions affecting System Capacity and relied upon for the System Capacity Assessment.
- (e) Aurizon Network must provide, or make available in accordance with this clause 7A.4.3, the System Capacity Assessment Report as a complete and transparent document to:
- (i) the QCA on an unredacted basis; and
- (ii) stakeholders and when published on its Website:
- (A) in respect of agreements entered into after the Approval Date of the 2016 Undertaking and to the extent permitted by any confidentiality obligations it may have in relation to the information contained in the System Capacity Assessment Report (and if those obligations permit disclosure if required by this Undertaking then Aurizon Network is required to disclose the information contained in the System Capacity Assessment Report), on an unredacted basis; and
- (B) in respect of agreements entered into prior to the Approval Date of the 2016 Undertaking or if complete disclosure is not permitted by Aurizon Network's confidentiality obligations:
- (1) Aurizon Network must use all reasonable endeavours to obtain the consent of the relevant Third Party to disclose the information contained in the System Capacity Assessment Report on an unredacted basis;
- (2) in respect of the information referred to in paragraph (i) or for which consent is obtained under paragraph (ii)(A), on an unredacted basis; and

- (3) in respect of the information that does not satisfy paragraph (i) or for which consent is not obtained under paragraph (ii)(A):
- to the extent possible on an unredacted basis but aggregated so as to avoid disclosing the information that is confidential and unable to be disclosed; and
 - to the extent not possible, on a redacted basis.
- (f) Aurizon Network must use reasonable endeavours to agree to confidentiality obligations that
- (i) do not prevent the disclosure of the information contained in the System Capacity Assessment Report; and
- (ii) permit disclosure of information required by this Undertaking;
- but:
- (iii) in any event, must not agree to any confidentiality obligations that prevent disclosure of the information contained in the System Capacity Assessment Report to the QCA.
- (g) provided that Aurizon Network will be deemed to have complied with its obligations under this clause 7.6(l) if it has requested during the negotiation of an Access Agreement that the Access Seeker agrees to confidentiality obligations in accordance with clause 7.6(l)(i) and clause 7.6(l)(ii), whether or not the Access Seeker actually agrees to the inclusion of such obligations in the Access Agreement.

7A.4.3 7A.4.4 Capacity Deficit

- (a) Where Aurizon Network has not published a Capacity Assessment Report and:
- (i) if there is no Alternative Baseline Capacity Assessment Report for the relevant Coal System, the Baseline Capacity Assessment Report; or
- (ii) if there is an Alternative Baseline Capacity Assessment Report for the relevant Coal System, the Alternative Baseline Capacity Assessment Report,
- reveals that there is a deficit in the Capacity for that Coal System (**Capacity Deficit**), then Aurizon Network must:
- (iv) have regard to that Capacity Deficit prior to executing an Access Agreement that would increase the size of that Capacity Deficit prior to constructing any relevant Expansion for that Coal System;

- (v) within twenty (20) Business Days after the Approval Date (**Publication Date**), and only in circumstances where a preliminary report in respect of the Capacity Deficit under a Baseline Capacity Assessment Report has not been published ~~under the 2016 Undertaking~~, submit a preliminary report to the QCA (and publish such preliminary report in a prominent place on its Website) setting out:
- (A) the relevant Coal System and the location in that Coal System where the Capacity Deficit arises;
 - (B) the cause and quantum of the Capacity Deficit;
 - (C) the Access Holders and, if any, Access Seekers affected by the Capacity Deficit;
 - (D) Aurizon Network's consultation plan (which, when followed, must satisfy the requirements of **clauses 7.6(c)(i)(B), 7.6(c)(i)(C) and 7.6(c)(ii)**); and
 - (E) Aurizon Network's preliminary views on solutions which could most efficiently address the Capacity Deficit; and
- (vi) within six (6) Months after:
- (A) the Publication Date; or
 - (B) where the relevant preliminary report in respect of the Capacity Deficit under a Baseline Capacity Assessment Report has been published ~~under the 2016 Undertaking~~, the date of publication of that report ~~under the 2016 Undertaking~~,

and only in circumstances where a detailed report in respect of the Capacity Deficit under a Baseline Capacity Assessment Report has not been published ~~under clause 7A.4.34(a)(vi) of the 2016 Undertaking~~, submit a detailed report to the QCA showing the outcome of Aurizon Network's analysis of the Capacity Deficit and solutions which could address the Capacity Deficit and which includes:

- (C) the preferred changes to the operation and management of the Rail Infrastructure that can address the Capacity Deficit (including estimates of costs (if any) to implement those changes);

- (D) if relevant, evidence of Aurizon Network's consultation under **clauses 7.6(c)(i)(B) and 7.6(c)(i)(C)** that explains why changes to the operation and management of the Rail Infrastructure cannot address the Capacity Deficit;
 - (E) a shortlist of Expansions considered by Aurizon Network and through the consultation under **clause 7.6(c)(i)(C)** (including estimates of costs to undertake each Expansion); and
 - (F) any Expansion which Aurizon Network and the affected Access Holders or Access Seekers have agreed will address the Capacity Deficit.
- (b) Where the most recent Capacity Assessment Report reveals that there is a deficit in the Capacity for that Coal System (also a **Capacity Deficit**), then Aurizon Network must:
- (i) have regard to that Capacity Deficit prior to executing an Access Agreement that would increase the size of that Capacity Deficit prior to constructing any relevant Expansion for that Coal System;
 - (ii) within twenty (20) Business Days after the date of the Capacity Assessment Report (also a **Publication Date**),
submit a preliminary report to the QCA (and publish such preliminary report in a prominent place on its Website) which sets out the matters listed in **clauses 7.6(l)(v)(A) to (E)**; and
 - (iii) within six (6) Months after the Publication Date, submit a detailed report to the QCA showing the outcome of Aurizon Network's analysis of the Capacity Deficit and solutions which could address the Capacity Deficit and which includes the matters listed in **clauses 7.6(l)(vi)(C) to (F)**.
- (c) In preparing the report specified in **clause 7.6(l)(vi)** or **clause 7.6(b)(iii)** (as applicable), Aurizon Network must:
- (i) undertake at least the following:
 - (A) a review of operation and management practices, as set out in the assumptions used in the applicable Capacity assessment, in respect of the Rail Infrastructure to ascertain whether amendments to those practices would address the Capacity Deficit;

- (B) consultation with [Access Seekers](#), Access Holders and Customers, if applicable, Train Operators, to identify if there are alternative supply chain capacity options which could address the Capacity Deficit; and
 - (C) consultation with [Access Seekers](#), Access Holders and Customers to identify and consider options for Expansions which could address the Capacity Deficit, and
 - (ii) use reasonable endeavours to consult with Supply Chain Groups and terminal operators to identify if there are alternative supply chain capacity options which could address the Capacity Deficit.
- (d) The QCA may publish any report provided by Aurizon Network under **clauses 7A.4.4(a) and 7.6(b)**.
- (e) If Aurizon Network and affected Access Holders [and Access Seekers](#) consider that an Expansion is the best option to address the Capacity Deficit, then:
 - (i) **Part 8** will apply to that Expansion;
 - (ii) Aurizon Network must ~~act reasonably and~~ negotiate [in good faith](#) with the affected Access Holders [and Access Seekers](#) the terms of a funding arrangement for the Expansion [\(any dispute in relation to the funding arrangements will be determined in accordance with Part 11\)](#).
- (f) Aurizon Network must provide, or make available in accordance with this **clause 7A.4.34**, any information or report in respect of the Capacity Deficit as a complete and transparent document to:
 - (i) the QCA on an unredacted basis; and
 - (ii) stakeholders and when published on its Website:
 - (A) in respect of agreements entered into after the Approval Date of the 2016 Undertaking and to the extent permitted by any confidentiality obligations it may have in relation to the information in respect of the Capacity Deficit (and if those obligations permit disclosure if required by this Undertaking then Aurizon

- Network is required to disclose the information in respect of the Capacity Deficit), on an unredacted basis; and
- (B) in respect of agreements entered into prior to the Approval Date of the 2016 Undertaking or if complete disclosure is not permitted by Aurizon Network's confidentiality obligations:
- (1) Aurizon Network must use all reasonable endeavours to obtain the consent of the relevant Third Party to disclose the information in respect of the Capacity Deficit on an unredacted basis;
 - (2) in respect of the information referred to in **paragraph (i)** or for which consent is obtained under **paragraph (ii)(A)**, on an unredacted basis; and
 - (3) in respect of the information that does not satisfy **paragraph (i)** or for which consent is not obtained under **paragraph (ii)(A)**:
 - to the extent possible on an unredacted basis but aggregated so as to avoid disclosing the information that is confidential and unable to be disclosed; and
 - to the extent not possible, on a redacted basis.
- (g) Aurizon Network must use reasonable endeavours to agree to confidentiality obligations that:
- (i) do not prevent the disclosure of the information in respect of the Capacity Deficit; and
 - (ii) permit disclosure of information required by this Undertaking,
- but
- (iii) in any event, must not agree to any confidentiality obligations that prevent disclosure to the QCA,
- provided that Aurizon Network will be deemed to have complied with its obligations under this **clause 7.6(g)** if it has requested during the negotiation of an Access Agreement that the Access Seeker agrees to confidentiality obligations in accordance with **clause 7.6(g)(i)** and

- clause 7.6(g)(ii)**, whether or not the Access Seeker actually agrees to the inclusion of such obligations in the Access Agreement.
- (h) Nothing in this ~~clause 7A.4.3~~ **clause 7A.4.5** affects or limits Aurizon Network's obligations or liabilities in respect of an Access Agreement or any other agreement entered into in accordance with this Undertaking.

~~7A.4.4~~ **7A.4.5** *Expert engagement*

Where this **clause 7A.4.5** requires Aurizon Network to engage an appropriately qualified and experienced expert, the following provisions apply:

- (a) the expert must:
- (i) act independently;
 - (ii) give an undertaking to Aurizon Network to act independently of all relevant persons (including Aurizon Network and any individual Access Seeker, Access Holder, Customer or Train Operator);
 - (iii) have no interest or duty which conflicts or may conflict with its function;
 - (iv) not be an employee of Aurizon Network or a Related Party of Aurizon Network;
 - (v) have regard to the provisions of this Undertaking and consider all submissions made to it by Aurizon Network or any Access Seeker, Access Holder, Customer or Train Operator on a timely basis;
 - (vi) give an undertaking to Aurizon Network and the QCA to keep confidential and not use for another purpose all information and other matters coming to its knowledge by reason of its appointment and performance of its ~~audit~~ review;
 - (vii) provide a draft ~~audit~~ review report in respect of the expert's assessment to Aurizon Network and the QCA for consideration within a timeframe agreed between the Aurizon Network and the expert, and consider any reasonable submissions made by either Aurizon Network or QCA in a timely manner; and
 - (viii) provide a final ~~audit~~ review report in respect of the expert's assessment to Aurizon Network and the QCA within a timeframe agreed between Aurizon Network and the expert;
- ~~(b) the expert must audit the Preliminary Capacity Assessment Report, Aurizon Network's modelling process used to prepare it and the associated modelling, and:~~

- ~~(i) shall opine as to whether the input parameters in the applicable modelling are:

 - ~~(A) consistent with the requirements of existing Access Agreements, all relevant Laws, UT5 (including Network Management Principles), any relevant System Rules and the System Operating Parameters; and~~
 - ~~(B) correctly applied as part of Aurizon Network's modelling process;~~~~
- ~~(ii) shall opine as to whether the Preliminary Capacity Assessment Report:

 - ~~(A) appropriately and correctly reflects the outcome of modelling that uses the input parameters referred to in clause 7.6(b)(i)(A) in accordance with Aurizon Network's modelling process; and~~
 - ~~(B) is otherwise complete and accurate; and~~~~
- ~~(iii) if and to the extent that the expert does not opine in the affirmative in any of clauses 7.6(b)(i) and 7.6(b)(ii), it shall specify each applicable issue in its report and provide a brief recommendation as to how it should be addressed.~~
- (b) the expert may request Aurizon Network to run any scenarios that the expert reasonably considers it necessary for the purpose of its ~~audit, and~~ review including providing information required to enable:
 - (i) a review of the validity of assumptions and, if appropriate, making changes to assumptions used in Capacity Assessments and any Capacity Assessment modelling;
 - (ii) a review to ensure that the modelling assumptions are applied correctly; or
 - (iii) identification of, and effects of, significant changes since the previous Capacity Assessment (where appropriate); and
- (c) Aurizon Network must:

- (i) provide to the expert any information that is reasonably necessary for the expert to perform its ~~audit~~review; and
- (ii) run all scenarios requested under **clause 7.6(b)** by the expert and provide the expert with transparency as to Aurizon Network's modelling process, the associated modelling and the outcomes of those requested scenarios.

Suggested drafting amendments in relation related definitions

Baseline Capacity Assessment Report	The report entitled Baseline Capacity Assessment Report published by the QCA under the 2016 Undertaking in accordance with clause 7A.4.1(a) <u>The meaning given to that term in clause 7A.4.1(a)(ii), as amended under clause 7A.4.1(e), if applicable,</u> of the 2016 Undertaking.
Alternative Baseline Capacity Assessment Report	The report entitled Alternative Baseline Capacity Assessment Report, if any, published by the QCA under the 2016 Undertaking in accordance with clause 7A.4.1(f) of the 2016 Undertaking <u>The meaning given to that term in clause 7A.4.1(f) of the 2016 Undertaking.</u>

Suggested drafting amendment to include new transitional provision as 12.4(g)

- (g) Despite any other provision of this clause 12.4, if the Baseline Capacity Assessment process under clause 7A.4.1 of the 2016 Undertaking is not complete as at the Terminating Date of the 2016 Undertaking, such that there is no Baseline Capacity Report or Alternative Baseline Capacity Report published by the QCA at

APPENDIX L: PROPOSED AMENDMENTS TO PART 8

This appendix provides the QCA's suggested drafting amendments in relation to Part 8 of Aurizon Network's 2017 DAU (see Chapter 18 of this draft decision).

Suggested drafting amendments in relation to Part 8.7.1 of the 2017 DAU

8.7 Funding an Expansion

8.7.1 General

- (a) ~~Subject~~ ~~if Aurizon Network provides notice under Clause 8.7.1(c)(ii) that it is not willing to fund an Expansion, or is willing to do so only with Access Conditions, then an Access Seeker may~~ subject to this clause 8.7 and clause 8.8, an Access Seeker may fund its relevant portion of the cost of ~~an~~the Expansion that is necessary to create additional Capacity so that Access Rights may be granted to Access Seekers and Aurizon Network must agree to the Access Seeker funding its portion of the cost even if Aurizon Network is willing to fund the Expansion, with or without Access Conditions.
- (b) For clarity, any obligation on Aurizon Network to construct or permit an Expansion is subject to **clause 8.2.1(c)**.
- (c) Aurizon Network will:
- (i) provide an indication by initial notice to the Pre-feasibility Funders (**Indicative Funding Notice**) within ten (10) Business Days after the relevant Studies Funding Agreements become unconditional of whether, indicating one of the three following intentions:
- (A) Aurizon Network is likely to be willing to fund the Expansion without Access Conditions;
- (B) Aurizon Network is likely to not be willing to fund the Expansion; or
- (C) Aurizon Network is likely to be willing to fund the Expansion with Access Conditions and if so also provide those Access Conditions; and
- (ii) confirm by ~~provide a further~~ notice (**Definitive Funding Notice**) to the Feasibility Funders within forty (40) Business Days after the relevant Studies Funding Agreements become unconditional, ~~notifying one of the three following decisions:~~
- (A) whether Aurizon Network has changed its position as set out in its notice under clause 8.7.1(c); and is willing to fund the Expansion without Access Conditions;

- (B) ~~if Aurizon Network is willing to fund the Expansion, the Access Conditions (if any) on which Aurizon Network is willing to fund the Expansion not willing to fund the Expansion; or~~
- (C) ~~Aurizon Network is willing to fund the Expansion with Access Conditions, in which case the Final Funding Notice will specify the indicative Access Conditions on which Aurizon Network is willing to fund the Expansion.~~
- (d) If Aurizon Network has not given a ~~Definitive Funding Notice~~notice under ~~clause 8.7.1(c)(ii) or clause 8.2.1(b)~~ then (for the purpose of Access Seekers commencing the processes under ~~clause 8.8.1(a)~~) Aurizon Network is deemed ~~not to be to have given a Definitive Funding Notice under Clause 8.7.1(c)(ii)(B) stating that it is not~~ willing to fund the Expansion.
- (e) If Aurizon Network has given a ~~notice~~Definitive Funding Notice under ~~either clause 8.7.1(c)(ii)(C) or 8.7.1(c)(ii)(B)~~ and the relevant Access Seeker is willing to negotiate, then ~~clause 6.13~~ will apply to the terms on which Aurizon Network ~~will fund~~has indicated it is willing to fund the Expansion.
- (f) Where Aurizon Network has ~~, or is deemed to have,~~ given a ~~notice~~Definitive Funding Notice under ~~clause 8.7.1(c)(ii)(B), or has given a Definitive Funding Notice under clause 8.7.1(c)(ii)(C),~~ an Access Seeker may require Aurizon Network to negotiate a User Funding Agreement for the Expansion in parallel to any other negotiations.
- (g) ~~Clause 8.7.1(c)~~ does not prevent Aurizon Network from subsequently notifying relevant parties of whether Aurizon Network is willing to fund the Expansion. Any notice under this ~~clause 8.7.1(g)~~ does not prevent Access Seekers from pursuing User Funding in preference to the proposal from Aurizon Network for it to fund the Expansion.
- (h) Where Aurizon Network is obliged under this Undertaking to fund an Expansion, Aurizon Network must negotiate an Access Agreement in accordance with this Undertaking with those Access Seekers that will utilise the Expansion.
- (i) It is acknowledged that if an Expansion is funded partly by Expansion Funders and partly by Aurizon Network, the terms of the SUFA ~~or the Revised Standard User Funding Agreement (as applicable)~~ to be entered into by the Expansion Funders may require amendment to ensure Aurizon Network is in no worse

taxation or accounting position than if the Expansion Funders funded the entire Expansion.

- (j) Where Aurizon Network is:
- (i) granting a Provisional Capacity Allocation under **clause 8.5(b)**; or
 - (ii) negotiating or entering into an Access Agreement,
- Aurizon Network may consider whether any relevant Expansion is or may be a User Funded Expansion or is or may be funded by Aurizon Network, only to the extent permitted by the Act and this Undertaking.

Suggested drafting amendments relating to Part 8.8 of the 2017 DAU

Part 8.8 of the 2017 DAU

8.8 User Funded Expansions

8.8.1 *Process where Users intend to fund an Expansion*

- (a) If an Access Seeker intends to fund its relevant portion of the cost of an Expansion under clause 8.7.1:
- (i) each proposed Expansion Funder must give notice to Aurizon Network of its bona fide intention to negotiate a User Funding Agreement for its relevant portion of the cost of the Expansion;
 - (ii) after receiving such notice, Aurizon Network and the proposed Expansion Funders will negotiate in good faith a User Funding Agreement;
 - (iii) if required by the proposed Expansion Funder, an entity other than an Access Seeker or Access Holder (or its Customer) may be the Preference Unit Holder under the User Funding Agreement in respect of that Access Seeker or Access Holder's portion of the cost of the Expansion;
 - (iv) the User Funding Agreement must be in the form of the Standard User Funding Agreement ([if the Revised Standard User Funding Agreement does not apply](#)) or [the Revised Standard User Funding Agreement](#) unless otherwise agreed by Aurizon Network and the proposed Expansion Funders (in which case, any amendments proposed to those terms must be negotiated by both Aurizon Network and the Expansion Funder acting reasonably and in good faith);
 - (v) Aurizon Network must provide the proposed Expansion Funders with relevant scope and cost information (clarity, nothing in this **clause 8.8.1(a)(v)** requires Aurizon Network to disclose any information that is commercially sensitive to the Aurizon Group); and
 - (vi) upon the User Funding Agreement being agreed by Aurizon Network and the Expansion Funders, or its terms being determined through dispute resolution, in accordance with this Undertaking:
 - (A) Aurizon Network will issue the proposed User Funding Agreement to the proposed Expansion Funders and other relevant parties (for example, the State, if applicable), as applicable; and

- (B) Aurizon Network will execute the User Funding Agreement in accordance with its requirements.
- (b) Aurizon Network will use reasonable endeavours to procure the State to enter into a User Funding Agreement.

8.8.2 *Inconsistency with a User Funding Agreement*

To the extent of any inconsistency, but except for **clauses 8.9.3 and 8.9.4**, the terms of an executed User Funding Agreement prevail over the terms of this Undertaking as between Aurizon Network and the Expansion Funders (and their Customers, if relevant).

8.8.3 *Development and review of the SUFA*

- (a) Within three (3) Months after the Approval Date, Aurizon Network must submit to the QCA:
 - (i) a ~~Proposed~~ Standard User Funding Agreement based on:
 - (A) the standard user funding agreement developed and submitted to the QCA for approval under the 2016 Undertaking and approved by the QCA (UT4 SUFA); or
 - (B) If there is no UT4 SUFA, then the most recent standard user funding agreement developed and submitted to the QCA for approval under the 2016 Undertaking, taking into account any decision made by the QCA in respect of that document; and

[Note: Provisions and related definitions subject to UT4 SUFA progress.]

- ~~(ii) a draft amending access undertaking incorporating amendments to this Undertaking it considers reasonably necessary.~~
- ~~(b) The QCA will consider a Proposed Standard User Funding Agreement given to it by Aurizon Network under clause 8.8.3(a) and either approve or refuse to approve it within sixty (60) Business Days after it is received by the QCA or such further period as the QCA may determine.~~
- ~~(c) If the QCA refuses to approve a Proposed Standard User Funding Agreement submitted under clause 8.8.3(a), the QCA will give Aurizon Network a notice in writing:

 - ~~(i) stating the reasons for its refusal; and~~~~

- (ii) requiring Aurizon Network to amend the Proposed Standard User Funding Agreement in the way the QCA considers appropriate and to resubmit the amended Proposed Standard User Funding Agreement to the QCA within sixty (60) Business Days after giving of that notice or such further period as the QCA may in its absolute discretion determine.
- (d) The QCA may develop a Proposed Standard User Funding Agreement that is consistent with the Undertaking, if:
- (i) Aurizon Network does not submit a Proposed Standard User Funding Agreement in accordance with **clause 8.8.3(a)**;
 - (ii) Aurizon Network does not re-submit the Proposed Standard User Funding Agreement in accordance with **clause 8.8.3(c)**; or
 - (iii) the QCA refuses to approve a Proposed Standard User Funding Agreement that was re-submitted in accordance with **clause 8.8.3(c)**.
- (e) The QCA may approve a Proposed Standard User Funding Agreement (including a Proposed Standard User Funding Agreement developed by the QCA) only if the QCA ~~must assess the proposed Standard User Funding Agreement and draft amending access undertaking in accordance with Section 142 of the Act.~~
- (i) is satisfied that, in the case of a resubmitted Proposed Standard Funding Agreement, it is in accordance with the notice given under **clause 8.8.3(c)**;
 - (ii) is satisfied that the Proposed Standard Funding Agreement is consistent with this Undertaking;
 - (iii) considers it is appropriate to do so having regard to the matters listed in section 138(2) of the Act, and
- ~~(b)(iv) has complied with **clause 8.8.3(f)**.~~
- ~~(c) If Aurizon Network does not make any submission under **clause 8.8.3(a)** within the applicable timeframe then the QCA may commence the process under Division 7 of Part 5 of the Act, including section 139 and 141, in the manner contemplated by the Act~~
- (f) Where Aurizon Network submits a Proposed Standard User Funding Agreement under **clause 8.8.3(a)** or the QCA develops a Proposed Standard User Funding Agreement under **clause 8.8.3(d)**, the QCA will:
- (i) publish the Proposed Standard User Funding Agreement on its website;

- (ii) invite persons to make submissions on the Proposed Standard User Funding Agreement to the QCA within a reasonable period of time as specified by the QCA; and
 - (iii) consider any submission it receives within the time specified.
 - (g) If the QCA approves a Proposed Standard User Funding Agreement:
 - (i) the Revised Standard User Funding Agreement will apply from the date of the QCA decision, or such later date that the QCA determines;
 - (ii) the QCA will give Aurizon Network a notice in writing stating the reasons for its decision; and
 - (iii) Aurizon Network must publish the Revised Standard User Funding Agreement on its website.
 - (h) An approved Revised Standard User Funding Agreement which was submitted in accordance with clause 8.8.3(a) or resubmitted in accordance with clause 8.8.3(c) may only be withdrawn by Aurizon Network if approved by the QCA.
 - ~~(d)~~(i) Promptly after executing the first User Funding Agreement in the form of the SUFA (or the Revised Standard User Funding Agreement if that agreement applies in accordance with clause 8.8.3(g)), (or in the event that Aurizon Network and the relevant Access Seekers are unable to agree on any User Funding Agreement for execution after at least one hundred and twenty (120) Business Days of good faith negotiations), Aurizon Network will:
 - (i) undertake a review of the SUFA or Revised Standard User Funding Agreement (as the case may be) including having regard to any principles developed for such reviews by Aurizon Network in consultation with industry participants; and
 - (ii) consult with the relevant Access Seekers about the workability of the SUFA or the Revised Standard User Funding Agreement (as the case may be) for User Funding,
- and, after doing so:
- (iii) submit to the QCA any amendments that Aurizon Network (acting reasonably) considers will improve the workability of the SUFA or the Revised Standard User Funding Agreement (as the case may be), in which case clauses 8.8.3(b) to (h) will apply but with references to clause 8.8.3(a) being read as references

- ~~to this clause 8.8.3(i)(iii) in the form of a draft amending access undertaking; or~~
- (iv) if Aurizon Network (acting reasonably) considers no amendments are required, Aurizon Network must make a submission to the QCA giving detailed written reasons for that belief.
- ~~(e) The QCA must consider any draft amending access undertaking submitted by Aurizon Network under clause 8.8.3(d)(iii) in accordance with section 142 of the Act.~~
- ~~(f) If:~~
- ~~(i) Aurizon Network does not make any submission under clause 8.8.3(d) within the timeframe specified; or~~
- ~~(ii) the QCA disagrees with Aurizon Network's reasons provided for not amending the SUFA,~~
- ~~then:~~
- ~~(iii) the QCA must notify Aurizon Network of the reasons for its disagreement (as applicable) with any response provided by Aurizon Network under clause 8.8.3(d)(iv); and~~
- ~~(iv) the QCA may commence the process under Division 7 of Part 5 of the Act, including section 139 and 141, in the manner contemplated by the Act~~
- ~~(g)(i) Nothing in this clause 8.8.3 prevents Aurizon Network from submitting to the QCA for approval proposed amendments to the SUFA or the Revised Standard User Funding Agreement (as the case may be) it considers necessary to improve its workability, even if the QCA has previously refused to accept proposed amendments in relation to the SUFA or the Revised Standard User Funding Agreement.~~

Part 8.2.1(c)(iv) of the 2017 DAU

- (iv) unless otherwise agreed by Aurizon Network, the Expansion (whether or not funded in whole or part by a person other than Aurizon Network) is or will be leased from the State, an Authority or a trustee as contemplated by SUFA or the Revised Standard User Funding Agreement (as the case may be) or owned, and in either case operated, by Aurizon Network.

Part 8.2.2(a)(iii) of the 2017 DAU

- (iii) the completion of schedules in a User Funding Agreement, where the relevant User Funding Agreement is in the form of a SUFA or the Revised Standard User Funding Agreement if it applies;

Suggested drafting amendments in relation related definitions

<u>Proposed Standard User Funding Agreement</u>	<u>A proposed pro forma User Funding Agreement based on the agreement referred to in clause 8.8.3(a)(i)(A) or (B), or as developed by the QCA pursuant to clause 8.8.3(d), as the case may be.</u>
-------------------------------------------------	----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

<u>Revised Standard User Funding Agreement</u>	<u>The standard form User Funding Agreement approved by the QCA under clause 8.8.3(f).</u>
------------------------------------------------	--------------------------------------------------------------------------------------------

User Funding Agreement

An agreement, or a number of related agreements, to which Aurizon Network is a party under which, among other things, Access Seekers (and/or their Customers) agree to provide funding for the construction of an Expansion (including agreements in the form of the Standard User Funding Agreement or the Revised Standard User Funding Agreement, as the case may be).

Suggested drafting amendments in relation to Part 8.9.3 of the 2017 DAU

8.9.3 Capacity shortfall

- (a) If Aurizon Network's assessment under **clause 8.9.2** indicates that there is a Capacity Shortfall in relation to Conditional Access Holders, then:
- (i) Subject always to clause 8.9.3(a)(iii), the Conditional Access Rights of each Conditional Access Holder are proportionally reduced in accordance with this Undertaking or as agreed by all affected Conditional Access Holders; ~~and~~
 - (ii) subject to clause 8.9.3(a)(iii) and to clause 8.9.3(b), where those Conditional Access Rights are reduced, each Conditional Access Holder will be deemed to have lodged an Access Application with Aurizon Network for Access Rights equivalent to that reduction if they notify Aurizon Network within twenty (20) Business Days after the reduction occurs that they wish to seek Access Rights equal to that reduction; ~~and~~
 - ~~(ii)~~ (iii) Where an Expansion has been fully funded by Conditional Access Holders, to the extent that a Capacity Shortfall arises following any default of Aurizon Network under relevant User Funding Agreements or Access Agreements or arises due to

any negligent act or omission of Aurizon Network, Aurizon Network will be liable to each relevant Conditional Access Holder for any loss or damage suffered or incurred by that Conditional Access Holder resulting from the Capacity Shortfall to the extent such loss or damage was within the reasonable contemplation of the parties or reasonably foreseeable at the time of entry into the relevant agreements or in the case of negligence (if any), at commencement of construction of the Expansion. Aurizon Network will only be liable to the extent that such loss or damage is attributable to the breach or negligence of Aurizon Network.

- (b) For the purpose of a Conditional Access Holder's Access Application under **clause 8.9.3(a)**:
- (i) the Access Application is taken to be on the same terms as the previous Access Application made by that Conditional Access Holder for those Conditional Access Rights but only to the extent that its Conditional Access Rights have been reduced in accordance with its Access Agreement as a result of the Capacity Shortfall;
 - (ii) Aurizon Network and the Conditional Access Holder are taken to have complied with **clauses 4.2 to 4.4(b) and 4.8(a) to 4.8(c)**; and
 - (iii) **clause 4.8** applies to the Access Application.
- (c) If there is a Capacity Shortfall, Aurizon Network must meet affected Access Holders and discuss with them the available options to address that Capacity Shortfall. Aurizon Network must act reasonably in determining available options.
- (d) If Aurizon Network and affected Access Holders consider that an Expansion is the best option to address any Capacity Shortfall, then:
- (i) This Part 8 will apply to that Expansion;
 - (ii) Aurizon Network must give the affected Access Holders a priority allocation of Capacity in an existing or future process for the scoping and funding of a related Expansion that can be utilised to address the Capacity Shortfall; and
 - (iii) Aurizon Network must act reasonably and negotiate with the affected Access Holders the terms of a funding arrangement for that Expansion.

APPENDIX M: PROPOSED AMENDMENTS TO PART 9

This appendix provides the QCA's suggested drafting amendments in relation to Part 9 of Aurizon Network's 2017 DAU (see Chapter 19 of this draft decision).

Part 9: Connecting Private Infrastructure

9.1 Connecting Infrastructure

- (a) The Private Infrastructure Owner must give Aurizon Network a written proposal for the proposed connection to the Rail Infrastructure. The written proposal must provide reasonably sufficient details about the proposed connection to allow it to be properly assessed by Aurizon Network against the criteria in **clause 9.1(b)** and for development of a Rail Connection Agreement.
- (b) Within two (2) Months (or such longer period as may be agreed between Aurizon Network and the Private Infrastructure Owner) of receiving the written proposal, Aurizon Network must assess the proposal, acting reasonably and in good faith, and decide whether or not it meets the following criteria:
 - (i) the proposed Connecting Infrastructure is for the purpose of connecting to the Rail Infrastructure in order to allow Trains operating on that Private Infrastructure to enter or exit from the Rail Infrastructure for the purpose of Access;
 - (ii) the proposed Connecting Infrastructure will meet the technical specifications required by Aurizon Network (acting reasonably) for connection to the Rail Infrastructure;
 - (iii) the proposed Connecting Infrastructure is to be constructed to a standard appropriate to the nature of the traffic and the current service standards of the adjoining Rail Infrastructure (including any planned or anticipated Expansion);
 - (iv) the proposed Connecting Infrastructure will not adversely impact on safety; and
 - (v) the proposed Connecting Infrastructure will not, after completion and commissioning of the proposed connection and any related Expansion, reduce Capacity or Supply Chain Capacity.
- (c) Connecting Infrastructure must be owned by Aurizon Network or, where Aurizon Network holds the Rail Infrastructure of which that Connecting Infrastructure will form a part under a lease, must be included under that lease as part of the leased infrastructure.
- (d) Within five (5) Business Days of making its decision under **clause 9.1(b)**, Aurizon Network must notify the Private Infrastructure Owner and the QCA of that decision.

- (e) If Aurizon Network decides the proposal meets the criteria under **clause 9.1(b)**, then within two (2) Months of notifying the Private Infrastructure Owner under **clause 9.1(d)**, Aurizon Network must agree with the Private Infrastructure Owner the timeframes within which Aurizon Network (acting reasonably) will:
- (i) enter into a Rail Connection Agreement with the Private Infrastructure Owner;
 - (ii) design and construct any Connecting Infrastructure;
 - (iii) commission any Connecting Infrastructure; and
 - (iv) complete any other matters Aurizon Network and the Private Infrastructure Owner consider necessary,
- (each a **Connection Milestone**) which must be supported by reasons explaining the length of the timeframe selected by Aurizon Network.
- (f) Aurizon Network and the Private Infrastructure Owner may agree to delay setting the Connection Milestones under **clause 9.1(e)** until an Access Agreement which requires the proposed connection to the Rail Infrastructure to be completed has been entered into between the parties.
- (g) Within five (5) Business Days of reaching agreement under **clause 9.1(e)** or agreeing under **clause 9.1(f)** to delay setting the Connection Milestones, Aurizon Network must notify the QCA of either each Connection Milestone (and the reasons supporting each Connection Milestone) or the decision to delay.
- (h) Where Aurizon Network decides that the criteria set out in **clause 9.1(b)** are, or will be, satisfied and that **clause 9.1(c)** will be complied with, it must permit the connection of the Private Infrastructure to the Rail Infrastructure subject to:
- (i) Aurizon Network and the Private Infrastructure Owner entering into a [Rail Connection Agreement in the form of the Standard Rail Connection Agreement \(if the Revised Standard Rail Connection Agreement does not apply\) or the Revised Standard Rail Connection Agreement](#) (unless the Private Infrastructure Owner agrees with Aurizon Network to vary the terms of the Standard Rail Connection Agreement [or Revised Standard Rail Connection Agreement](#), in which case any amendments proposed to those terms must be negotiated by both Aurizon Network and the Private Infrastructure Owner acting reasonably and in good faith [and this will be a negotiation of a Standard Agreement for the purposes of clause 11.1.1\(a\)\(iii\)](#));
 - (ii) Aurizon Network gaining access, on terms acceptable to Aurizon Network (acting reasonably and in good

- faith), to the land necessary to construct, operate, use and maintain the Connecting Infrastructure; and
- (iii) Aurizon Network and the Private Infrastructure Owner or any other relevant person entering into any other agreements in relation to:
- (A) the design, construction, project management or commissioning of the Connecting Infrastructure; or
 - (B) other works relating to the proposed connection,
- required under the Rail Connection Agreement or any Law.
- (i) If Aurizon Network decides, acting reasonably and in good faith:
- (i) in accordance with **clause 9.1(b)**, that the criteria set out in **clause 9.1(b)** have not been satisfied; and
 - (ii) to refuse to enter into a Rail Connection Agreement as a result,
- then Aurizon Network must, within five (5) Business Days of making its decision:
- (iii) notify the Private Infrastructure Owner and the QCA of its decision if it has not already done so under **clause 9.1(d)**;
 - (iv) provide reasons for its decision to the Private Infrastructure Owner and the QCA; and
 - (v) specify the amendments it requires to be made to the Private Infrastructure Owner's proposal in order to satisfy the criteria in **clause 9.1(b)** and to enable Aurizon Network to enter into a Rail Connection Agreement.
- (j) If a Private Infrastructure Owner is notified by Aurizon Network under **clause 9.1(i)(iii)**, the Private Infrastructure Owner may re-submit its proposal to Aurizon Network under **clause 9.1(a)**, in which case Aurizon Network must recommence the assessment and decision-making process under **clause 9.1(a)**.
- (k) If connection of the Private Infrastructure to the Rail Infrastructure is permitted under this **clause 9.1**, then unless otherwise agreed with the Private Infrastructure Owner, Aurizon Network:
- (i) must be responsible for designing, constructing, project managing and commissioning the Connecting Infrastructure;

- (ii) must do so in accordance with the relevant Rail Connection Agreement, Construction Agreement and any other relevant agreement without unreasonable delay;
 - (iii) is entitled to payment for that design, construction, project management and commissioning consisting only of reimbursement of its efficient costs which directly relate to the Connecting Infrastructure, but to the extent only that such costs have not, or will not be, included in the Regulatory Asset Base or recovered by Aurizon Network through other means under this Undertaking; and
 - (iv) must not in the technical specifications required by Aurizon Network for connection to the Rail Infrastructure, require higher standards for the design or construction than those required under the relevant legislation and Safety Standards.
- (I) Aurizon Network must pay all reasonable costs (excluding Consequential Loss) incurred by the Private Infrastructure Owner arising directly out of Aurizon Network's unreasonable delay in:
- (i) entering into:
 - (A) a Rail Connection Agreement;
 - (B) an agreement relating to the design and construction, project management and/or commissioning of any Connecting Infrastructure required under the Rail Connection Agreement or any Law; and
 - (C) an agreement relating to any other works required for the connection or proposed connection under the Rail Connection Agreement or any Law;
 - (ii) designing and constructing any Connecting Infrastructure;
 - (iii) commissioning any Connecting Infrastructure; and
 - (iv) completing any other matters that Aurizon Network and the Private Infrastructure Owner consider necessary.

For the purposes of this **clause 9.1(I)**, "Consequential Loss" means:

- (v) loss of revenue, loss of profits, or loss of production;
 - (vi) loss of whatever nature concerning supply of product from a mine to any third party or to make product available to transport;
 - (vii) loss of business opportunities;
 - (viii) loss of or damage to reputation or good will;
 - (ix) wasted overheads;
 - (x) loss of or damage to credit rating; and
 - (xi) loss or damage that does not naturally, according to the usual course of things, flow from the delay.
- (m) In **clause 9.1(l)**, "unreasonable delay" includes, but is not limited to, Aurizon Network's failure to comply with a Connection Milestone, except to the extent that Aurizon Network's failure to meet the Connection Milestone is a direct result of an event or factor outside Aurizon Network's reasonable control.
- (n) Without limiting **clause 11.1.1**, if the Private Infrastructure Owner and Aurizon Network cannot agree as to:
- (i) the negotiation of an agreement on the Connection Milestones under **clause 9.1(e)**;
 - (ii) whether either party has unreasonably delayed the formation of the agreements mentioned in **clause 9.1(l)(i)**; or
 - (iii) the amount of reasonable costs incurred by the Private Infrastructure Owner, the Access Seeker or Access Holder,
- any party may seek to resolve the Dispute in accordance with **Part 11**.
- (o) Nothing in this **Part 9** requires or obliges either Aurizon Network or the Private Infrastructure Owner to agree that the technical specifications or the completed construction of either the Private Infrastructure or any Connecting Infrastructure is required to the standards or condition for the design or construction of any relevant Rail Infrastructure (including any planned or anticipated Expansion).

9.2 Development of Standard Rail Connection Agreement

- (a) Following consultation with stakeholders, Aurizon Network will submit to the QCA a Proposed Standard Rail Connection Agreement within twelve (12) months after the Approval Date, or such further period as the QCA may, in its absolute discretion, determine.

- (b) The QCA will consider a Proposed Standard Rail Connection Agreement given to it by Aurizon Network under clause 9.2(a) and either approve or refuse to approve it within sixty (60) Business Days after it is received by the QCA or such further period as the QCA may determine.
- (c) If the QCA refuses to approve a Proposed Standard Rail Connection Agreement submitted under clause 9.2(a), the QCA will give Aurizon Network a notice in writing:
- (i) stating the reasons for its refusal; and
 - (ii) requiring Aurizon Network to amend the Proposed Standard Rail Connection Agreement in the way the QCA considers appropriate and to resubmit the amended Standard Rail Connection Agreement to the QCA within sixty (60) Business Days after the giving of that notice or such further period as the QCA may in its absolute discretion determine.
- (d) The QCA may develop a Proposed Standard Rail Connection Agreement that is consistent with the Undertaking, if:
- (i) Aurizon Network does not submit a Proposed Standard Rail Connection Agreement in accordance with clause 9.2(a);
 - (ii) Aurizon Network does not re-submit the Proposed Standard Rail Connection Agreement in accordance with clause 9.2(c); or
 - (iii) the QCA refuses to approve a Proposed Standard Rail Connection Agreement that was re-submitted in accordance with clause 9.2(c).
- (e) The QCA may approve a Proposed Standard Rail Connection Agreement (including a Proposed Standard Rail Connection Agreement developed by the QCA) only if the QCA:
- (i) is satisfied that, in the case of a resubmitted Proposed Standard Rail Connection Agreement, it is in accordance with the notice given under Clause 9.2(c);
 - (ii) is satisfied that the Proposed Standard Rail Connection Agreement is consistent with this Undertaking;
 - (iii) considers it appropriate to do so having regard to the matters listed in section 138(2) of the Act; and
 - (iv) has complied with clause 9.2(f).
- (f) Where Aurizon Network submits a Proposed Standard Rail Connection Agreement under clause 9.2(a) or the QCA develops

a Proposed Standard Rail Connection Agreement under clause 9.2(d), the QCA will:

- (i) publish the Proposed Standard Rail Connection Agreement on its website;
- (ii) invite persons to make submissions on the Proposed Standard Rail Connection Agreement to the QCA within a reasonable period of time specified by the QCA; and
- (iii) consider any submission it receives within the time specified.

(g) If the QCA approves a Proposed Standard Rail Connection Agreement:

- (i) the Revised Standard Rail Connection Agreement will apply from the date of the QCA decision, or such later date that the QCA determines;
- (ii) the QCA will give Aurizon Network a notice in writing stating the reasons for its decision; and
- (iii) Aurizon Network must publish the Standard Rail Connection Agreement on its website.

(h) An approved Standard Rail Connection Agreement which was submitted in accordance with clause 9.2(a) or resubmitted in accordance with this clause 9.2(c) may only be withdrawn by Aurizon Network if approved by the QCA.

(i) If the QCA considers it necessary to do so, the QCA may ask Aurizon Network to submit a replacement Standard Rail Connection Agreement within a reasonable period advised by the QCA, in which case clauses 9.2(b) to (h) will apply but with references to clause 9.2(a) being read as a reference to this clause 9.2(i).

~~Unless otherwise agreed between Aurizon Network and a proponent of infrastructure which is proposed to connect to Rail Infrastructure (but for which Aurizon Network will not be the Railway Manager), any Rail Connection Agreement entered pursuant to this Undertaking after a Standard Rail Connection Agreement has been approved must be consistent with the terms of the Standard Rail Connection Agreement.~~

Suggested drafting amendments in relation to related definitions

Standard Agreement	Any agreement that is in the form of a Standard Access Agreement, [Revised Standard Rail Connection Agreement] [Revised Standard User Funding Agreement] , Standard Rail Connection Agreement, Standard User Funding Agreement, Standard Studies Funding Agreement or Standard Train Operations Deed.
---------------------------	---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

Revised Standard Rail Connection Agreement	The standard form of Rail Connection Agreement approved by the QCA under clause 9.2(g).
-------------------------------------------------------------------	---------------------------------------------------------------------------------------------------------

APPENDIX N: PROPOSED AMENDMENTS TO PART 11

This appendix provides the QCA's suggested drafting amendments in relation to Part 11 of Aurizon Network's 2017 DAU (see Chapter 21 of this draft decision).

Part 11: Dispute Resolution and Decision Making

11.1 Dispute Resolution

11.1.1 Disputes

- (a) ~~Subject to clause 11.1.1(b), a~~ Any dispute (~~Dispute~~) arising ~~as between Aurizon Network and:~~
- ~~(i) as between Aurizon Network and a Prospective Access Seeker, Access Seeker or a Railway Operator in relation to: respect of the negotiation of a Standard Access Agreement or a Standard User Funding Agreement, an Access Seeker that is a proposed party to it;~~
 - ~~(A) the negotiation or grant of Access; or~~
 - ~~(B) the negotiation of a Train Operations Deed;~~
 - ~~(ii) in relation to the operation of, or anything required to be done or not done by Aurizon Network under this Undertaking; or~~
 - ~~(iii) in respect of any matters expressly required by this Undertaking to be resolved in accordance with this Part 11.~~
 - ~~(ii) in respect of the negotiation of a Standard Train Operations Deed, the Train Operator that is a proposed party to it;~~
 - ~~(iii) in respect of the negotiation of any other Standard Agreement, an Access Seeker, a Customer or a Train Operator that is a proposed party to it; and~~
 - ~~(iv) in all other respects relating to the negotiation or grant of Access, an Access Seeker or a Prospective Access Seeker,~~
- ~~provided the dispute is not vexatious or an abuse of process (Dispute),~~ must be resolved in accordance with this Part 11 and any party to the Dispute may give to the other party or parties a Dispute Notice.
- (b) ~~For clarity, any Dispute in relation to the entry into and completion of schedules for any Standard Agreement, or agreement substantially in the form of a Standard Agreement, is a Dispute for the purpose of clause 11.1.1(a) and must be resolved in accordance with this Part 11.~~ Notwithstanding clause 11.1.1(a), a dispute regarding a party refusing to vary the terms of a Standard Agreement:
- (i) ~~for coal carrying Train Services~~ is not a Dispute; ~~and~~

- (ii) to reflect the fact that the Access is for non-coal carrying Train Services is a Dispute.
- for the purpose of **clause 11.1.1(a)**.
- (c) Unless otherwise agreed by the parties in writing, any disputes arising in respect of any right or obligation under (or the enforcement of) an Access Agreement, a Train Operations Deed, a Studies Funding Agreement, a User Funding Agreement or a Rail Connection Agreement must be dealt with in accordance with the provisions of that agreement (even if the Dispute relates to provisions included in that agreement that are similar to, required by, or inconsistent with this Undertaking) and are not to be dealt with under this Undertaking.
- (d) For the avoidance of doubt, disputes between parties to an Access Agreement, a Train Operations Deed, a Studies Funding Agreement, a User Funding Agreement or a Rail Connection Agreement may be dealt with under this Undertaking to the extent the dispute does not relate to any right or obligation under (or the enforcement of) the Access Agreement, the Train Operations Deed, the Studies Funding Agreement, the User Funding Agreement or the Rail Connection Agreement.
- ~~(d)~~(e) For the purposes of this **clause 11.1**, where:
- (i) a Dispute involves a Prospective Access Seeker, Access Seeker, Access Holder or Customer who is not also a Railway Operator; or
 - (ii) a Dispute involves a Railway Operator,
- then:
- (iii) either Aurizon Network or the other initial party to the Dispute ~~(each an Inviting Party)~~ must~~may~~ provide the relevant Railway Operator(s) (where **paragraph (i)** applies) or the relevant Prospective Access Seeker, Access Seeker, Access Holder or Customer (where **paragraph (ii)** applies) ~~(each an Invited Party)~~ with a copy of the Dispute Notice in connection with the Dispute; and
 - ~~(iv)~~ ~~the Inviting Party may invite the Invited Party to participate in the Dispute if the Inviting Party is of the reasonable opinion that the Dispute, or the outcome or consequences of the Dispute, may be relevant to the Invited Party; and~~
 - ~~(v)~~(iv) any such Prospective Access Seeker, Access Seeker, Access Holder, Customer or Railway Operator, as applicable, Invited Party may elect, by giving notice to Aurizon Network and the other parties to the Dispute within five (5) Business Days after receiving the

Dispute Notice under **clause 11.1.1(e)(iii)** ~~and the invitation under clause 11.1.1(d)(iv)~~, to become a party to the Dispute for the purposes of **clauses 11.1.2 to 11.1.6**, provided the joinder to the Dispute is not vexatious or an abuse of process.

- ~~(e)(f)~~ All parties to, and other persons involved in resolving, a Dispute must use reasonable endeavours to facilitate the resolution of the Dispute in a timely manner.
- ~~(f)~~ **Section 122 of the Act will apply to all Disputes to which this Part 11 applies.**

11.1.2 Chief executive resolution

- (a) Unless otherwise agreed in writing by the parties to the relevant Dispute, any Dispute must, within five (5) Business Days of the receipt of a Dispute Notice, be referred in the first instance to each party's chief executive (or his or her nominee) for resolution.
- (b) Within ten (10) Business Days after a Dispute Notice is given (or as agreed in writing by the parties to the relevant Dispute), the chief executive (or his or her nominee) of each party referred to in **clause 11.1.2(a)** must meet to resolve the Dispute.
- (c) All communications between the parties to a Dispute, including by, to or through each party's chief executive (or his or her nominee), as part of an attempt to resolve the Dispute under this **clause 11.1.2** are made on a without prejudice and confidential basis.
- (d) Where the Dispute is resolved under this **clause 11.1.2**, Aurizon Network must promptly notify the QCA of the resolution and provide a copy of that notice to the other parties to the Dispute.
- (e) If the Dispute is not resolved within ten (10) Business Days after the chief executive (or his or her nominee) of each party first meet in accordance with **clause 11.1.2(b)**, the parties may agree to refer the Dispute to:
- (i) mediation to be resolved in accordance with **clause 11.1.3**;
 - (ii) an expert to be resolved in accordance with **clause 11.1.4**; or
 - (iii) the QCA to be resolved in accordance with **clause 11.1.5**,

and, failing agreement under this **clause 11.1.2(e)** within fifteen (15) Business Days after the chief executive (or his or her nominee) of each party first meet in accordance with **clause 11.1.2(b)**, any party may refer the Dispute to the QCA to be resolved in accordance with **clause 11.1.5**.

11.1.3 *Mediation*

- (a) If the parties agreed to refer the relevant Dispute to mediation, then the mediation must be administered by the Australian Commercial Disputes Centre (ACDC) in accordance with ACDC's guidelines for mediation. The costs charged by ACDC for the mediation must be borne equally by the parties and each party must bear its own costs of preparing for and attending the mediation.
- (b) All communications made between the parties to a Dispute, including to or through the mediator, as part of an attempt to resolve the Dispute under this **clause 11.1.3** are made on a without prejudice and confidential basis.
- (c) Where mediation resolves the Dispute, the resolution must be documented in writing and signed by the parties to the Dispute. The mediator must provide a copy of the agreement by which the Dispute was resolved to the QCA. If the mediator fails to do so, Aurizon Network must provide a copy of the agreement to the QCA.
- (d) If the matter is referred to mediation under **clause 11.1.3(a)** and either:
 - (i) the mediator notifies the parties to the mediation that the mediator considers:
 - (A) the parties to the relevant mediation cannot achieve a mediated resolution of the Dispute; or
 - (B) a party to the relevant mediation has failed to participate in the mediation process in good faith; or
 - (ii) mediation fails to resolve the Dispute within four (4) Months after the matter is referred to mediation under **clause 11.1.3(a)**,

then the parties may agree to refer the Dispute to:

- (iii) an expert to be resolved in accordance with **clause 11.1.4**; or
- (iv) the QCA to be resolved in accordance with **clause 11.1.5**,

and, failing agreement under this **clause 11.1.3(d)** within five (5) Business Days after the notification under **clause 11.1.3(d)(i)** or after the expiry of the period under **clause 11.1.3(d)(ii)**, whichever is relevant, any party may refer the Dispute to the QCA to be resolved in accordance with **clause 11.1.5**.

11.1.4 Expert determination

- (a) Where: ~~the parties to a Dispute agree to refer a matter to an expert for determination, the Dispute must be referred to the expert for determination in accordance with this clause 11.1.4.~~
- (i) ~~the parties to a Dispute agree to refer a matter to an expert for determination, and~~
- (ii) ~~the Dispute is referred to the chief executives (or their nominee) and has not been resolved under clause 11.1.2.~~
- (a) ~~the dispute must be referred to the expert for determination in accordance with this clause 11.1.4.~~
- (b) Where a Dispute is referred to an expert:
- (i) the expert must be:
- (A) appointed by agreement between the parties to the Dispute; or
- (B) in default of such appointment within ten (10) Business Days after the requirement or right (as applicable) to refer the matter to an expert arose, the person nominated by (at request of any party to the Dispute):
- (1) If the parties agree that the dispute is purely of a financial or accounting nature, the President (for the time being) of ~~the institute of~~ Chartered Accountants ~~in~~ Australia and New Zealand;
- (2) If the parties agree that the dispute is purely of a technical nature, the President (for the time being) of the Resolution Institute; or
- (3) In any other case (including where the parties are unable to agree on the nature of the Dispute), the President (for the time being) of the Queensland Law Society Incorporated;
- (ii) if the person referred to in **clause 11.1.4(b)(i)(B)** declines to nominate a person as the expert but provides a list of people that could be appointed as the expert, then:
- (A) the first person specified in that list will be taken to be nominated as the Expert;
- (B) if the first person specified in that list does not accept the appointment as the Expert, then the

- next person specified in that list will be taken to be nominated as the Expert; and
- (C) the process specified in **clause 11.1.4(b)(ii)(B)** will apply to the next and each subsequent person specified in that list until a person that is taken to be nominated as the Expert accepts the appointment as the Expert;
- (iii) subject to **clause 11.1.4(a)**, if the expert is to be nominated by a person referred to in **clause 11.1.4(b)(i)(B)** and the person nominated as the expert does not accept appointment as the expert, then an alternative person is to be nominated as the expert at the request of any party to the Dispute by the relevant person referred to in **clause 11.1.4(b)(i)(B)**;
- (iv) any determination by an expert under this clause 11.1.4 must not commence, unless and can only be made if, all of the parties to the Dispute agree (in a legally binding way):
- (A) to be bound by the outcome of the expert determination subject to clause 11.1.4(h);
- (B) how costs and disbursements of the expert determination will be paid as contemplated by clause 11.1.4(i); and
- the parties to the Dispute must act reasonably and in good faith to reach agreement as soon as reasonably practicable.
- ~~(iv)~~(v) the parties to the Dispute must comply with, and do all things necessary to satisfy and to give effect to, the reasonable requirements of an agreed or nominated expert (including providing relevant indemnities and paying any charges or fees, ~~(which charges or fees will~~ subject to any agreement to the contrary, be borne by the parties in equal shares)) that must be satisfied or complied with as a condition of that person accepting the appointment as an expert;
- ~~(v)~~(vi) the expert must:
- (A) have appropriate qualifications and practical experience having regard to the nature of the Dispute;
- (B) have no interest or duty which conflicts or may conflict with their function as expert, the expert being required to fully disclose any such

- interest or duty by notice to the parties before their appointment;
- (C) not be, or have been in the last five (5) Years, an employee of any of the parties to the Dispute or of a Related Party of any of them;
- (D) not be permitted to act until the expert has given notice to each party that the expert is willing and able to accept the appointment;
- (E) have regard to the provisions of this Undertaking and consider all submissions (including oral submissions by each party provided that such oral submissions are made in the presence of the other parties to the Dispute), supporting documentation, information and data with respect to the matter submitted by the parties;
- (F) not make a determination in relation to a Dispute that is inconsistent with:
- (1) this Undertaking;
 - ~~(2) The Act;~~
 - ~~(3)~~(2) Aurizon Network's Safety Management System; or
 - ~~(4)~~(3) Aurizon Network's obligations arising under applicable safety or environmental legislation including the Rail Safety Act;
- ~~(G) only make a determination that the QCA could make if the matter that is in dispute were arbitrated by the QCA under Subdivision 3, Division 5 of Part 5 of the Act;~~
- ~~(H)~~(G) have regard to the matters specified in section 120(1)(a) to (l) of the Act;
- ~~(I)~~(H) provide to the parties a copy of the expert's determination in relation to the Dispute in the form of a report setting out reasonable details of the reasons for the expert's determination within a reasonable time after their appointment;
- ~~(J)~~(I) be required to undertake to keep confidential all matters coming to their knowledge by reason of their appointment and performance of their duties (including, if required by a party, by entering into a confidentiality agreement in

favour of the parties to the relevant Dispute);
and

~~(K)~~(J) be deemed to be and must act as an expert and not an arbitrator and the law relating to arbitration (including the *Commercial Arbitration Act 2013* (Qld)), does not apply to the expert or to the determination or the procedures by which the expert may reach a determination.

- (c) For clarity, an expert may make a determination relating to:
- (i) the interpretation or application of any provision of this Undertaking; or
 - (ii) whether a party has complied with the terms of this Undertaking,

where the interpretation or application of this Undertaking or compliance with this Undertaking is the matter that is in dispute.

- (d) Any Dispute subject to expert determination under this **clause 11.1.4** must be determined in accordance with the Expert Determination Rules of the Resolution Institute to the extent those rules are not inconsistent with the terms of this **clause 11.1.4**.
- (e) If, at any time during the determination, the expert becomes aware of circumstances that might reasonably be considered to adversely affect the expert's capacity to act independently or impartially, the expert must:
- (i)
 - (ii) the parties to the Dispute must comply with, and do all things necessary to satisfy and to give effect to, the reasonable requirements of an agreed or nominated expert (including providing relevant indemnities and paying any charges or fees (which charges or fees will be borne by the parties in equal shares)) that must be satisfied or complied with as a condition of that person accepting the appointment as an expert;
 - (iii) the expert must:
 - (A) have appropriate qualifications and practical experience having regard to the nature of the Dispute;
 - (B) have no interest or duty which conflicts or may conflict with their function as expert, the expert being required to fully disclose any such interest or duty by notice to the parties before their appointment;

- (C) not be, or have been in the last five (5) Years, an employee of any of the parties to the Dispute or of a Related Party of any of them;
- (D) not be permitted to act until the expert has given notice to each party that the expert is willing and able to accept the appointment;
- (E) have regard to the provisions of this Undertaking and consider all submissions (including oral submissions by each party provided that such oral submissions are made in the presence of the other parties to the Dispute), supporting documentation, information and data with respect to the matter submitted by the parties;
- (F) not make a determination in relation to a Dispute that is inconsistent with:
 - (1) this Undertaking;
 - (2) the Act;
 - (3) Aurizon Network's Safety Management System; or
 - (4) Aurizon Network's obligations arising under applicable safety or environmental legislation including the Rail Safety Act;
- (G) only make a determination that the QCA could make if the matter that is in dispute were arbitrated by the QCA under Subdivision 3, Division 5 of Part 5 of the Act;
- (H) have regard to the matters specified in section 120(1)(a) to (l) of the Act;
- (I) provide to the parties a copy of the expert's determination in relation to the Dispute in the form of a report setting out reasonable details of the reasons for the expert's determination within a reasonable time after their appointment;
- (J) be required to undertake to keep confidential all matters coming to their knowledge by reason of their appointment and performance of their duties (including, if required by a party, by entering into a confidentiality agreement in favour of the parties to the relevant Dispute); and

- (K) be deemed to be and must act as an expert and not an arbitrator and the law relating to arbitration (including the *Commercial Arbitration Act 2013* (Qld)), does not apply to the expert or to the determination or the procedures by which the expert may reach a determination.
- (f) For clarity, an expert may make a determination relating to:
- (i) the interpretation or application of any provision of this Undertaking; or
 - (ii) whether a party has complied with the terms of this Undertaking,

where the interpretation or application of this Undertaking or compliance with this Undertaking is the matter that is in dispute.

- (g) Any Dispute subject to expert determination under this **clause 11.1.4** must be determined in accordance with the Expert Determination Rules of the Resolution Institute to the extent those rules are not inconsistent with the terms of this **clause 11.1.4**.
- (h) If, at any time during the determination, the expert becomes aware of circumstances that might reasonably be considered to adversely affect the expert's capacity to act independently or impartially, the expert must:
- (i) inform the parties to the Dispute immediately;
 - (ii) unless the parties to the Dispute agree otherwise in writing, terminate the engagement; and
- in which case any determination of the expert will be of no effect and a new expert must be appointed in accordance with the procedure outlined in this **clause 11.1.4**.
- (i) The parties must do everything reasonably requested by the expert to assist the expert in determining the Dispute, including providing or making available to the expert, as soon as reasonably practicable, all information and materials in their possession or control requested by the expert and attending any hearing convened by the expert.
- (j) If the parties to a Dispute agree it is appropriate to appoint multiple experts to determine the Dispute, each expert must:
- (i) cooperate with the other experts appointed to determine the Dispute;
 - (ii) endeavour to reach a unanimous determination with the other appointed experts; and

- (iii) agree with the other appointed experts the procedure for drafting the written determination.
- (k) Subject to compliance by the expert with **clause 11.1.4(h)** and in the absence of fraud or manifest error, the expert's determination is final and binding as between the parties in relation to the subject matter of the Dispute. If a party believes that there has been a manifest error or fraud in the expert's determination or that the expert has not complied with **clause 11.1.4(h)**, it may refer the matter to the QCA for a determination. If the QCA determines that there has been a manifest error or fraud or that the expert has not complied with **clause 11.1.4(h)**, the expert's determination is not binding and:
 - (i) the parties may agree to refer the Dispute to another expert in accordance with this **clause 11.1.4**; or
 - (ii) failing such agreement, any party may request the QCA to resolve the Dispute in accordance with **clause 11.1.5**.
- (l) Unless otherwise agreed by the parties to the Dispute:
 - (i) the following must be borne by the parties in equal shares:
 - (A) the costs of the expert (and the costs of any advisers to the expert), including fees and disbursements; and
 - (B) any transcript fees;
 - (ii) each party must bear their own costs of and incidental to participating in the expert determination process, including their own costs of and incidental to the preparation of a confidentiality deed or agreement for the engagement of the expert.
- (m) An expert appointed under this **clause 11.1.4** must not, without the prior written consent of the parties to the Dispute, accept an appointment to act as arbitrator, or act as an advocate or adviser to any party, in any subsequent arbitral or judicial proceedings arising out of or in connection with the Dispute.

11.1.5 Determination by the QCA

- (a) If this Undertaking requires that a Dispute be resolved by the QCA under this **clause 11.1.5**, then that Dispute may only be referred to the QCA after **clause 11.1.2** has been complied with in relation to that Dispute.
- (b) Despite this Undertaking requiring a Dispute to be resolved by the QCA, the parties may jointly request the QCA to refer the matter to an expert for determination in accordance with **clause 11.1.4** in which case the QCA (having regard to the object

of Part 5 of the Act, as set out in section 69E of the Act) may, but is not required to, refer the matter to an expert.

- ~~(c) Where~~ If a Dispute is referred to the QCA, ~~then:~~
- ~~(c) for determination under this Undertaking, then any determination of that Dispute by the QCA must occur subject to, and in accordance with, Division 5 of Part 5 of the Act.~~
- (i) any determination of the Dispute by the QCA must not commence unless, and can only be made if, all of the parties to the Dispute agree (in a legally binding way) to be bound by the outcome of the Dispute (including agreeing to pay any costs ordered to be paid by the QCA) and that the determination is enforceable under section 152 of the Act, except as provided for by clause 11.1.6(b);
- (ii) the parties to the Dispute must act reasonably and in good faith to reach the agreement required by clause 11.1.5(c)(i) as soon as reasonably practicable;
- (iii) if the Dispute is a dispute for the purposes of Division 5 of Part 5 of the Act or is otherwise a dispute about Access, any determination of that Dispute must occur subject to, and in accordance with, Division 5 of Part 5 of the Act, including Part 7 of the Act; and
- (iv) if the Dispute does not constitute a dispute for the purposes of Division 5 of Part 5 of the Act and is not a dispute about Access:
- (A) the QCA may make a determination through any process that it considers appropriate, and may make any order as to costs it considers appropriate consistent with section 208 of the Act, provided that:
- (1) Prior to considering the Dispute, the QCA advises the parties to the Dispute of the process that it intends to use to make the determination, having regard to the processes in Division 5 OF Part 5 of the Act, and the parties are given the opportunity to advise the QCA of any concerns with that process; and
- (2) Despite Clause 11.1.5(c)(iv)(A) the QCA must not make a determination that is inconsistent with Division 5 of Part 5 of the

Act, the provisions of this Undertaking or section 119 of the Act (unless the parties agree and no party (whether a party to the Dispute or not) is adversely affected).

- (d) Any referral of a Dispute to the QCA must be accompanied by a Dispute Notice setting out the information required by section 113 of the Act.
- ~~(d)~~(e) If a Dispute is referred to the QCA in accordance with this Undertaking, the QCA must provide notices of the Dispute to the parties specified in section 114 of the Act. Without limitation to clause 11.1.5(c):
- ~~(i) nothing in this Undertaking is intended to derogate from section 119 of the Act;~~
 - ~~(ii) for the referral of a Dispute to the QCA, the Dispute Notice must satisfy the requirements under sections 112 and 113 of the Act; and~~
 - ~~(iii) if a Dispute is referred to the QCA, the QCA must provide notices of the Dispute to the parties specified in section 114 of the Act.~~
- (f) If a Dispute is referred to the QCA in accordance with this Undertaking, the QCA must not make a decision or determination in relation to the Dispute which is inconsistent with Aurizon Network's Safety Management System or Aurizon Network's obligations arising under applicable safety or environmental legislation including the Rail Safety Act. The QCA must seek the advice of the Safety Regulator on any aspect of the Dispute that any party to the Dispute or the QCA considers to be a safety related matter and must not make any decision or determination that is inconsistent with advice it receives from the Safety Regulator to the extent that the advice relates to any aspect of safety. The QCA must provide to the parties a copy of any advice it receives from the Safety Regulator.
- (g) Notwithstanding any provision in this Undertaking, a determination made by the QCA will not be inconsistent with this Undertaking if it relates to (without limitation):
- (i) the interpretation or application of any provision of this Undertaking;
 - (ii) whether a party has complied with the terms of this Undertaking;
 - (iii) any matter not expressly stated in this Undertaking; or
 - ~~(e)~~(iv) any part of a matter that is not expressly covered by this Undertaking even if another part of the matter is expressly covered by this Undertaking.

11.1.6 Procedure

- (a) Where a Dispute is referred to either an expert or the QCA (**decision maker**) for determination:
 - (i) each party to the Dispute must provide written submissions to the decision maker outlining its views on the matter(s) in dispute, including reasons why its views should be preferred and an outline of how it would like to see the Dispute resolved;
 - (ii) each party to a Dispute will be provided with a reasonable opportunity to respond to submissions made to the decision maker by each other party; and
 - (iii) where the matter in dispute arises under a provision of this Undertaking which sets out the relevant matters to be taken into account by Aurizon Network or the decision maker in making its determination, the submissions to the decision maker by the parties to the Dispute must address those matters.
- (b) The decision maker's determination is final and binding upon the parties to the Dispute who must comply with the determination of the decision maker, unless:
 - (i) in the case of an expert, the QCA determines that the expert's determination is not binding under **clause 11.1.4(h)**; or
 - (ii) a determination by the QCA is successfully challenged on the basis of a breach of a requirement in **clause 11.2**.

11.1.7 Application to Part 8 Disputes

- (a) Part 8 expressly sets out additional requirements in relation to resolution of specified Disputes.
- ~~(b)~~ (b) Part 8 prevails to the extent of any inconsistency with this Part 11.

11.2 QCA decision-making

- (a) The QCA may not make a decision (**Decision**) under this Undertaking (including a determination under this **Part 11**) that may affect Aurizon Network (including to require Aurizon Network to do, give or submit anything to the QCA, to resolve a Dispute or to refuse to approve, approve or consent to or grant anything), unless:
 - (i) the QCA observed the rules of natural justice;
 - (ii) the QCA observed any procedures that were required by law or this Undertaking;

- (iii) the QCA had jurisdiction to make the Decision under this Undertaking;
- (iv) the QCA was authorised to make the Decision under this Undertaking;
- (v) the QCA's Decision would not be an improper exercise of the power conferred by this Undertaking. An improper exercise of power includes a reference to:
 - (A) taking an irrelevant consideration into account in the exercise of a power;
 - (B) failing to take a relevant consideration into account in the exercise of a power;
 - (C) an exercise of a power for a purpose other than a purpose for which the power is conferred;
 - (D) an exercise of a discretionary power in bad faith;
 - (E) an exercise of a personal discretionary power at the discretion or behest of another person;
 - (F) an exercise of a discretionary power in accordance with a rule or policy without regard to the merits of a particular case;
 - (G) an exercise of a power that is so unreasonable that no reasonable person could so exercise the power;
 - (H) an exercise of a power in such a way that the result of the exercise of the power is uncertain; and
 - (I) any other exercise of a power in a way that is an abuse of the power;
- (vi) the QCA's Decision did not involve an error of law (whether or not the error appears on the record of the Decision);
- (vii) the QCA's Decision was not induced or affected by fraud;

- (viii) to the extent that any matters were required to be established before the Decision could be made or taken, there was some material or evidence from which the QCA could reasonably be satisfied the matter was established to justify the Decision or, to the extent that the existence of a particular fact forms the basis on which the Decision is made, the fact did or does exist; and
 - (ix) the Decision was not otherwise contrary to law or this Undertaking. For the avoidance of doubt, the terms of this **clause 11.2(a)** are intended to have the same meaning as used in the *Judicial Review Act 1991* (Qld).
- (b) If the QCA's Decision or conduct is challenged on the basis of a breach of a requirement in this **clause 11.2**, Aurizon Network and the QCA agree that Aurizon Network may seek an order suspending the operation of the Decision and a stay of any proceedings under the Decision.
- (c) This **clause 11.2** does not affect the right of any party to seek any other form of remedy or relief including relief by way of the equitable remedies of injunction or declaration or to seek review under the *Judicial Review Act 1991* (Qld).

Suggested drafting amendments in relation to disputes

12.2 Interpretation

- (a) Unless expressed to the contrary, in this Undertaking:
 - (i) a reference to:
 - (A) a specified position name is a reference to that position name as it changes during the Term, provided that the position retains responsibility for the same or substantially the same tasks;
 - (B) a person includes a partnership, an unincorporated joint venture, an unincorporated association, a corporation, a government or

- statutory body or authority and any other entity recognised by law;
- (C) 'dollars' or '\$' means a reference to Australian dollars;
- (D) any parties by their defined terms includes that party's executors, administrators, permitted assigns or permitted subcontractors or, being a company, its successors, permitted assigns or permitted subcontractors and the obligation of any party extends to those persons;
- (E) a right includes a benefit, remedy, discretion, authority or power;
- (F) conduct includes any omission and any representation, statement or undertaking, whether or not in writing;
- (G) 'includes' means includes without limitation;
- (H) time is to local time in Brisbane, Queensland;
- (I) this or any other document or agreement includes the document or agreement as varied, amended or replaced from time to time;
- (J) any legislation includes subordinate legislation under it and includes that legislation and subordinate legislation as modified or replaced; [amended, consolidated, re-enacted or codified](#);
- (K) this Undertaking includes this Undertaking as amended from time to time in accordance with the Act or this Undertaking;
- (L) an input of a Reference Tariff or an Access Charge is reference to each amount that is a tariff or

APPENDIX O: REFERENCES

- ABS 2017, Wage Price Index, Australia, Table 3a: Queensland, Private, All industries, A2704548F, cat. no. 6345.0, viewed 29 September.
- AECOM 2017a, Engineering Assessment of Aurizon Network's Capital Expenditure Claim, final report, July.
- 2017b, Aurizon Network Review of UT5 operating expenditure, September.
- AER (Australian Energy Regulatory) 2013, Better Regulation—Shared Asset Guideline, November, available at: <https://www.aer.gov.au/system/files/AER%20shared%20asset%20guideline%20-%20Shared%20asset%20guideline%20-%20November%202013.pdf>.
- 2017a, Powerlink transmission determination 2017–2022, Attachment 4—Value of imputation credits, final decision, April.
- 2017b, AusNet Services transmission determination 2017–22, Attachment 7—Operating expenditure, final decision, April.
- 2017c, Regulatory treatment of inflation, discussion paper, April.
- 2017d, APA VTS: Australia Gas access arrangement 2018 to 2022, Attachment 3—Rate of return, draft decision, July.
- 2017e, APA VTS Australia Gas access arrangement 2018 to 2022, Attachment 4—Value of imputation credits, draft decision, July.
- AFMA (Australian Financial Markets Report) 2015, 2015 Australian Financial Markets Report.
- 2016, 2016 Australian Financial Markets Report.
- Alexander, I & Irwin, T 1996, '*Price caps, rate-of-return regulation, and the cost of capital*', Public Policy for the Private Sector, note 87, The World Bank Group, September.
- Aurizon Holdings 2016, FY2016 Results, investor presentation, L Hockridge & K Neate, <https://www.aurizon.com.au/~media/aurizon/files/investors/documents%20and%20webcasts/2016/full%20year%20results/fyr%202016%20investor%20presentation.pdf>.
- 2017a, Intermodal (web page), viewed 3 October 2017, <http://www.aurizon.com.au/what-we-deliver/intermodal>.
- 2017b, Full Year Results Briefing, presentation transcript, August, <https://www.aurizon.com.au/~media/aurizon/files/investors/documents%20and%20webcasts/2017/full%20year%20results/fyr%202017%20presentation%20transcript.pdf>
- 2017c, FY2017 Results, investor presentation, A Harding & P Bains, August, https://www.aurizon.com.au/~media/aurizon/files/investors/documents%20and%20webcasts/2017/full%20year%20results/fy2017%20results%20presentation_14082017.pdf
- 2017d, Annual Report 2016–17, <https://www.aurizon.com.au/~media/aurizon/files/investors/documents%20and%20webcasts/2017/full%20year%20results/annual%20report%202017.pdf>
- 2017e, Aurizon AGM, 18 October, transcript, <https://www.aurizon.com.au/~media/aurizon/files/investors/documents%20and%20webcasts/2017/annual%20general%20meeting/aurizon%202017%20agm%20transcript.pdf>.

- Aurizon Network 2013, Draft Access Undertaking, Volume 3, April.
- 2014a, Annual Maintenance Cost Report to the QCA Financial Year 2014, October.
 - 2015a, Annual Maintenance Cost Report to the QCA Financial Year 2015, October.
 - 2016a, Annual Maintenance Cost Report to the QCA Financial Year 2016, October.
 - 2016b, Aurizon Network's 2016 Access Undertaking (UT4), consolidated version updated as at 28 September 2017, <http://www.qca.org.au/getattachment/fd18d699-f9d5-48fe-ba5a-b5b9a08e4e7d/Aurizon-Network-Sep-2017-Extension-DAAU-clean.aspx>.
 - 2017a, '2017 Draft Access Undertaking—Weighted Average Cost of Capital and Inflation Averaging Period', letter to the QCA, 13 February.
 - 2017b, 'Endorsed Variation Event—FY2018 Transmission and Connection Charges', letter to the QCA, 10 May.
 - 2017c, 'Establishing an Electric Energy Charge (EC) for FY2018', letter to the QCA, 18 May.
 - 2017d, Financial report for the year ended 30 June 2017, August.
 - 2017e, Draft Amending Access Undertaking for Second Half FY2018 Transitional Tariffs, September.
 - 2017f, FY2017 Maintenance Cost Report, October.
 - 2017g, Aurizon's 2017 Sustainability Report: Delivering for the long haul.
 - 2017h, Aurizon Network Debt Investor Update, June.
- Australian Competition Tribunal 2016a, Application by SA Power Networks [2016] AComp T 11, 28 October.
- 2016b, Applications by Public Interest Advocacy Service Ltd and Ausgrid Distribution [2016] AComp T 1, 26 February.
 - 2012, *Application by WA Gas Networks Pty Ltd (No 3)* [2012] AComp T 12, 8 June.
- AOFM (Australian Office of Financial Management) 2017, 'Australian Government Securities on Issue', Table H12, Australian Government, aofm.gov.au/statistics/historical-data/commonwealth-government-securities-on-issue/.
- ARTC (Australian Rail Track Corporation) 2016, Hunter Valley Coal Network Access Undertaking Costing Manual, July.
- B&H Strategic Services 2017, Assessment of AN's UT5 submission, report for the QCA, November.
- 2017a, Assessment of AN's GPRS submission, report for the QCA, November.
- Binder, J & Norton, S 1999, 'Regulation, profit variability and beta', *Journal of Regulatory Economics*, vol. 15, no. 3: 249–65.
- Brailsford, T, Handley, J & Maheswaran, K 2008, 'Re-examination of the historical equity risk premium in Australia', *Accounting and Finance*, vol. 48: 73–97.
- 2012, 'The historical equity risk premium in Australia: post-GFC and 128 years of data', *Accounting and Finance*, vol. 52: 237–47.

- Brealey, RA, Myers, S & Allen, F 2011, *Principles of Corporate Finance*, 10th edition, McGraw-Hill, New York, USA.
- Brown, C & Davis, K 2012, 'Taxes, tenders and the design of Australian off-market share repurchases', *Accounting and Finance*, vol. 52 (2012 supplement): 109–35.
- Carpenter, P, Kolbe, L, Levine, S & Villadsen, B 2012, 'Shale gas and pipeline risk—earnings erosion in a more competitive world', *Public Utilities Fortnightly*, April, <https://www.fortnightly.com/fortnightly/2012/04/shale-gas-and-pipeline-risk?page=0%2C0>.
- CEG (Competition Economists Group) 2014, WACC estimates, report for NSW DNSPs, January.
- Da, Z, Guo, R & Jagannathan, R 2012, 'CAPM for estimating the cost of equity capital: Interpreting the empirical evidence', *Journal of Financial Economics*, vol. 103, no. 1, 204–20.
- Davidson, W, Rangan, N & Rostenstein, S 1997, 'Regulation and systematic risk in the electric utility industry: a test of the buffering hypothesis', *The Financial Review*, vol. 32, no. 1: 163–84.
- Davis, KT 2003, Risk Free Interest Rate and Equity and Debt Beta Determination in the WACC, report for the ACCC, August.
- 2014, 'The debt maturity issue in access pricing', *Economic Record*, vol. 90, no. 290: 271–81.
- Deloitte 2016, Independent Expert's Report, Appendix 1 to Patties Foods Limited, Explanatory Booklet, July.
- Devlin, W & Patwardhan, D 2012, 'Measuring market inflation expectations', *Economic Roundup*, no. 2, Australian Government Treasury.
- Dick-Nielsen, J, Feldhutter, P & Lando, D 2012, 'Corporate bond liquidity before and after the onset of the subprime crisis', *Journal of Financial Economics*, vol. 103, no. 3: 471–92.
- Dimson, E, Marsh, P & Staunton, M 2016, *Credit Suisse Global Investment Returns Sourcebook 2016*, Credit Suisse.
- ERA (Economic Regulation Authority Western Australia) 2014, Review of the Method for estimating the Weighted Average Cost of Capital for the Regulated Railway Networks, revised draft decision, November.
- 2015, *Review of the method for estimating the Weighted Average Cost of Capital for the Regulated Railway Networks*, final decision, September.
- 2016a, *Proposed Revisions to the Access Arrangement for the Goldfields Gas Pipeline*, final decision, June.
- 2016b, Final Decision on Proposed Revisions to the Access Arrangement for the Dampier to Bunbury Natural Gas Pipeline 2016–2020, Appendix 5—Gamma, June.
- Ernst & Young 2012, Benchmarking of corporate overhead costs for QR Network Pty Ltd, July.
- Fama, EF & French, KR 2004, 'The capital asset pricing model: theory and evidence', *Journal of Economic Perspectives*, vol. 18, no. 3: 25–46.
- Federal Court of Australia 2017a, *Australian Energy Regulator v Australian Competition Tribunal (No 2) [2017] FCAFC 79*.
- 2017b, *Australian Energy Regulator v Australian Competition Tribunal (No 3) [2017] FCAFC 80*.
- Federal Energy Regulatory Commission 1999, *Cost-of-service rates manual*, Washington.

- Fernandez, P, Ortiz, A & Acin, IF 2015, Discount Rate (Risk-Free Rate and Market Risk Premium) used for 41 countries in 2015: a survey, IESE Business School working paper.
- 2016, Market Risk Premium used in 71 countries in 2016: a survey with 6,932 answers, IESE Business School working paper.
- 2017, Discount Rate (Risk-Free Rate and Market Risk Premium) used for 41 countries in 2017: a survey, IESE Business School, working paper.
- Finity 2013, *Review of Self Insurance Risk Premium—Access Undertaking UT4*, March.
- Finlay R & Wende S 2012, 'Estimating inflation expectations with a limited number of inflation-indexed bonds', *International Journal of Central Banking*, vol. 8, no. 2: 111–42.
- Frontier Economics 2015a, *An Appropriate Regulatory Estimate of Gamma*, report for ActewAGL Distribution, AGN, APA, AusNet Services, Citipower, Ergon, ENERGEX, Jemena Electricity Networks, Powercor, SA Power Networks & United Energy, June.
- 2015b, *The required return on equity for DBCT*, report for DBCT Management Pty Ltd, September, appearing in DBCT Management 2015, submission to the QCA—Att. C, *DBCT Management's 2015 draft access undertaking*, October.
- 2016a, *The Appropriate Use of Tax Statistics When Estimating Gamma*, report for Jemena Electricity Networks, ActewAGL Distribution, AusNet Services, Australian Gas Networks, Citipower, Powercor & United Energy, Appendix 5.09 of ActewAGL, Revised 2016–21 Access Arrangement Proposal: Response to the AER's Draft Decision, January.
- 2016b, *Issues in the Estimation of Gamma*, report for AGN, Multinet Gas, AusNet Transmission & AusNet Gas, September.
- GHD 2017, *Review of the Prudence and Efficiency of Aurizon Network's Proposed UT5 Maintenance Expenditure*, report for the QCA, November.
- Gilbert, T, Hrdlicka, C, Kalodimos, J, & Siegel, S 2014, 'Daily data is bad for beta: opacity and frequency-dependent betas', *Review of Asset Pricing Studies*, vol. 4, no. 1: 78–117.
- Grant Samuel 2010, *Independent expert's report*, Annexure A to Prime Infrastructure 2010, Scheme Booklet, <http://www.primeinfrastructure.com/primeinfrastructure/mergers-scheme-booklet-documents.htm>.
- Grinblatt, M & Titman, S 2002, *Financial Markets and Corporate Strategy*, 2nd edn, McGraw-Hill Irwin, New York.
- Hall, J 2007, 'Comment on regulation and the term of the risk free rate: implications of corporate debt', *Accounting Research Journal*, vol. 20, no. 2: 81–86.
- Handley, J 2014, *Advice on the Value of Imputation Credits*, report for the Australian Energy Regulator, 29 September.
- 2015, *Advice on the NERA Report: Estimating Distribution and Redemption Rates from Taxation Statistics*, report for the Australian Energy Regulator.
- Hathaway, N 2013, *Imputation Credit Redemption: ATO Data 1988–2011—Where Have All the Credits Gone?*, Capital Research, September.
- 2014, *Franking Credit Redemption: ATO Data 1988–2012—Where Have All the Credits Gone?*, Capital Research, October.

- Incenta Economics 2016a, *DBCT 2015 DAU: Review of WACC parameters*, March.
- 2016b, *DBCT—debt risk premium to 31 May 2016*, June.
- 2017, *Aurizon Network's WACC for the 2017 DAU*, report for the QCA, September.
- IPART (Independent Pricing and Regulatory Tribunal) 2013, *Review of WACC Methodology*, final report, December.
- 2016, *Review of prices for Sydney Water Corporation from 1 July 2016 to 30 June 2020*, final report, June.
- Jacobs SKM (Sinclair Knight Merz) 2014a, *Engineering Technical Assessment of Maintenance, Operating and Capital Expenditure Forecast in Aurizon Network's Draft 2013 Access Undertaking: Response to Stakeholder Submissions*, report for the QCA, April.
- 2014b, *Review of Aurizon Network's Maintenance Cost Index proposed for the UT4 period*, report for the QCA, September.
- KPMG 2016, *Independent Expert Report and Financial Services Guide*, Attachment 2 to STW Communications Group Limited 2016, Explanatory Memorandum, 1 March, <http://www.asx.com.au/asx/statistics/announcements.do?by=asxCode&asxCode=SGN&timeframe=R&dateReleased=02%2F03%2F2016>.
- 2017a, *Independent Expert's Report and Financial Services Guide*, Annexure A to Duet Group 2017, *Scheme Booklet in relation to the proposed acquisition of the Duet Group by CK William Australia Bidco Pty Ltd*.
- 2017b, *For All It's Worth: KPMG Valuation Practices Survey 2017*, July.
- Lally, M 2004, 'Regulation and the choice of the risk free rate', *Accounting Research Journal*, vol. 17, no. 1: 18–23.
- 2007a, 'Regulation and the term of the risk free rate: implications of corporate debt', *Accounting Research Journal*, vol. 20, no. 2: 73–80.
- 2007b, 'Rejoinder: regulation and the term of the risk free rate: implications for corporate debt', *Accounting Research Journal*, vol. 20, no. 2: 87–88.
- 2013a, *Response to Submissions on the Risk-Free Rate and the MRP*, report for the QCA, October.
- 2013b, *Review of the AER's Proposed Dividend Growth Model*, report for the AER, December.
- 2014, *Review of Submissions to the QCA on the MRP, Risk-Free Rate and Gamma*, report for the QCA, 12 March.
- 2015a, *Review of Submissions on the MRP and the Risk-Free Rate*, report for the QCA, June.
- 2015b, *Estimating the Distribution Rate for Imputation Credits*, working paper, July.
- 2015c, *Review of Arguments on the Term of the Risk Free Rate*, report for the Economic Regulation Authority Western Australia, November.
- 2016, *Review of the ACT's Gamma Decision*, report for the QCA, July.
- 2017a, *Review of WACC Submissions on Aurizon's Regulatory Review*, report for the QCA, May.
- 2017b, *Review of Submissions from Frontier Economics on the WACC for Aurizon Network*, report for the QCA, November.

- Lally, M & van Zijl, T 2003, 'Capital gains tax and the capital asset pricing model', *Accounting and Finance*, vol. 43, no. 2: 187–210.
- Marshall, W, Yawitz, J & Greenberg, E 1981, 'Optimal regulation under uncertainty', *Journal of Finance*, vol. 36, no. 4: 909–21.
- McKenzie, M & Partington, G 2013, *Review of Aurizon Network's Draft Access Undertaking*, report for the Queensland Resources Council.
- Monkhouse, P 1993, 'The cost of equity under the Australian dividend imputation tax system', *Accounting and Finance*, vol. 33, no. 2: 1–18.
- Moody's Investor Service 2017, *Aurizon Network Pty Ltd—Update Following FY17 Half Year Results Announcement and Outlook Revision to Stable*, 16 February.
- Nelson, C & Siegel, A 1987, 'Parsimonious modeling of yield curves', *The Journal of Business*, vol. 60, no. 4: 473–89.
- NERA Economic Consulting 2013, *The Payout Ratio, report for the Energy Networks Association*, June.
- 2015, *Estimating Distribution and Redemption Rates from Taxation Statistics*, report for Jemena Gas Networks, Jemena Electricity Networks, AusNet Services, Australian Gas Networks, Citipower, Ergon Energy, Powercor, SA Power Networks & United Energy.
- Office of Rail and Road 2016, *A consultation on changes to charges and contractual incentives*, UK Government, 15 December.
- Office of Rail Regulation 2013, *Network Rail's outputs and funding 2014–19*, final determination, UK Government, October.
- Officer, R 1994, 'The cost of capital of a company under an imputation tax system', *Accounting and Finance*, vol. 34: 1–17.
- Pedell, B 2006, *Regulatory Risk and the Cost of Capital: Determinants and Implications for Rate Regulation*, Springer.
- Peltzman, S 1976, 'Toward a more general theory of regulation', *Journal of Law and Economics*, vol. 19, no. 2: 211–40.
- PPB Advisory 2017, 'PPB Advisory appointed Administrators of Caledon Coal', *PPB Advisory Newsroom*, 12 May, <https://www.ppbadvisory.com/news/ppb-advisory-appointed-administrators-of-caledon-coal/>.
- PwC 2013, *A Cost of Debt Estimation Methodology for Businesses Regulated by the Queensland Competition Authority*, report for the QCA, June.
- QCA (Queensland Competition Authority) 1999, *Queensland Rail—Draft Undertaking Asset Valuation, Depreciation and Rate of Return*, issues paper, May.
- 2009, *QR Network 2009 Draft Access Undertaking*, draft decision, December.
- 2011, 'Regulatory Pre-approval of Scope for 2010 Coal Rail Infrastructure Master Plan Projects', letter to QR Network, May, <http://www.qca.org.au/getattachment/67df116f-03dd-4b0b-89ed-53db34b4564b/QCA-Final-decision-re-2010-Customer-Vote.aspx>.
- 2014a, *Aurizon Network Draft Access Undertaking*, Volume IV—Maximum Allowable Revenue, final decision, April.

- 2014b, *Aurizon Network draft access undertaking*, Volume I—Governance & access, final decision, April.
 - 2014c, *Cost of capital: market parameters*, final decision, August.
 - 2014d, *Cost of debt estimation methodology*, final decision, August.
 - 2014e, *Aurizon Network 2014 Draft Access Undertaking—Maximum Allowable Revenue*, draft decision, September.
 - 2015, *Aurizon Network 2014 Draft Access Undertaking, Volume IV—Maximum Allowable Revenue* consolidated draft decision, December.
 - 2016a, *DBCT Management's 2015 draft access undertaking*, draft decision, April.
 - 2016b, *DBCT Management's 2015 draft access undertaking*, final decision, November.
 - 2016c, *Aurizon Network 2014 Draft Access Undertaking*, April.
 - 2016e, *Aurizon Network's review event: 2015 flood claim*, draft decision, October.
 - 2017a, 'Averaging period for Aurizon Network's draft access undertaking', letter to Aurizon Network, 10 March.
 - 2017b, *Approval: EC tariff draft amending access undertaking (June 2017 EC tariff DAAU)*, June.
 - 2017c, 'Approval: Aurizon Network's 2015–16 capital expenditure claim', letter to Aurizon Network, 13 October, <http://www.qca.org.au/getattachment/6ed3b060-1ddc-4f22-a18b-8408d81f8b70/QCA—Decision-to-approve-2015–16-capital-expenditur.aspx>.
 - 2017d, *Aurizon Network's draft amending access undertaking—Moura reference tariffs (2015 floods)*, final decision, decision notice to Aurizon Network, 24 May.
- QR 2011, *Access Conditions Report for the Proposed Wiggins Island Rail Project (WIRP)*, May.
- Queensland Government, *2017–18 Budget, Budget Strategy and Outlook*, Budget Paper No. 2, Table 1: 5.
- Resource Management International 2017, *Assessment of coal volume forecasts for Aurizon Network's 2017 Draft Access Undertaking*, May.
- Rosenberg, B & Guy, J 1976, 'Beta and investment fundamentals—II', *Financial Analysts Journal*, vol. 32, no. 4: 62–76.
- Schmalensee, R 1989, 'An expository note on depreciation and profitability under rate-of-return regulation', *Journal of Regulatory Economics*, vol. 1, no. 3: 293–98.
- SFG Consulting 2014, *Application of the Dividend Discount Model for Estimating the Market Return by the Queensland Competition Authority*, report for Aurizon Ltd, November.
- 2015, *Estimating Gamma for Regulatory Purposes*, report for Jemena Gas Networks, Jemena Electricity Networks, ActewAGL, AusNet Services Directlink, Networks NSW (Ausgrid, Endeavour Energy and Essential Energy), Citipower, Powercor, ENERGEX, Ergon, SA Power Networks, Australian Gas Networks & United Energy.
- Siegel, JJ 1999, 'The shrinking equity premium: historical facts and future forecasts', *Journal of Portfolio Management*, vol. 26, no. 1: 10–17.

- 2011, 'Long-term stock returns unshaken by bear markets', in PB Hammond, ML Leibowitz & LB Siegel (eds) 2011, *Rethinking the Equity Risk Premium*, CFA Institute Research Foundation Publications, vol. 4: 143–47.
- South Australian Centre for Economic Studies 2015, *Independent Estimate of the Weighted Average Cost of Capital (WACC) for SA Power Networks, 2015 to 2020*, report for the South Australian Council of Social Services, attachment to SACOSS 2015, submission to the AER, SA Power Network's 2015–2020 regulatory proposal.
- Svensson, L 1994, *Estimating and interpreting forward interest rates: Sweden 1992–1994*, National Bureau of Economic Research, working paper no. 4871, September.
- The Allen Consulting Group 2007, *Railways (Access) Code 2000: Weighted Average Cost of Capital, 2008 WACC Determinations*, report for the ERA, October.
- Tulip, P & Wallace, S 2012, *Estimates of uncertainty around the RBA's forecasts*, research discussion paper 2012-07, RBA, November, table 4.
- Willis 2013, *Expert opinion on the cost of insurance premiums for the purposes of the Aurizon Network Access Undertaking 2013*, March.
- Wright, S, Mason, R and Miles, D 2003, *A Study Into Certain Aspects of the Cost of Capital for Regulated Utilities in the U.K.*, report prepared for the U.K. economic regulators and the Office of Fair Trading, 13 February.