Queensland
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Consolidated Draft Decision

Aurizon Network 2014 Draft Access Undertaking—Volume IV Maximum Allowable Revenue

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EXECUTIVE SUMMARY

Our consolidated draft decision is to refuse to approve Aurizon Network's submitted maximum allowable revenue (MAR) of $4.67 billion. We consider that a MAR of $3.93 billion is appropriate based on our assessment of efficient costs (Table 1). We have established efficient costs by considering submissions, consulting with stakeholders, engaging technical experts and conducting our own investigations and analysis. This process led us to conclude that the efficient level of Aurizon Network's costs is 16 per cent lower than submitted.

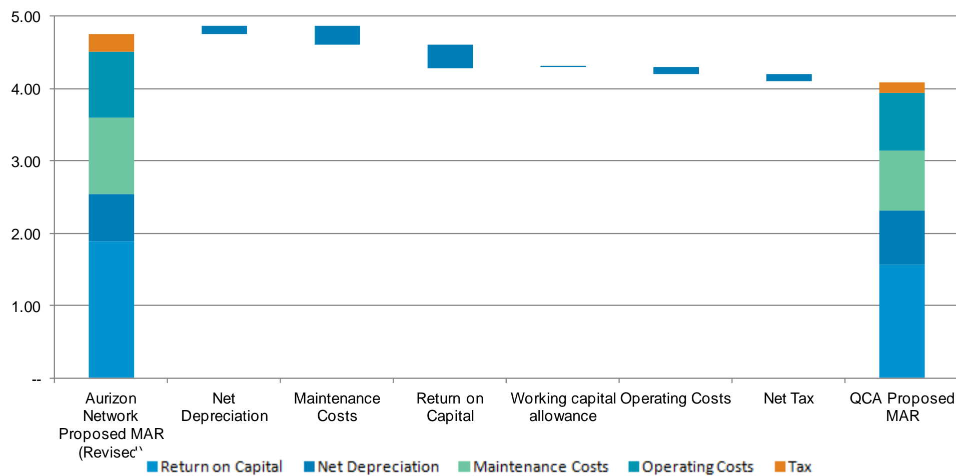
Table 1 Total MAR ($ million)

Cost	Aurizon Network submission	QCA consolidated draft decision	Difference	Reason for change
Operating	900	805	(95)	$57 m reduction in corporate overheads based on our assessment of efficient corporate overheads for the stand-alone business. $23 m reduction in environmental charges as these costs should not be borne by non-electric users. $15 m for various other reductions.
Maintenance	1,066	800	(266)	$190 m reduction due to a reduction in re-railing costs, allocation to non-coal traffic and updated volumes. $76 m reduction in ballast costs due to Aurizon Network's lower estimate and our identification of efficiencies.
Depreciation	1,224	1,268	44	We brought forward the commencement of depreciation from the year after commissioning to the year of commissioning.
Inflation	(576)	(522)	54	We used actual inflation of 1.3% for 2014–15 rather than a 2.5% forecast.
Return on Investment	1,884	1,533	(350)	We used a return on investment of 7.17% rather than 8.18%.
Tax and imputation credits	251	141	(110)	A lower return on capital decreases profits, tax and imputation credits.
Working capital allowance	0	12	12	We included a working capital allowance.
Capital carryover	(135)	(110)	25	We included a smaller capital carryover from UT3.
Total MAR[1]	**4,670**	**3,927**	**(743)**	

Note (1) Does not sum as Aurizon Network proposed to smooth the recovery of its revenue to avoid price shocks. This smoothed total is $4.67 billion. This is $56 million more than the sum of the unsmoothed amounts - however, is equivalent in present value terms. Refer Chapter 29 for explanation.

The key drivers for our proposed MAR are shown below.

Figure 1 Key drivers for UT4 MAR difference (Aurizon Network and QCA) ($ billion, nominal)



For some cost categories, due to an absence of a reliable benchmark, we have applied a 'reasonableness test'. We have identified our approach to the measurement of efficient cost in Sections 2.9.2 and 2.18.2 of Chapter 2 (Legislative Framework) of this decision. We are confident that this results in a satisfactory estimate of efficient costs. To allow for a better understanding of costs in the future, we have decided that Aurizon Network should increase its reporting to ensure greater transparency.

We have also considered whether the individual components of Aurizon Network's proposed modelling approach are appropriate. We consider that there is a material benefit to Aurizon Network from receiving revenue throughout the year and that the modelling approach should recognise this benefit. Aurizon Network's 'end-of-year' cash flow timing assumption increases the MAR by $88 million over the UT4 regulatory period when compared to a mid-year modelling approach.

Our consolidated draft decision is therefore to refuse to approve Aurizon Network's 'end-of-year' timing assumption. We consider it appropriate that Aurizon Network retain mid-year cash flows (as per UT3) and include a working capital allowance of $12 million over the UT4 regulatory period. These adjustments reduce the MAR by $76 million over UT4.

20 MAXIMUM ALLOWABLE REVENUE

The maximum allowable revenue (MAR) is the total revenue Aurizon Network is permitted to earn each year, determined in accordance with the 'regulatory asset base' (RAB) and 'building block methodology' (BBM).

The MAR forms the basis for calculating reference tariffs and determining system allowable revenue, both of which are contained in Schedule F of the 2014 DAU. This information is used to formulate access charges, including their adjustments.

Our consolidated draft decision is that the efficient MAR for Aurizon Network for the UT4 period is $3.93 billion, including UT3 capital expenditure carryover account adjustments. The proposed MAR in our consolidated draft decision is 16 per cent lower than the $4.67 billion MAR submitted by Aurizon Network in December 2013. The key differences between our consolidated draft decision and Aurizon Network's 2014 DAU proposal are summarised below.

20.1 UT4 maximum allowable revenue

20.1.1 Aurizon Network's proposal

In April 2013, Aurizon Network proposed a total MAR for the CQCN of $1.06 billion in 2013–14, increasing to $1.32 billion in 2016–17. This represented a total MAR of $4.86 billion over four years.[1,2]

Aurizon Network proposed to smooth the total MAR over four years to prevent large swings in revenues from year to year. Both approaches have equivalent present values over the UT4 period; however, the smoothed MAR has a higher nominal value of $4.78 billion.

[1] All numbers are nominal, unless otherwise indicated.

[2] This includes UT3 capital expenditure carryover account adjustments which relate to revenue differences derived from approved UT3 capital expenditure against the approved UT3 capital indicator from the 2010 AU.

Table 2 Aurizon Network's original 2014 DAU MAR for the CQCN ($'000, nominal)

Building block	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Operating expenditure	205,671	218,061	234,288	241,634
Maintenance expenditure	232,696	261,536	279,007	294,793
Return of capital	269,692	291,121	346,457	348,587
Inflation	(129,319)	(158,211)	(160,306)	(159,545)
Return on capital	422,927	517,417	524,270	521,779
Tax	73,713	76,600	92,216	100,339
Value of imputation credits	(18,428)	(19,150)	(23,054)	(25,085)
Total (unsmoothed) MAR[1, 2]	1,056,952	1,187,374	1,292,877	1,322,502
Total (smoothed) MAR[3]	**1,037,176**	**1,140,449**	**1,258,583**	**1,347,400**

Notes: (1) Numbers may not sum due to rounding. (2) Excludes UT3 CAPEX carryover account adjustments. (3) Includes UT3 CAPEX carryover account adjustments. Source: Aurizon Network April 2013 Financial Model; QCA analysis.

Aurizon Network said although its proposed return on capital for the 2014 DAU period is lower than for UT3, it is still forecasting an increase in revenue over the 2014 DAU period driven primarily by expansions and renewals expenditure, a change in depreciation assumptions (i.e. asset lives), and operating and maintenance costs.

Revised financial model—December 2013

In December 2013, Aurizon Network provided us with an updated financial model with a revised smoothed MAR proposal of $4.67 billion ($110 million lower than its April 2013 proposal) over the 2014 DAU period. The updated financial model took account of a number of changes including:

- a deferment of the Wiggins Island Rail Project (WIRP) capital expenditure commissioning date from 2014–15 to 2015–16
- a change in circumstances from customers (i.e. the deferment of Newlands to Abbot Point Expansion (NAPE) operations to 2014–15 and Byerwen operations to 2015–16)
- an amendment to its proposed RAB roll-forward model to reflect approval of Aurizon Network's 2011–12 capital expenditure claim
- a consumer price index (CPI) update.

Table 3 shows Aurizon Network's revised 2014 DAU proposal, as reflected in its updated financial model of December 2013. Where possible, we have assessed the updated estimates in the December 2013 financial model.

Table 3 Aurizon Network's submitted (revised) UT4 MAR for the CQCN ($'000, nominal)

Building block	***2013–14***	***2014–15***	***2015–16***	***2016–17***
Operating expenditure	205,817	218,066	234,300	241,652
Maintenance expenditure	232,561	261,162	278,443	294,061
Return of capital	265,052	288,122	313,371	357,939
Inflation	(123,575)	(131,606)	(160,381)	(160,379)
Return on capital	404,144	430,409	524,515	524,506
Tax	73,654	76,294	89,595	95,572
Value of imputation credits	(18,414)	(19,073)	(22,399)	(23,893)
Total (unsmoothed) MAR[1, 2]	1,039,240	1,123,373	1,257,443	1,329,458
Total (smoothed) MAR[3]	**1,006,778**	**1,077,672**	**1,256,704**	**1,328,604**
Aurizon Network's original (smoothed) MAR[3]	1,037,176	1,140,449	1,258,583	1,347,400
Difference (%)	(3.0%)	(5.8%)	(0.1%)	(1.4%)

Notes: (1) Numbers may not sum due to rounding. (2) Excludes UT3 CAPEX carryover account adjustments. (3) Includes UT3 CAPEX carryover account adjustments. Source: Aurizon Network April 2013 Financial Model; QCA analysis.

20.1.2 Legislative framework

We are required to assess the appropriateness of Aurizon Network's proposal having regard to all of the criteria in section 138(2) of the QCA Act. In the context of assessing Aurizon Network's proposal, we must have regard to the factors listed in section 138(2) and weight them appropriately. We have provided an overview of the legislative framework in Section 1.3 of Chapter 2 (Legislative Framework) of this consolidated draft decision, including our application of that framework in the context of this consolidated draft decision.

The criteria in section 138(2) apply to our overall decision whether to approve or refuse to approve the 2014 DAU. In order to make that decision, we also need to apply the criteria to the different components of that overall decision, including the acceptability of the MAR and, hence, the acceptability of each of the relevant components of the MAR. Different criteria may have different practical relevance to each of those components; therefore, we are required to exercise our discretion and judgement in a manner consistent with previous judicial authority.

Conversely, while we have considered the section 138(2) criteria for each building block component in Aurizon Network's MAR, as set out in the remainder of this consolidated draft decision, we must also be satisfied that the MAR, as a whole, satisfies the section 138(2) criteria.

In addition to our assessment of Aurizon Network's MAR proposal, we have taken into account some additional considerations within section 138(2)(h) including:

- predictability—the regulatory arrangements should be as stable and predictable as possible given other objectives. Stability and predictability are likely to promote confidence in the

regulatory arrangements and economic efficiency by reducing uncertainty associated with long term investment decisions

Efficient costs

Sections 69E and 138(2)(a) require us to 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 with the effect of promoting effective competition in upstream and downstream markets. Sections 138(2)(g) and 168A(a) require that we have regard to certain pricing principles, including that the price for access to a declared service should generate expected revenue that is at least enough to meet the efficient costs of providing access to the service and include a return on investment commensurate with regulatory and commercial risks involved.

We have identified our approach to the measurement of efficient cost in Sections 2.9.2 and 2.18.2 of Chapter 2 (Legislative Framework) of this consolidated draft decision. Identifying what makes an efficient cost is not a straightforward task and wherever possible we sought to measure the 'efficient' costs, taking into account all evidence available to us at the time. In the continued absence of robust, evidence-based benchmarks for assessing efficient costs in the CQCN, we have used 'reasonable costs’ to assist in our determination of efficient costs operating and maintenance costs for the 2014 DAU period. However, to the extent our draft or consolidated draft decision refers to 'reasonable costs,' this is not to be understood as suggesting we are doing or seeking to do anything other than measure or estimate 'efficient costs' to the extent practicable given the evidence available. By ‘reasonable’, we mean, for example, that:

- the operating and maintenance costs are consistent with the costs of other relevant businesses (and would be therefore be reflective of efficient costs to the extent such organisations were exposed to competition)
- when the actual costs of Aurizon Network are analysed, the scope of activities and inputs is justifiable given the scale and nature of Aurizon Network’s operations, those activities and inputs are causally related to the declared service provided, and that the expenditure on those activities and inputs is not excessive
- an analysis of a time series of comparative data indicates that any escalation of costs is consistent with relevant cost indices.

We are continuing to refine our analysis of the operating and maintenance costs of Aurizon Network and will be considering scope for a more robust baseline and measurement system after the 2014 DAU.

We consider our proposed MAR overall provides Aurizon Network with sufficient revenue to operate its business, taking account of its commercial and regulatory risks.

We also consider our proposed MAR has regard to the legitimate business interests of Aurizon Network (section 138(2)(b)) given Aurizon Network's ability to recover its efficient operating and maintenance costs, a regulated return on capital and the depreciation allowance associated with prudently and efficiently incurred infrastructure investment in the CQCN. Within this context, section 138(2)(f) requires us to have regard to the effect of excluding existing assets from the RAB for pricing purposes.

Section 138(2)(d) and (e) require us to have regard to the interests of access seekers and the public interest. We also consider that the rights of existing access holders are relevant under section 138(2)(h), to the extent they are not already 'access seekers' under section 138(2)(e).

Consideration of all of these interests leads to a conclusion that Aurizon Network should be permitted to recover no more than efficient costs and return on investment as identified in section 168A(a). In this manner, effective competition in markets upstream and downstream of the CQCN will be promoted as contemplated by the object of Part 5 specified in section 69E of the QCA Act.

Moreover, if Aurizon Network is permitted to recover no more than its efficient costs and return on investment as identified in section 168A(a), it will have incentives to incur costs efficiently for the purposes of section 168A(d) and will have less scope to discriminate in favour of its downstream operations, which could otherwise raises concerns under section 168A(c).

We consider our proposed MAR, which balances the legitimate business interests of Aurizon Network, with the interests of access seekers (section 138(2)(e)), access holders (section 138(2)(h)) and the public interest (section 138(2)(d)), achieves an appropriate balance of the statutory factors under the QCA Act.

Further discussion on our interpretation of section 168A of the QCA Act is set out in Sections 2.4 to 2.10 and 2.17 to 2.18 of Chapter 2 (Legislative Framework) of this consolidated draft decision. Our comments above should be read in the context of our earlier comments in that Chapter.

Allocation of costs

When considering cost allocation, we had regard to section 137(1A)(b) in addition to section 168A(c) of the QCA Act. 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, via the access price, costs that are not reasonably attributable to the provision of the service. We therefore need to be satisfied that our proposed MAR provides neither a competitive advantage nor a competitive disadvantage for Aurizon Network's related parties.

The appropriate allocation of costs is a key consideration in developing the system allowable revenue (SAR) for each rail system in the CQCN to ensure equitable allocation of costs between systems.

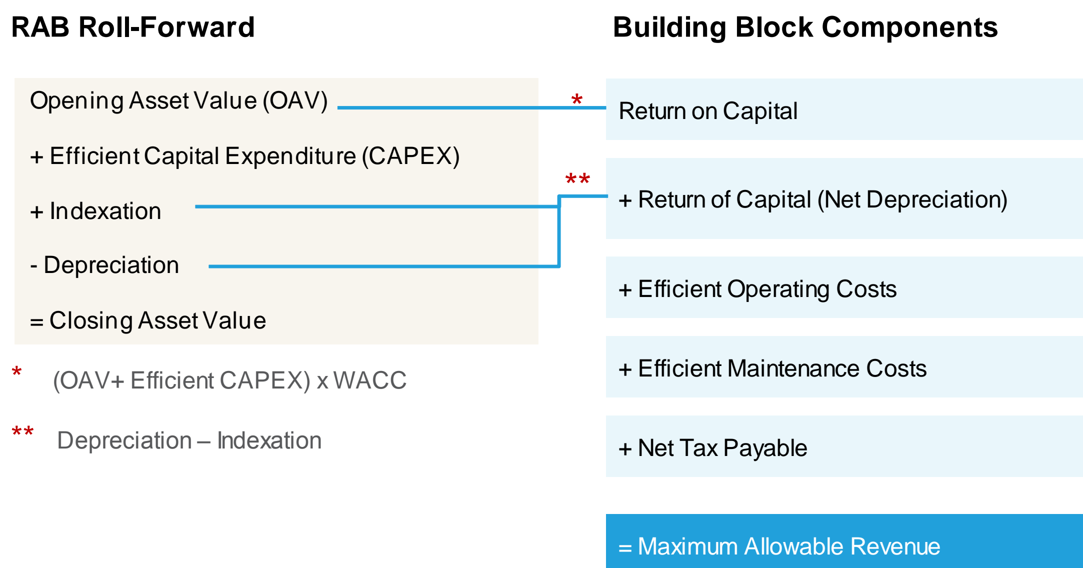
In terms of section 138 of the QCA Act, we consider section 138(2)(a), (b), (d), (e), (g) and (h) most relevant. With respect to 138(2)(g) regarding the pricing principles in section 168A, we consider section 168A(c) and (d) most relevant.

20.1.3 QCA assessment approach

In developing a MAR for the CQCN, we have assessed Aurizon Network's proposal based on a 'building block' approach. The building block approach is the method traditionally applied by regulators in Australia to determine a revenue cap. It is a systematic approach to assessing the revenue requirements for regulated businesses to ensure a business has adequate revenue to meet the efficient costs of providing access to regulated services, including a return on investment commensurate with regulatory and commercial risks involved.

We consider the application of the building block model to be consistent with the requirements of the QCA Act. An overview of the building block model is provided in **Figure 2**.

Figure 2 Building block approach



Our assessment of each building block component is discussed in the remaining chapters of this consolidated draft decision.

Our consolidated draft decision on the MAR aspects of the 2014 DAU has been informed by Aurizon Network's 2013 DAU proposal and supporting documentation; and assessment by independent consultants engaged by the QCA including Incenta Economic Consulting (Incenta), Energy Economics, RSM Bird Cameron (RSMBC), Jacobs (Jacobs SKM), SFG Consulting and CMT & Associates.

We have also received submissions from 16 stakeholders in response to our MAR draft decision reports (released on 30 September 2014), policy and pricing (released on 30 January 2015), and WIRP pricing arrangements (released on 31 July 2015).

We have also undertaken a detailed analysis of Aurizon Network's UT4 models as set out in chapter 29.

20.1.4 Summary of our MAR draft decision

In our MAR draft decision, we refused to approve the 2014 DAU insofar as it relates to the MAR.

Our full analysis and reasoning are contained in Section 2.1 of the MAR draft decision. We adopt that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

Our MAR draft decision was as follows:

> *2.1 Our Draft Decision is to refuse to approve the 2014 DAU insofar as it relates to the MAR. This would result in an overall decision in which we similarly refused to approve the 2014 DAU. Our proposed reasons for this refusal are set out in detail in this Draft Decision and are, in essence, that the MAR proposed by Aurizon Network is too high. In this Draft Decision, our proposed MAR for the 2014 DAU period (2013–14 to 2016–17) is the (Adjusted) Total MAR identified in Table 8.*

Based on the evidence provided to us, we considered the 2014 DAU should be amended to include a lower MAR of $3.88 billion over the UT4 regulatory period.[3]

[3] This includes UT3 CAPEX carryover account adjustments.

Subsequent to the release of our MAR draft decision, we released an information update in November 2014 with a revised MAR of $3.91 billion over the UT4 regulatory period.[4]

Our proposed MAR was around 16 per cent lower than the $4.67 billion[5] (revised from the original $4.78 billion[6]) proposed by Aurizon Network, although 14 per cent higher, in real terms, than for the UT3 period.

Table 4 provides a breakdown of our proposed MAR contained in our information update to the MAR draft decision.[7] The UT3 capital expenditure carryover account adjustment revenues are smoothed with a 4.5 per cent escalation factor and applied over the 2014 DAU regulatory period.

Table 4 QCA proposed 2014 DAU MAR for the CQCN ($'000, nominal)

Building block	***2013–14***	***2014–15***	***2015–16***	***2016–17***
Operating expenditure	175,539	184,895	197,524	202,818
Maintenance expenditure	174,512	178,237	187,766	197,184
Return of capital (depreciation)	270,693	300,456	372,754	374,643
Inflation	(123,867)	(132,168)	(161,106)	(160,082)
Return on capital (WACC)	355,179	378,983	461,958	459,023
Tax	56,091	59,585	77,360	83,402
Value of imputation credits	(26,363)	(28,005)	(36,359)	(39,199)
Total (unsmoothed) MAR	881,785	941,981	1,099,897	1,117,790
UT3 CAPEX carryover account adjustments	(31,603)	(33,026)	(34,512)	(36,065)
Total (Adjusted) MAR	850,181	908,955	1,065,386	1,081,725
Aurizon Network's proposed (revised) MAR	1,006,778	1,077,672	1,256,704	1,328,604

20.1.5 Stakeholders' comments on our MAR draft decision

Aurizon Network

Aurizon Network disagreed with our MAR draft decision. It said that the 'QCA's proposed MAR will not lead to prices that generate sufficient revenue to at least meet the efficient costs, and return on investment that reflects the regulatory and commercial risks confronted by Aurizon Network'.[8] Aurizon Network has also proposed an updated (adjusted) total MAR of $4.47 billion over the UT4 period (Table 5).[9]

[4] Aurizon Network's 2014 DAU – Draft Decision on MAR (Information Update), 21 November 2014
[5] This relates to Aurizon Network's smoothed MAR estimate.
[6] This relates to Aurizon Network's smoothed MAR estimate.
[7] For a breakdown of MAR by non-electric and electric assets, and by system, refer to Appendix A.
[8] Aurizon Network, 2014 DAU, sub. 59: 8.
[9] Aurizon Network, 2014 DAU, sub. 59: 31.

While Aurizon Network has provided an updated MAR, our analysis and point of reference used throughout this consolidated draft decision, is generally based on Aurizon Network's December 2013 financial model.

Table 5 Aurizon Network's revised (December 2014) MAR for the CQCN ($ million, nominal)

Building block	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*Total*
Operating expenditure	200	207	226	235	868
Maintenance expenditure	199	217	217	227	861
Return of capital (depreciation)	284	307	376	391	1,357
Inflation	(162)	(131)	(158)	(161)	(612)
Return on capital (WACC)	382	399	480	491	1,753
Tax	44	56	69	76	245
Total (unsmoothed) MAR	**948**	**1,056**	**1,211**	**1,259**	**4,472**
UT3 CAPEX carryover account adjustments	(31)	(32)	(33)	(35)	(130)
(Adjusted) Total MAR	**917**	**1,024**	**1,177**	**1,224**	**4,342**

Other stakeholders

The QRC[10], DSDIP[11], Anglo American[12], Asciano[13] and Vale[14] all agreed with our MAR draft decision to refuse to approve Aurizon Network's proposed MAR. While they agreed with our overarching position, they have also made submissions on specific aspects of our MAR draft decision, which we have presented in this consolidated draft decision.

20.1.6 QCA analysis and consolidated draft decision

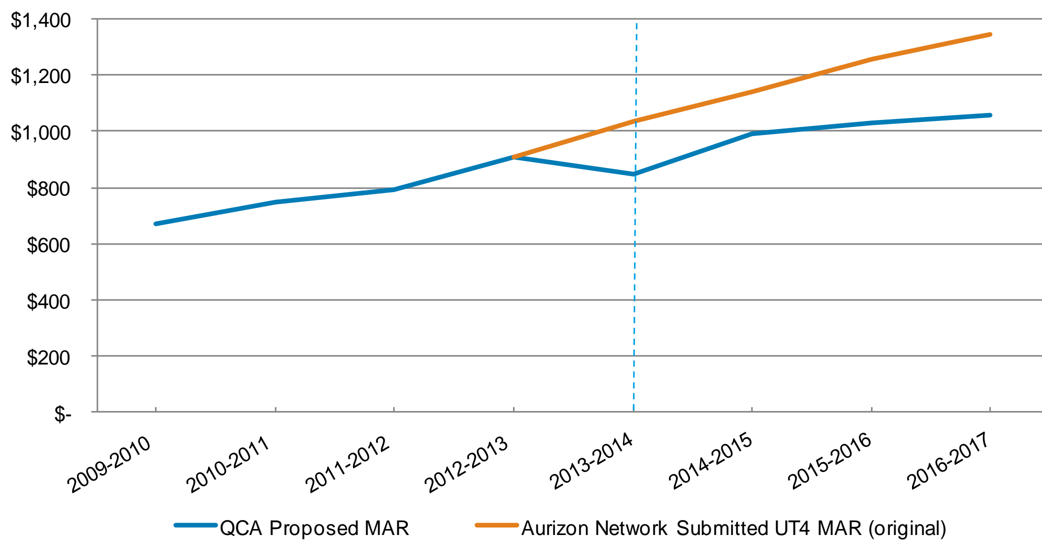
Our consolidated draft decision is to refuse to approve the 2014 DAU, insofar as it relates to the MAR, as the MAR proposed by Aurizon Network is too high. Based on the evidence before us, we consider the 2014 DAU should be amended to include a lower MAR of $3.93 billion over the UT4 regulatory period.

The analysis supporting this view is set out in the various chapters in this consolidated draft decision that analyse each individual component of the BBM and RAB that informs the calculation of the MAR.

Our proposed MAR is around 16 per cent lower than the $4.67 billion proposed by Aurizon Network (see Figure 2) although 15 per cent higher, in real terms, than for the UT3 period.

[10] QRC, 2014 DAU, sub. 62: 5.
[11] DSDIP, 2014 DAU, sub. 61: 1.
[12] Anglo American, 2014 DAU, sub. 58: 3.
[13] Asciano, 2014 DAU, sub. 52: 5.
[14] Vale, 2014 DAU, sub. 54: 1.

Figure 3 MAR comparison over UT3 and UT4 ($ million, nominal)



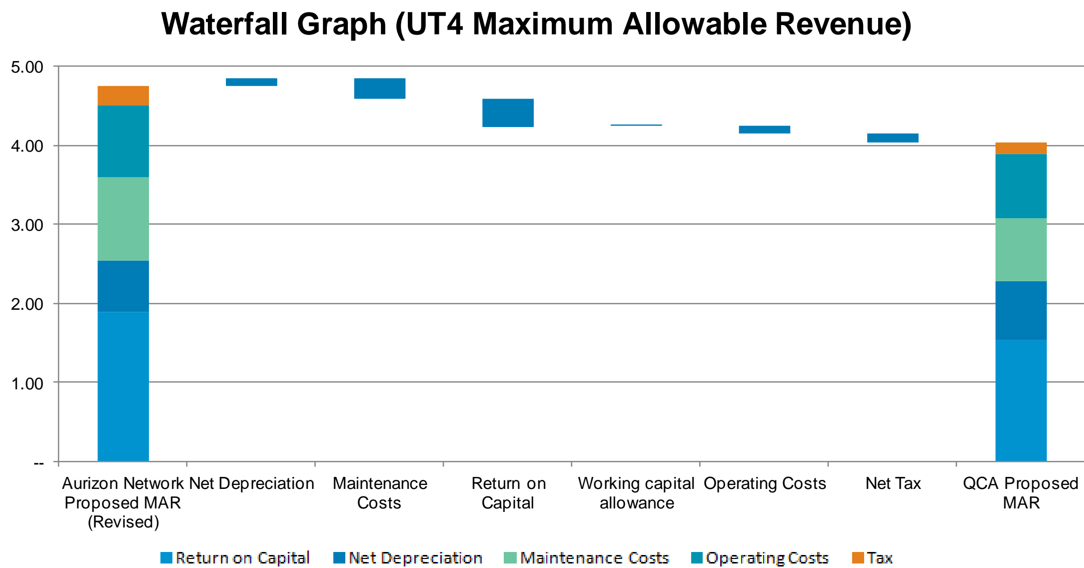
In arriving at our consolidated draft decision, we consider our proposed MAR will provide Aurizon Network with expected revenue that is at least enough to meet the efficient costs of providing access to the declared service, including a return on investment commensurate with the commercial and regulatory risks involved, consistent with sections 138(2)(g) and 168(A)(a) of the QCA Act.

We also consider our proposed MAR has regard to the legitimate business interests of Aurizon Network as required by section 138(2)(b) of the QCA Act. Further, we consider our proposed MAR represents the efficient costs of providing a sustainable service via the CQCN, which is in the interest of access seekers and holders (section 138(2)(e)) and the public interest (section 138(2)(d)).

Key drivers for consolidated draft decision MAR

The key drivers for the difference in our proposed MAR are shown below.

Figure 4 Key drivers for UT4 MAR difference (Aurizon Network and QCA) ($ billion, nominal)



Note: We have purposely omitted the working capital allowance in the legend. Tax includes the value of imputation credits.

The key differences include:

- a reduction of Aurizon Network's proposed UT4 operating cost allowance by $94.9 million
- a reduction of Aurizon Network's proposed UT4 maintenance cost allowance by $265.7 million
- the use of different assumptions for depreciation arrangements provides Aurizon Network with an additional $43.9 million over four years
- a WACC of 7.17 per cent compared with Aurizon Network's proposed WACC of 8.18 per cent.

Summary of QCA proposed maximum allowable revenue

The below table contains Aurizon Network's submitted UT3 capital expenditure carryover account adjusted to align with our consolidated draft decision.[15,16] The UT3 capital expenditure carryover account adjustment revenues are smoothed with a 4.5 per cent escalation factor and applied over the 2014 DAU regulatory period.

[15] We have adjusted Aurizon Network's submitted UT3 capital expenditure carryover account to reflect our consolidated draft decision on the allocation of GAPE cost. See chapter 17 for further details.

[16] For a breakdown of MAR by non-electric and electric assets, and by system, refer to Appendix D.

Table 6 QCA proposed 2014 DAU MAR for the CQCN ($'000, nominal)

Building block	***2013–14***	***2014–15***	***2015–16***	***2016–17***
Operating expenditure	188,831	192,169	211,447	212,496
Maintenance expenditure	192,677	206,576	194,922	206,311
Return of capital (depreciation)	273,787	294,460	345,779	354,794
Inflation	(154,730)	(76,733)	(144,195)	(146,369)
Return on capital (WACC)	343,530	360,495	411,736	417,847
Working capital allowance	2,532	2,931	3,059	3,135
Tax	45,385	76,318	68,903	74,688
Value of imputation credits	(21,331)	(35,869)	(32,385)	(35,103)
Total (unsmoothed) MAR	870,682	1,020,347	1,059,267	1,087,799
UT3 CAPEX carryover account adjustments	(25,613)	(26,765)	(27,970)	(29,229)
(Adjusted) Total MAR	845,069	993,582	1,031,298	1,058,571
Aurizon Network's proposed (revised) MAR	1,006,778	1,077,672	1,256,704	1,328,604
Difference (%)	(16.1%)	(7.8%)	(17.9%)	(20.3%)

Note: Numbers may not sum due to rounding. Source: QCA analysis.

Consolidated draft decision 20.1

(1) Our consolidated draft decision is to refuse to approve the 2014 DAU insofar as it relates to the MAR. Our proposed reasons for this refusal are set out in detail in this consolidated draft decision and are, in essence, that the MAR proposed by Aurizon Network is too high. In this consolidated draft decision, our proposed MAR for the 2014 DAU period (2013–14 to 2016–17) is the (Adjusted) Total MAR identified in Table 6.

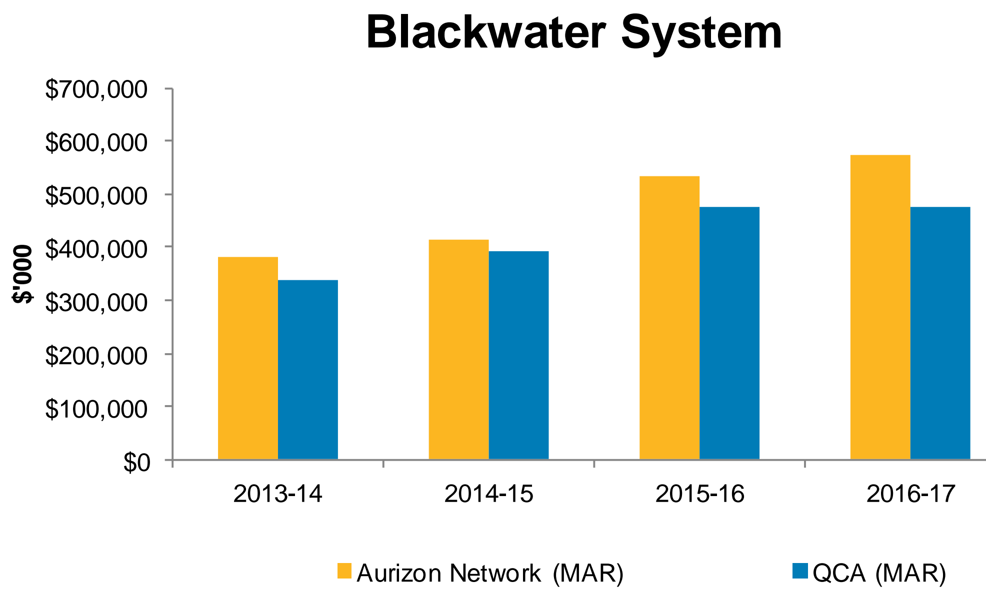
We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

20.2 Comparison of MAR

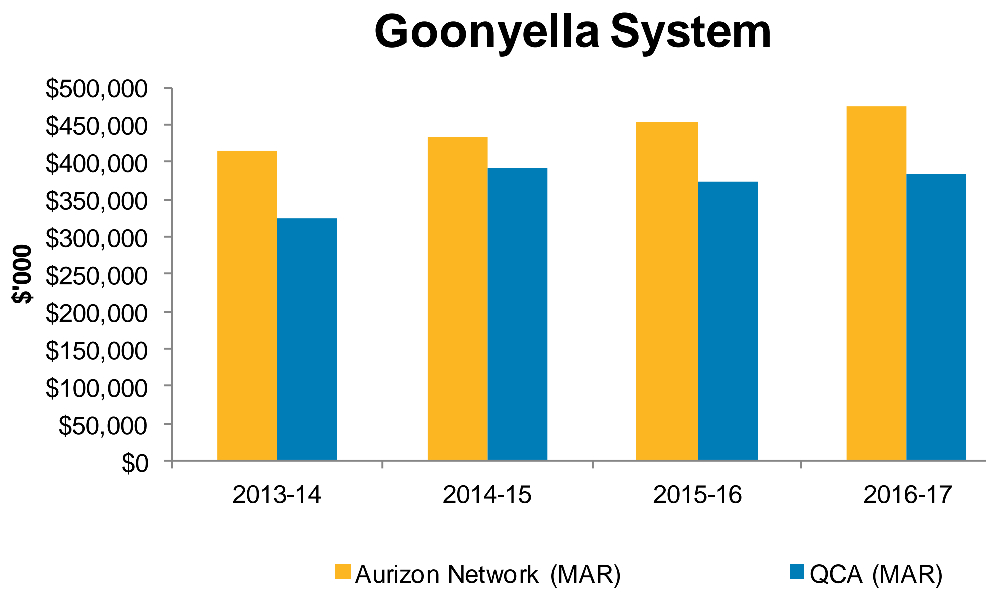
This section provides a comparison of Aurizon Network's proposed revised MAR (December 2013) against our consolidated draft decision. Importantly, our consolidated draft decision is in relation to the MAR as originally proposed by Aurizon Network. Aurizon Network's revised proposal is only relevant to the way in which we consider the 2014 DAU should be amended, should we refuse to approve the original MAR. We include this comparison to assist stakeholders to understand our consolidated draft decision.

Our SAR is lower than Aurizon Network's proposal across all systems and years.

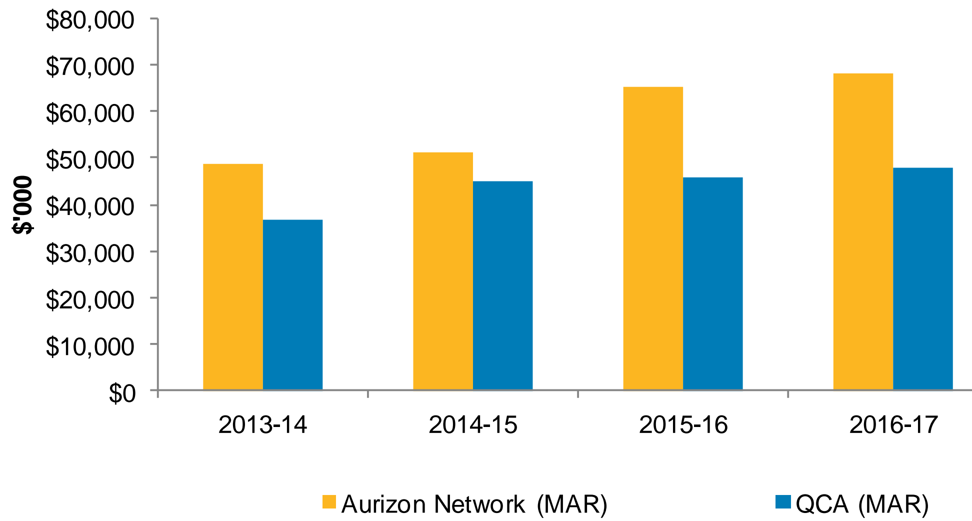
Figure 5 MAR by System (Nominal)



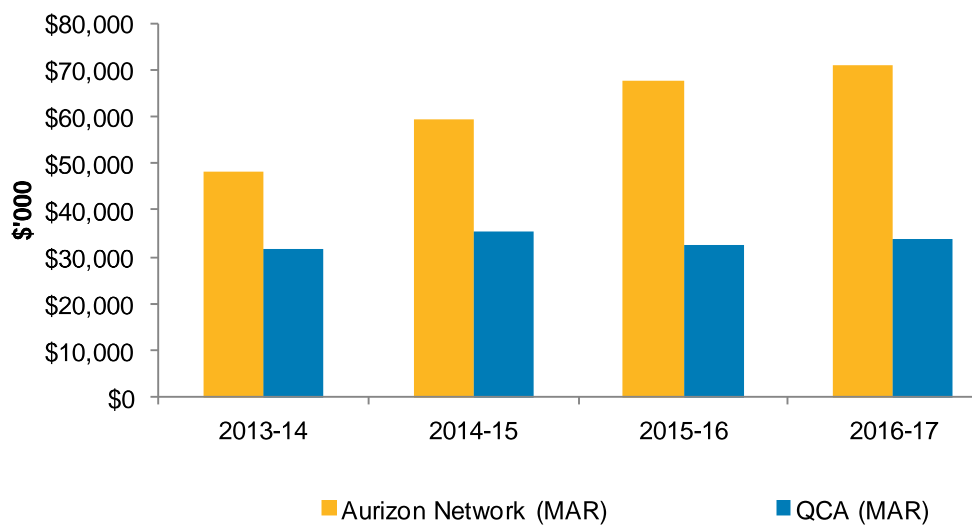
Source: QCA analysis.



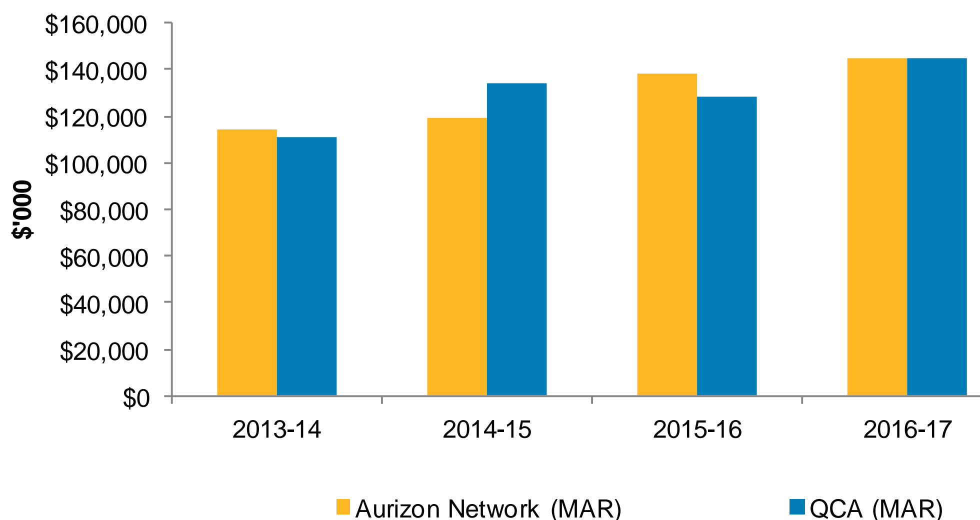
Source: QCA analysis.



Source: QCA analysis.



Source: QCA analysis.



Source: QCA analysis.

20.3 Transitional matters relating to UT4 MAR

20.3.1 Aurizon Network's proposal

We have approved Aurizon Network's proposed extensions to its 2010 AU to provide transitional tariffs to customers while the 2014 DAU is being finalised.[17]

As these are transitional tariffs, a 'true-up' process will be required. Aurizon Network proposed two options:

- smoothing—incorporating the differences between allowable revenues and actual revenues received in 2013–14 into the remaining years of the 2014 DAU regulatory period (i.e. 2014–15, 2015–16 and 2016–17)
- adjustment charges—after our final approval of the 2014 DAU.

In both cases, we note that our intention is not to backdate UT4 once it has been accepted. As identified previously in the MAR draft decision, we do not consider such backdating is contemplated by the QCA Act. Rather, our intention is to determine a mechanism to identify reconciliation payments that will be made when UT4 takes effect that will be determined by reference to events in previous periods. These reconciliation payments are intended to simulate the effect as if UT4 had applied instead of UT3 over the relevant previous periods.

20.3.2 Summary of our MAR draft decision

We considered the two options as part of our consolidated draft decision on Aurizon Network's 2014 Extension DAAU for UT3.

We indicated we understood the concerns of the new miners (and, potentially, other emerging or new coal producers) that the smoothing option may result in these producers facing

[17] Refer to http://www.qca.org.au/Rail/Aurizon/Intro-to-Aurizon/2010-Access-Undertaking/Variations/DAAU-Extensions for further information on our approval of Aurizon Network's extension draft amending access undertaking proposals.

disproportionately higher (or lower) reference tariffs for the 2014–15 to 2016–17 period, caused by under (or over) recovery in 2013–14. We noted these concerns may have implications for competition in upstream markets and for the viability of new or emerging coal producers.

However, we also noted the normal revenue cap arrangements that apply in UT3 provide for revenue under-recoveries (over-recoveries) to be recouped (returned) two years later. This means these arrangements, while maintaining revenue neutrality for Aurizon Network, are never likely to do so in practice for all individual coal producers. It is likely that, in the two years between an under-recovery (over-recovery) and it being recouped (returned), some producers will exit the market and some new producers will enter. In addition, even among producers who stay in the market, there will inevitably be significant ramp-ups in production for some, and reductions in production for others, within the two-year period.

While we accepted that (potentially) the under (or over) recovery of revenues from 2013–14 that may need to be recouped via approved reference tariffs over the remainder of the UT4 regulatory period could be significant, we noted revenue under-recoveries in past years that have been recouped two years later have also, on occasions, been significant.

The analysis we undertook for the 2014 Extension DAAU is relevant to our analysis of these same matters for the purposes of this consolidated draft decision and also informed our previous MAR draft decision in relation to the 2014 DAU. Given the nature of the regulatory regime, and the operation of the revenue cap framework, our MAR draft decision was that it is not unreasonable to accept the proposal to smooth any adjustment required over the remainder of the 2014 DAU regulatory period. We were inclined to apply smoothing for any under or over-recovery of revenues resulting from the 2013–14 transitional tariff arrangements.

We noted that the arrangements for reconciling 2014–15 transitional tariffs will be considered as part of our consolidated draft decision on the 2014 DAU. We sought stakeholder input on this in response to our MAR draft decision.

Our MAR draft decisions were:

> *2.2 We accept Aurizon Network's proposal to smooth the difference between 2013–14 allowable and actual revenues over the 2014–15, 2015–16, 2016–17 years.*
>
> *2.3 We seek stakeholder input into the appropriate arrangements for reconciling allowable and actual revenues for 2014–15.*

20.3.3 Stakeholder comments on our MAR draft decision

Table 7 outlines Aurizon Network and other stakeholders' comments to our MAR draft decision 2.2, to smooth the difference between 2013–14 allowable and actual revenues over the 2014–15, 2015–16 and 2016–17 period.

Table 7 Stakeholder comments on MAR draft decision 2.2

Stakeholders	*Comments*
Aurizon Network	Aurizon Network said they would like to discuss with the QCA and industry which of the two options (one off recovery or smoothing across the remainder of UT4) to adopt for the MAR difference in 2013-14.[18]
Other stakeholders	The QRC supported our MAR draft decision to accept Aurizon Network's proposal to smooth the difference between 2013-14 allowable and actual revenues over the remaining years of UT4 based on[19]: • the delays in finalising UT4 have caused substantial difficulties for customers in terms of planning and budgeting. Having an adjustment charge arise a year or more after the end of that period causes further difficulties. • producers have now planned and budgeted based on an understanding that this adjustment will be smoothed over the last three years. Producers made this assumption based on: – a majority of customers prefer this approach – Aurizon Network supported and proposed this approach – the QCA's preliminary view (May 2014 decision on the extension DAAU) was to support this approach – our MAR draft decision continued to support this approach.

Table 8 outlines Aurizon Network and other stakeholders' comments on our MAR draft decision 2.3 to seek stakeholder inputs into the appropriate arrangements for reconciling allowable and actual revenues for 2014–15.

Table 8 Stakeholder comments on MAR draft decision 2.3

Stakeholders	*Comments*
Aurizon Network	Aurizon Network has proposed to recover or return the 2014-15 MAR difference between the transitional allowable revenues and approved revenue via an adjustment charge.[20]
Other stakeholders	The QRC said that customers expect an adjustment charge would apply upon the approval of UT4. As a result, the QRC is supportive of the 2014-15 true up being settled by way of an adjustment charge.[21]

20.3.4 QCA analysis and consolidated draft decision

We note that Aurizon Network and the QRC accepted our MAR draft decision in which we accepted Aurizon Network's proposal to smooth the difference between 2013–14 allowable and actual revenues over the 2014–15, 2015–16 and 2016–17 period. However, as the difference between the 2013–14 transitional and actual revenues has now been incorporated into the 2015–16 transitional tariffs, our consolidated draft decision is to smooth the difference between the 2013–14 approved allowable and transitional revenues over the 2014–15, 2015–16 and 2016–17 period.

[18] Aurizon Network, 2014 DAU, sub. no. 59: 8
[19] QRC, 2014 DAU, sub. 62: 6.
[20] Aurizon Network, 2014 DAU, sub. 59: 37.
[21] QRC, 2014 DAU, sub. 62:6.

We note that Aurizon Network and the QRC proposed to reconcile the difference between the approved allowable and transitional revenues for 2014–15 via an adjustment charge under the normal revenue cap arrangements. We consider this to be an appropriate approach; therefore our consolidated draft decision is to accept this proposal having regard to the factors in section 138(2) of the QCA Act. We note at the time of publishing this consolidated draft decision, the 2014–15 revenue cap process is not yet finalised.

We also consider that the difference between the 2015–16 approved allowable and transitional revenues, should be reconciled via an adjustment charge approach having regard to the factors in section 138(2) of the QCA Act.

Consolidated draft decision 20.2

(1) After considering Aurizon Network's proposal to smooth the difference between 2013–14 allowable and actual revenues over the 2014–15, 2015–16, 2016–17 period, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

(2) The way in which we consider it appropriate for Aurizon Network to amend the 2014 DAU is to calculate the difference between the 2013–14 approved allowable and transitional revenues and recover this amount over the 2014–15, 2015–16, and 2016–17 period.

(3) The difference between 2014–15 and 2015–16 approved allowable and transitional revenues should be recovered or returned to access holders via an adjustment charge approach under the normal revenue cap arrangements.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

21 VOLUME FORECASTS

Volume forecasts are a key component in determining the maximum allowable revenue (MAR) over the regulatory period. Volume forecasts underpin a range of cost factors, in particular the CQCN maintenance program, and are used to convert the approved annual revenue requirement into reference tariffs for coal-carrying train services in the CQCN.

Our consolidated draft decision is to refuse to approve Aurizon Network's original volume forecasts. We have also considered Aurizon Network's revised proposal. We consider it appropriate that the 2014 DAU is amended to use volume forecasts approximately 2.9 per cent lower than Aurizon Network's original proposal as we forecast a slower rate of production growth in various mines as a result of current and forecast market conditions.

21.1 Aurizon Network's proposal

Aurizon Network proposed volume forecasts for each coal system in central Queensland from 2013–14 to 2016–17 on a net tonne basis and provided the QCA with detailed confidential information in support of this on a mine-level basis.

Aurizon Network said its volume projections for UT4:

- were reasonably consistent with industry sentiment over the first two years (of UT4) with 2012–13 volumes providing a guide to expected throughput in 2013–14
- were consistent with the QRC's March quarter 2013 edition of the State of Sector report which predicted subdued thermal and metallurgical coal contract prices
- reflected substantial reductions in employment numbers in the coal sector over the first half of 2012–13, with further reductions forecast in 2014, indicating the sector was not preparing for significant increases in production over 2013–14 and 2014–15.

Consistent with UT3, Aurizon Network said regard must be given to the capacity of the relevant supply chains when considering the demand outlook—in particular, the incremental capacity to be delivered by planned expansions and the expected timing of expansions.[22]

[22] Aurizon Network, 2013 DAU, sub. 3: 20.

Table 9 Aurizon Network's UT4 volume forecasts by system (million tonnes)

System	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Blackwater	51.3	51.6	48.5	49.0
Goonyella	100.4	109.4	114.8	119.7
Moura	12.5	11.0	10.4	11.3
Newlands (excluding GAPE)	14.8	15.8	17.0	18.7
GAPE	20.6	25.4	27.1	29.0
WIRP Stage 1	—	9.0	18.7	24.3
Total	199.6	222.2	236.5	252.1

Source: Aurizon Network, 2013 DAU, sub. 3: 20.

21.2 Legislative framework

We are required to assess the appropriateness of Aurizon Network's proposal having regard to all of the criteria in section 138(2) of the QCA Act. In the context of assessing Aurizon Network's proposal, we must have regard to the factors listed in section 138(2) and weight them appropriately, as discussed in Chapter 2 of this consolidated draft decision.

In this case, Aurizon Network's proposal relates to volume forecasts to be used in determining prices for the draft access undertaking.

Against this background we consider:

- section 138(2)(a), (b), (d), (e), (g) and (h) should be given more weight, as identified below
- section 138(2)(g) refers to the pricing principles mentioned in section 168A, of which we consider section 168A(a) should be given more weight, as identified below
- sections 138(2)(c), 138(2)(f), 168A(b), 168A(c) and 168A(d) should be given less weight as they are less practically relevant to our assessment of forecast volumes.

Prudent and efficiently incurred infrastructure investment

Section 138(2)(a) of the QCA Act requires that we have regard to the object of Part 5 of the QCA Act as set out in section 69E, namely to promote the economically efficient operation of, use of, and investment in the CQCN, as the significant infrastructure by which services are provided, with the effect of promoting effective competition in upstream and downstream markets.

Sections 138(2)(g) and 168A 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.

To meet these objectives, forecast volumes should be such as to enable Aurizon Network to earn sufficient revenue to recover prudent and efficiently incurred infrastructure investment in the CQCN. In broad terms, we consider, pursuant to section 138(2)(b) of the QCA Act, that the legitimate business interests of Aurizon Network will be met if it is permitted to recover a

regulated return on capital and the depreciation allowance associated with prudently and efficiently incurred infrastructure investment in the CQCN.

Conversely, section 138(2)(e) and (d) require us to have regard to the interests of access seekers and the public interest. We also consider that the rights of existing access holders are relevant under section 138(2)(h), to the extent they are not already 'access seekers' under section 138(2)(e). As identified earlier, consideration of all of these interests leads to a conclusion that Aurizon Network should be permitted to recover expected revenue for the service that is at least enough to meet the efficient costs of providing access service and including a return on investment commensurate with the regulatory and commercial risks involved, as identified in section 168A(a). However, consideration of all those interests also leads to the conclusion that Aurizon Network should be permitted to recover expected revenue that is no more than enough to meet such efficient costs and including that the risk-adjusted return on investment. In this manner, effective competition in markets upstream and downstream of the CQCN will be promoted as contemplated by the objective of Part 5 specified in section 69E of the QCA Act.

Moreover, if Aurizon Network is permitted to recover only its efficient costs and risk-adjusted return on investment (i.e. at least enough and no more than enough), it will have incentives to reduce costs and otherwise improve productivity for the purposes of section 168A(d) and will have less scope to discriminate in favour of its downstream operations—which could otherwise raise concerns under section 168A(c). The need for costs to be minimised is in the public interest under section 138(2)(d) and is particularly important.

21.3 QCA MAR draft decision

Our MAR draft decision was to favour forecast volumes prepared by Energy Economics for the 2014 DAU period. These forecasts were 6.3 per cent lower than Aurizon Network's original proposal. This largely reflected a slower forecast rate of production growth from mines supplied by the WIRP Stage 1 and GAPE/NAPE.

Table 10 QCA UT4 volume forecasts by system (million tonnes)

System	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Blackwater	64.3	58.9	57.6	59.1
Goonyella	109.4	105.1	102.8	108.8
Moura	12.3	12.4	12.7	13.2
Newlands (excluding GAPE)	12.8	13.9	16.2	17.8
GAPE	12.3	13.3	15.2	15.5
WIRP Stage 1	0.0	2.1	6.7	10.8
Total	**211.0**	**205.6**	**211.1**	**225.1**

Source: Energy Economics, 2013 DAU, 2014: 5, and supporting papers.

While we applied the 2013–14 estimates for our MAR draft decision, we proposed to revise these for 2013–14 actual results for the final decision.

Our full analysis and reasoning is contained in section 3.4 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

21.4 Aurizon Network's response

Aurizon Network stated that it has clear obligations and incentives to set a volume forecast that is as accurate as possible in order to meet its Rail Safety Act requirements and to minimise cash flow volatility for it and its customers.

Aurizon Network stated that its forecasts are based on expectations of future railings at a point in time and take account of factors including:

- the demand outlook for domestic and export coal in the CQCN
- contracted volumes
- capacity of the supply chain
- expected production growth
- incremental capacity delivered by expansions and new mines.

Aurizon Network stated that the forecast volume for 2014–15 estimated by Energy Economics and adopted by the QCA (205.6 mt) is a decrease of 4.1 per cent against actual railings in 2013–14. Aurizon Network considered this forecast to be too low in the light of the performance for 2014–15, which was tracking 7 per cent above what it was at a same point in 2013–14, when Aurizon Network made its December 2014 submission.

Aurizon Network submitted that it expected 2014–15 to be a strong year for coal volumes despite continued subdued prices for thermal and metallurgical coal, as:

- coal companies are increasing production to maximise cash flow and reduce unit costs due to low prices
- volume growth is also being driven by increasing demand for Australian coal in India as it seeks to dramatically increase its energy and steel production
- despite a reduction in overall imports by China, Australian coal exports to that market have been resilient
- an important development that has contributed to this development has been a decision by some US producers to switch shipments from Asia into Europe or cease production altogether.

Aurizon Network stated that it expected these trends to continue into 2015–16 and 2016–17 particularly as the Wiggins Island Coal Export Terminal (WICET) volumes come on stream.

Table 11 Aurizon Network's revised UT4 volume forecasts by system (million tonnes)

System	*2013–14 (actual)*	*2014–15 (forecast)*	*2015–16 (forecast)*	*2016–17 (forecast)*
Blackwater	66.4	60.7	70.5	72.9
Goonyella	111.2	111.2	112.1	116.7
Moura	12.4	13.2	13.5	15.8
Newlands (excl GAPE)	12.0	13.9	13.9	13.9
GAPE	12.5	15.6	17.5	19.4
Total	**214.5**	**214.6**	**227.4**	**238.7**

Notes: Blackwater and Moura figures include volumes associated with train services for WICET; with the exception of Goonyella and Newlands; 2014–15 represents transitional tariff tonnages.

Source: Aurizon Network, 2014 DAU, sub. 59: 41.

21.5 Stakeholders' comments on the MAR draft decision

A number of stakeholders commented on the MAR draft decision:

- Asciano welcomed the QCA's engagement of Energy Economics to assess Aurizon Network's volume forecasts stating that independent review of Aurizon Network's forecasts should reduce its concerns that the forecasts are determined to favour Aurizon Network's interests.23 However, Asciano stated that the Energy Economics volume forecast for 2014–15 should be adjusted for actual 2014–15 monthly figures for the first six to nine months of 2014–15 (depending on the availability of volume data).
- BMA submitted that the accuracy of volume forecasts for UT4 is important given that it forms the basis for determining reference tariffs, maintenance and operating cost allowances and acts as a trigger for take or pay provisions.24 BCA stated that the QCA should carefully assess the volumes over the UT4 period particularly in relation to pricing principles for WIRP as this could have unintended results if the volume assumptions are inaccurate.
- QRC supported the MAR draft decision to amend volume forecasts on the basis of the latest available information including the actual results for 2013–14.25 However, QRC noted that its members had raised concerns that the Energy Economics forecasts did not reflect the latest available information noting that producers involved with WICET considered the forecast for WICET to be overly conservative. QRC therefore encouraged the QCA to review the forecasts taking into account input from producers and terminal operators and seek comments closer to the time of the final decision. QRC suggested that the revised forecasts should be used to assess elements of the MAR that vary with volumes, establish triggers for take-or-pay (except for 2013–14) and be adopted for tariff calculation purposes.

[23] Asciano, 2014 DAU, sub.. 52: 5.
[24] BMA, 2014 DAU, sub.. 53: 2.
[25] QRC, 2014 DAU, sub. 62: 6.

- WIRP users strongly opposed the use of WIRP Stage 1 forecast tonnages as this forecast would materially understate expected railings through WICET.26 WIRP users also submitted that the Energy Economics forecast was not reasonable and had not been prepared in consultation with any of the WIRP users. WIRP users requested that the QCA consider and adopt (the medium scenario) forecast tonnages prepared by John T. Boyd Company (Boyd) in December 2014 on behalf of WICET's financiers as this review reflected an independent and recent technical review of the production schedules for the mines and projects expected to rail through WICET.

21.6 Consultant's assessment

For the consolidated draft decision, we engaged Energy Economics again to provide revised and up-to-date volume forecasts, taking into account submissions received from stakeholders on the MAR draft decision.

Energy Economics engaged with relevant stakeholders including WIRP and non-WIRP customers to ensure that all available information was incorporated in the revised estimates.

Since the MAR draft decision, actual volumes have become available for 2014–15. Energy Economics has adopted these actual figures to replace the forecast figures.

For the remaining years of UT4, Energy Economics made an assessment taking into account:

- coal demand and supply in both domestic and international markets
- appraisal of current mine capacities
- mine expansion projects, new mine developments and both current and future mining issues
- coal reserves and mine life
- mining costs
- rail system capacity, contractual arrangements, charges and take-or-pay commitments
- port terminal capacity, contractual arrangements, charges and take-or-pay commitments.

In total, Energy Economics forecast volumes to be 1 per cent less than Aurizon Network's revised proposal.

Energy Economics noted that:[27]

> *The Aurizon Network forecasts appear to take a top down approach, with individual projects being allocated a percentage of their contracted railings .... The tonnages allocated to each mine, as provided to Energy Economics, are therefore not particularly meaningful, particularly in cases where a mine within a railing system has been idled or is about to close, yet is still allocated a share of the forecast railings.*

As such, Energy Economics did not undertake detailed comparisons with Aurizon Network's forecasts at the mine level except for cases where Aurizon Network adopted bottom-up forecasts prepared by Boyd for railings to WICET.

Given stakeholder concerns about the visibility and accuracy of the WICET forecasts, Energy Economics assessed the volume forecasts for WIRP train services to ensure they were up to date. In developing updated forecasts, Energy Economics considered various factors including

[26] WIRP users, 2014 DAU, sub. 63: 1.
[27] Energy Economics 2015.

mine and port capacity, take-or-pay rail and port contracts, production rates, coal reserves and resources, potential mining and/or market issues and mine expansion plans.

Energy Economics also engaged with relevant stakeholders including WIRP and non-WIRP customers to ensure that all available information was incorporated in the revised estimates.[28]

Energy Economics forecast volumes to fall from 225 million tonnes in 2014–15 to 219.1 million tonnes in 2015–16 (reflecting mine closures and production cutbacks resulting from low international metallurgical prices) before recovering to 226.3 million tonnes in 2016–17 (reflecting supply-side adjustments that are likely to favour low cost Queensland metallurgical coal producers).

Energy Economics' revised forecasts are presented in Table 12.

Table 12 Energy Economics volume forecasts for UT4 by system (million tonnes)

System	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Blackwater	64.8	63.5	66.2	67.8
Goonyella	112.5	119.6	112.1	115.6
Moura	12.4	12.3	13.6	14.3
Newlands (excl GAPE)	11.6	14.3	12.0	11.5
GAPE	12.5	15.3	15.3	17.0
Total	**213.9**	**225**	**219.1**	**226.3**

Notes: Incorporates unpublished updates from Aurizon Network. Blackwater and Moura figures include volumes associated with train services for WICET. Components may not sum up to totals due to rounding. Source: Energy Economics, 2015.

21.7 QCA analysis and consolidated draft decision

Our consolidated draft decision relates to the 2014 DAU as originally submitted, rather than any subsequent proposal submitted by Aurizon Network. However, any subsequent proposal is relevant to the manner in which we consider it appropriate that the 2014 DAU should be amended.

As set out above, Aurizon Network's volume forecasts for 2013–14 and 2014–15 are excessive, compared with the actual volumes for 2013–14 and 2014–15. Aurizon Network's volume forecasts for 2015–16 and 2016–17 are also excessive, compared with the corresponding estimates prepared by Energy Economics based on up-to-date data. Overestimating volumes would not reflect the legitimate business interests of Aurizon Network and would not be in the public interest or the interests of relevant stakeholders. Overestimating volumes would also reduce incentives for Aurizon Network to reduce costs or otherwise improve productivity. In addition, such an outcome would not promote the economically efficient operation and use of, and investment in, infrastructure underpinning the service, and may have detrimental effects on competition in upstream and downstream markets.

Our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

[28] WIRP volumes are discussed in the WIRP chapter.

We consider it appropriate that Aurizon Network amend the 2014 DAU by using the actual volumes for 2013–14 and 2014–15. This method is consistent with Aurizon Network's revised proposal, but the figures have been updated to reflect up-to-date data.

We also consider it appropriate that Aurizon Network amend the 2014 DAU by adopting Energy Economics' revised forecasts for the periods 2015–16 and 2016–17, as reflected in the amended volume forecasts in Table 13.

As proposed by stakeholders, we consider it appropriate that these volumes are used to adjust elements of the MAR for the 2014 DAU that vary with volumes.

Table 13 Volumes for UT4 (million tonnes)

	2013–14	***2014–15***	***2015–16***	***2016–17***	***Total***
Original proposal	199.6	222.2	236.5	252.1	910.4
QCA MAR draft decision	211.0	205.6	211.1	225.1	852.8
Revised proposal	214.5	214.6	227.4	238.7	895.2
QCA consolidated draft decision	213.9	225.0	219.1	226.3	884.3

Sources: Aurizon Network, 2013 DAU, sub. 3: 20; QCA, 2014, MAR draft decision; Aurizon Network, 2014 DAU, sub. 59: 41; Energy Economics, 2015 (incorporating unpublished updates from Aurizon Network).

Our proposed amendments address what we consider to be Aurizon Network's overestimate of volume forecasts and would more accurately reflect Aurizon Network's legitimate business interests, generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service, and provide a risk-adjusted return on investment to Aurizon Network.

By setting volume forecasts based on actual volumes and up-to-date data, our proposed amendments would also appropriately balance Aurizon Network's interests, the public interest, and the interests of relevant stakeholders. In addition, this would promote the objective of Part 5 of the Act and provide incentives for Aurizon Network and relevant stakeholders to reduce costs or otherwise improve productivity.

As proposed by stakeholders, we have used these volumes to adjust elements of the MAR that vary with volumes. If there is a delay in Aurizon Network submitting its next voluntary DAU to replace DAU 2014, we would expect Aurizon Network to continue to replace forecast figures with actual figures where actual figures are known.

Consolidated draft decision 21.1

(1) After considering Aurizon Network's proposed forecast volumes, our consolidated draft decision is to refuse to approve Aurizon Network's original proposal.

(2) We consider that Aurizon Network's December 2014 submission that actual volumes be used for 2013–14 and 2014–15 is appropriate. For the remaining years we consider that Energy Economics' revised forecast are appropriate. Therefore the way in which we consider it appropriate that Aurizon Network amend its 2014 draft access undertaking is to use the actual and forecast volumes as specified in Section 21.7 Table 13.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

22 OPERATING COSTS

Aurizon Network's proposed operating costs under the 2014 DAU represents around 19 per cent of its annual maximum allowable revenue (MAR). Its operating costs include all costs associated with train control, planning, infrastructure management and business development. It also includes the corporate overheads for operation of the business, along with insurance and other operating costs.

Whilst we accepted many aspects of Aurizon Network's operating costs proposal in the 2014 DAU, our MAR draft decision was to refuse to approve it. This was because Aurizon Network's proposed operating costs were more than that necessary to provide efficient services for the CQCN.

Our consolidated draft decision largely retains our position in the MAR draft decision. We consider it appropriate that Aurizon Network amend its access undertaking to remove $95 million over four years from its proposed operating cost allowance.

22.1 Overview

22.1.1 Aurizon Network's proposal

In its April 2013 submission, Aurizon Network proposed a total operating cost allowance of $205.7 million in 2013–14 increasing to $241.6 million in 2016–17 in nominal terms (Table 14).[29] This represents a 17 per cent rise over the 2014 DAU period.

The operating costs are broken down into two categories: non-electric and electric.

Table 14 Aurizon Network's proposed operating costs ($ million, nominal)

Cost component	*2013–14*	*2014–15*	*2015–16*	*2016–17*
System-wide and regional costs	57.6	60.2	65.4	67.2
Corporate overheads	66.0	68.6	71.3	73.9
Insurance	8.3	9.4	10.3	11.0
Audit and condition-based assessment costs	0.9	—	—	—
Environmental charges	4.6	5.3	6.1	6.6
Operating costs—non-electric	**137.3**	**143.6**	**153.0**	**158.7**
Transmission connection costs	68.3	74.4	81.3	82.9
Operating costs—electric	**68.3**	**74.4**	**81.3**	**82.9**
Total operating costs ($nominal)	**205.7**	**218.1**	**234.3**	**241.6**

Note: Numbers may not sum due to rounding. Sources: Aurizon Network, 2013 DAU, sub. 3: 70, 241, 252, 271; Aurizon Network April 2013 financial model.

[29] Unless otherwise indicated, dollars in this chapter are nominal dollars.

Aurizon Network provided a revised operating cost forecast in December 2013 as part of its updated financial model. However, our MAR draft decision addressed the detailed cost estimates submitted in April 2013 given that these were the estimates that applied at the time that DAU 2014 was submitted.

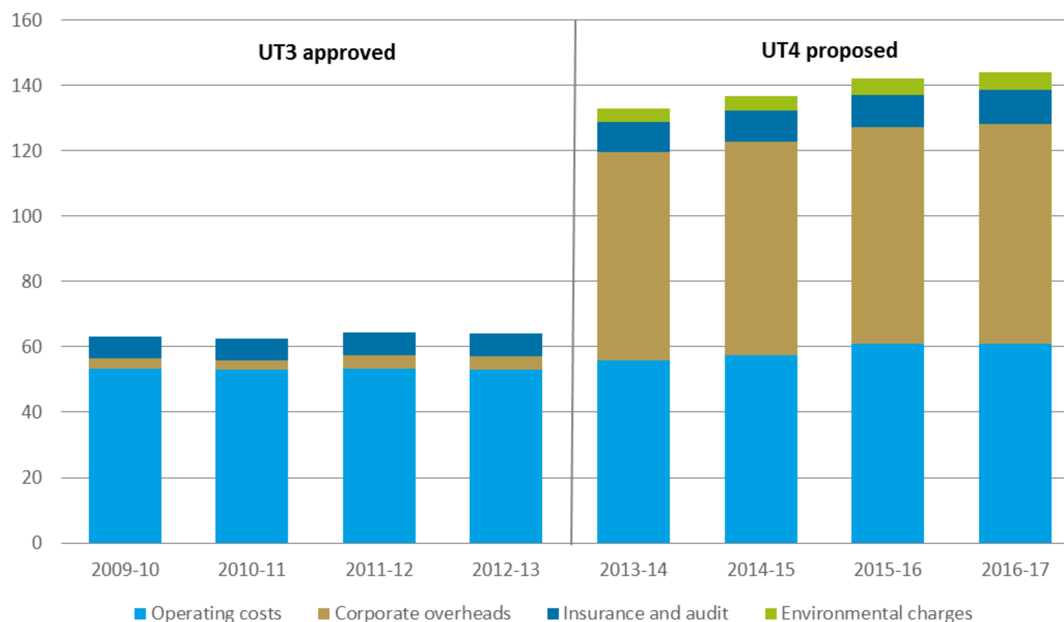
Our consolidated draft decision is in relation to the operating costs as originally proposed by Aurizon Network at the time that DAU 2014 was submitted. Aurizon Network's revised proposal in December 2013 is only relevant to the way in which we consider the 2014 DAU should be amended.

Aurizon Network proposed to use its operating cost forecasts for 2012–13 as the base for assessing its efficient operating costs. Aurizon Network said that we should not rely on the historical operating expenditure allowances as the basis for assessing efficient costs for the 2014 DAU. In particular, Aurizon Network said its current operational model is fundamentally different to that considered in previous assessments of the benchmark efficient below-rail costs; the below-rail network system-wide and regional cost allowances prior to the separation and listing of the business, were therefore not an appropriate benchmark for UT4 operating expenses.[30]

Aurizon Network's proposed operating costs included a significant step change at the start of the 2014 DAU period relative to the UT3 approved operating costs. There was a 109 per cent increase in Aurizon Network's proposed operating costs (non-electric) under the 2014 DAU for 2013–14 relative to the approved operating costs in 2012–13 (the final year of UT3). The most significant cost increase related to the proposed allowance for corporate overheads. We explained Aurizon Network's reasons identified for these changes in section 4.1.1 of our MAR draft decision.

[30] Aurizon Network, 2013 DAU, sub. 3: 243.

Figure 6 UT3 approved and 2014 DAU proposed operating costs (non-electric assets) 2009–10 to 2016–17 ($2012–13 million)



Note: The system-wide and regional cost allowances in UT3 include some costs which have since been reallocated to corporate overheads, including finance and HR costs, the telecommunications backbone and UT3 corporate overheads, to reflect the 2010 QCA UT3 final decision.

22.1.2 Legislative framework and QCA assessment approach

Legislative framework

We are required to assess the appropriateness of Aurizon Network's proposal having regard to all of the criteria in section 138(2) of the QCA Act. In the context of assessing Aurizon Network's proposal, we must have regard to the factors listed in section 138(2) and weight them appropriately. We have provided an overview of the legislative framework in Chapter 2 (Legislative Framework) of this consolidated draft decision, including our application of that framework in the context of this consolidated draft decision.

Against this background:

- we consider that section 138(2)(a), (b), (d), (e), (g) and (h) should be given more weight, as identified below
- section 138(2)(g) refers to the pricing principles mentioned in section 168A, of which we consider section 168A(a), (c) and (d) should be given more weight, as identified below
- we consider that sections 138(2)(c), 138(2)(f) and 168A(b) should be given less weight as they are less relevant to our assessment of the operating expenditure.

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 significant infrastructure by which declared services are provided with the effect of promoting effective competition in upstream and downstream markets. 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.

When assessing operating and maintenance costs, the QCA Act requires us to consider the factors in section 138(2). As identified above, this requires us to identify whether the costs proposed by Aurizon Network are efficient. We note that this task is not necessarily straightforward and requires us to make a decision based on the evidence available to us at the time.

We have identified our approach to the measurement of efficient cost in Sections 2.9.2 and 2.18.2 of Chapter 2 (Legislative Framework) of this consolidated draft decision and in Chapter 20 (Maximum Allowable Revenue).

In broad terms, we also consider that, consistent with section 138(2)(b) of the QCA Act, the legitimate business interests of Aurizon Network in relation to operating expenditure costs will be met if it is permitted to recover at least the efficient costs of operating and managing the CQCN.

Conversely, section 138(2)(d) and (e) require us to have regard to the interests of access seekers and the public interest. We also consider that the rights of existing access holders are relevant under section 138(2)(h), to the extent they are not already 'access seekers' under section 138(2)(e). Consideration of all of these interests leads to a conclusion that Aurizon Network should also be permitted to recover no more than efficient costs and return on investment commensurate with the regulatory and commercial risks involved, as identified in section 168A(a). In this manner, effective competition in markets upstream and downstream of the CQCN will be promoted as contemplated by the object of Part 5 specified in section 69E of the QCA Act.

Moreover, if Aurizon Network is permitted to recover no more than its efficient costs and return on investment as identified in section 168A(a), it will have incentives to incur costs efficiently for the purposes of section 168A(d) and will have less scope to discriminate in favour of its downstream operations—which could otherwise raise concerns under section 168A(c). The need for efficient costs is also in the public interest (s. 138(d)).

A further factor relevant to our assessment of Aurizon Network's proposal is that, where possible, the approach adopted should provide for regulatory certainty. We have had regard to this factor pursuant to section 138(2)(h) of the QCA Act. We support a stable and predictable regulatory environment for Aurizon Network, an environment in which there are changes to methodology only where there is a clear case for such changes.

Allocation of costs

When considering cost allocation, in addition to section 138(2)(b) of the QCA Act we have also had regard to section 137(1A)(b) as well as section 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, via the access price, costs that are not reasonably attributable to the provision of the service.

Our assessment of Aurizon Network's operating expenditure proposal is set out below. We have also identified our assessment approach and its linkages to the legislative framework.

QCA assessment approach

Our role is to assess the efficient operating costs for Aurizon Network to deliver the declared service in the CQCN in the context of section 138(2) of the QCA Act. As part of our review of the 2014 DAU, we engaged RSM Bird Cameron (RSMBC) and Jacobs SKM (SKM) to review the efficiency of Aurizon Network's proposed operating costs. The consultants' reports were made available for public consultation.

Our approach to assessing Aurizon Network's efficient costs for UT4 is set out in Table 15.

Table 15 QCA approach to assessing Aurizon Network's proposed operating costs

Assessment criterion	***Assessment approach for UT4 operating costs***
Are the costs proposed by Aurizon Network efficient?	As identified above, the factors to which we must have regard in section 138(2) of the QCA Act require us to form a view as to whether Aurizon Network's forecast operating costs are efficient. In assessing what may constitute the efficient operating costs of a monopoly entity, we need to identify whether the same type and level of costs would be incurred by that entity if it were subject to competitive forces. (See our explanation of the legislative framework at the commencement of this consolidated draft decision). Competition would drive a firm to minimise operating costs and adopt the most efficient practices and structures to do so. One way to identify whether costs are likely to be efficient is to benchmark those costs against the costs of activities undertaken by comparable firms. Against this background we consider that the corporate form (e.g. publicly listed or privately owned) and operational business structure are commercial decisions for the owners and hence would be optimised in a competitive context to reduce cost. The efficient operating costs need not therefore be defined by the current corporate form and business structure chosen by Aurizon Network, but rather by the most efficient corporate form that could practically be adopted. More importantly, it also means that costs associated with supporting a particular corporate form and business structure should only be reflected in a customer's final price to the extent that the costs resulting from that form and structure are efficient costs. We consider these issues are particularly pertinent in the context of assessing efficient corporate overheads, as discussed in this chapter. We have identified our approach to the measurement of efficient cost in Sections 2.9.2 and 2.18.2 of Chapter 2 (Legislative Framework) of this consolidated draft decision. Identifying what makes an efficient cost is not a straightforward task and wherever possible we sought to measure the 'efficient' costs, taking into account all evidence available to us at the time. In the continued absence of robust, evidence-based benchmarks for assessing efficient costs in the CQCN, we have used 'reasonable costs' to assist in our determination of efficient costs operating and maintenance costs for the 2014 DAU period. However, to the extent our draft or consolidated draft decision refers to 'reasonable costs,' this is not to be understood as suggesting we are doing or seeking to do anything other than measure or estimate 'efficient costs' to the extent practicable given the evidence available. By 'reasonable', we mean, that: • the operating costs are consistent with the costs of other relevant businesses (and would therefore be reflective of efficient costs to the extent such organisations are exposed to competition) • when the actual costs of Aurizon Network are analysed, the scope of activities and inputs is justifiable given the scale and nature of Aurizon Network's operations, with the activities and inputs being causally related to the declared service provided, and the expenditure on those activities and inputs not being excessive • an analysis of a time series of comparative data indicates that any escalation of costs is consistent with relevant cost indices.
What are the	Aurizon Network is part of the vertically integrated Aurizon Holdings Limited. The QCA

Assessment criterion	***Assessment approach for UT4 operating costs***
efficient costs of operating the CQCN as a stand-alone business?	Act requires us to form a view on what constitutes the efficient operating costs of Aurizon Network, not Aurizon Holdings. Specifically, section 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. In this context, we consider the 'stand-alone business' concept to be an appropriate tool when assessing whether access holders are paying the efficient operating costs that would be reasonably attributed to a 'stand-alone' business providing a similar service, to a similar customer composition and demand profile as that of Aurizon Network. We consider that the 'stand-alone business' concept relates to the process of understanding the bottom-up cost base of such an entity from an efficient cost perspective. It should be noted that this exercise need not result in a cost base that aligns with Aurizon Network's existing structure or any proposed structure. We are 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 magnitude of the corporate overhead allowance for Aurizon Network is efficient and that resulting prices do not allow Aurizon Network to discriminate in favour of a related party (contrary to section 168A(c) of the QCA Act).
The impacts of economies of scale	The 'stand-alone business' concept needs to be considered in the context of economies of scale that may exist directly as a result of being part of an integrated group. Within this context, Aurizon Network has indicated that it has lost economies of scale in some functions, such as train control, due to separation from Queensland Rail. In order to substantiate any claim associated with the loss of economies of scale we consider that Aurizon Network would have to provide: • an objectively justified position that outlines the scale of impacts it considers relevant • empirical evidence of a direct causal relationship of the cost impact on Aurizon Network if it were not considered part of the integrated group • evidence that an efficiently operated 'stand-alone business' would not be able to mitigate some or all of any incremental operating cost increase due to operating on a smaller scale. If Aurizon Network provided any such evidence, we would then seek to strike an appropriate balance between the efficient costs of operating a stand-alone business and the inclusion of any net impact for scale effects as a result of being part of a larger group.

Assessment criterion	***Assessment approach for UT4 operating costs***
Do Aurizon Network's UT3 actual costs, in particular 2012–13 actual costs, reflect an efficient cost-base year for considering the 2014 DAU allowances?	Aurizon Network has proposed that we use its UT3 actual costs as the baseline for assessing its UT4 cost proposal, rather than the approved UT3 cost allowances. Actual costs are not necessarily efficient costs. If there are inefficiencies in a business, the actual costs will reflect those inefficiencies. Accordingly, we have not used UT3 actual costs as the baseline but as a guide in the process. In doing so, and in the context of the previous points, we have considered: • evidence of cost efficiency improvements over the UT3 period • material changes proposed between the UT3 actual costs and those proposed for UT4, and whether these proposed cost increases were justified • relevant benchmarks to provide an assessment of how Aurizon Network's costs compare to those of similar entities, particularly entities operating in competitive environments. When developing our assessment we have been conscious there are limitations in any benchmarking process. Consequently, we have been cautious in applying benchmarking results and we have reached conclusions based on the evidence before us at this time (while also identifying areas in which we consider it would be valuable to obtain further evidence, to inform future decisions). We are of the view that if we are to give significant weight to benchmarking studies going forward, a more robust approach would have to be developed.
Is the proposed rate of escalation across the 2014 DAU period efficient?	We have also considered an efficient rate of escalation for Aurizon Network's operating costs over the UT4 period. By this, we mean that if the costs are efficient, the rate of their escalation should correspond with the net effect of the changes in the underlying determinants of those costs over time. This includes considering: • likely changes in costs of providing the service (labour and non-labour escalation) and • where there are other factors, such as changes in volume, how this will impact on efficient costs.

22.1.3 Summary of the MAR draft decision

Our MAR draft decision on operating costs for the 2014 DAU is summarised in Table 16. The most significant driver of our findings was that the amount attributable to corporate overheads was not efficient (note that our MAR draft decision on corporate overheads takes into account an overhead allowance for maintenance).

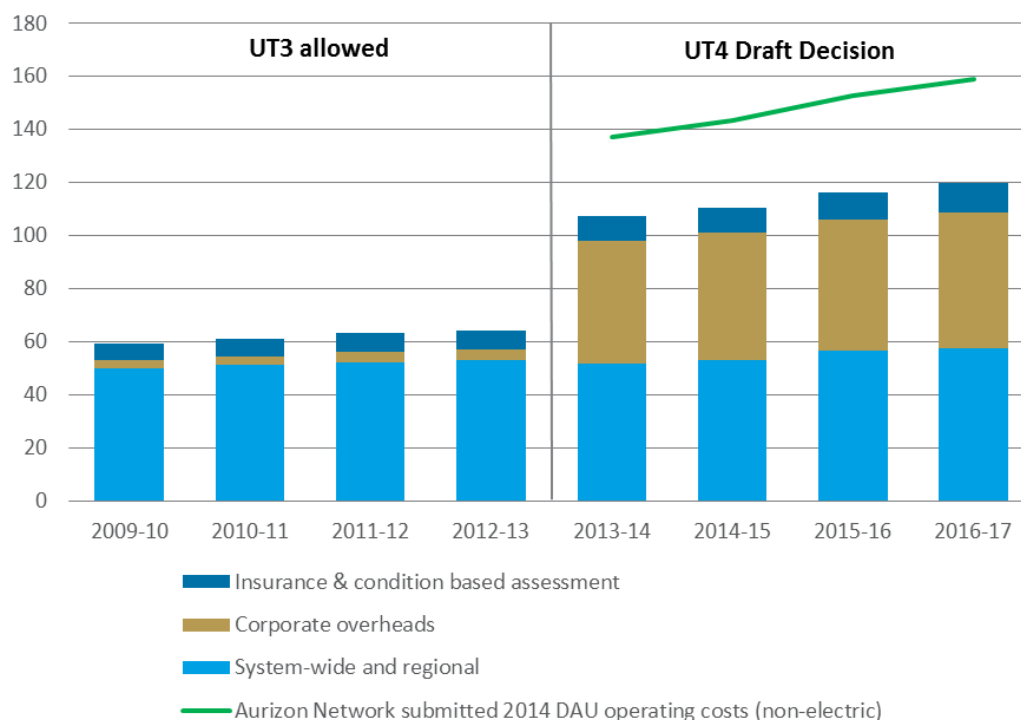
Table 16 QCA draft proposed operating costs ($ million, nominal)

	2013–14	*2014–15*	*2015–16*	*2016–17*
System-wide and regional costs	51.8	53.2	56.6	57.4
Corporate overheads	46.2	47.9	49.6	51.2
Insurance	8.3	9.4	10.1	10.7
Audit and condition-based assessment costs	0.8	—	—	0.6
Environmental charges	—	—	—	—
QCA proposed operating costs—non-electric	**107.2**	**110.5**	**116.3**	**119.9**
Transmission connection costs	68.3	74.4	81.3	82.9
QCA proposed operating costs—electric	**68.3**	**74.4**	**81.3**	**82.9**
QCA proposed total operating costs	**175.5**	**184.9**	**197.5**	**202.8**

Note: Numbers may not sum due to rounding.

While we refused to approve Aurizon Network's full 2014 DAU proposal for operating costs, we approved Aurizon Network's proposed electric costs. Nonetheless, our assessment of the appropriate efficient non-electric cost still permitted a substantial increase relative to the UT3 approved allowance.

Figure 7 Operating costs—UT3 allowances and QCA UT4 MAR draft decision (non-electric assets) ($ million, nominal)



22.2 System-wide and regional costs (excluding corporate overheads)

22.2.1 Overview

Aurizon Network's proposal

Aurizon Network proposed system-wide and regional costs (excluding corporate overheads) of $57.9 million in 2013–14, increasing to $67.2 million in 2016–17. Aurizon Network's system-wide and regional costs include train control, safe workings and operations, infrastructure management and business management. These costs accounted for around 42 per cent of Aurizon Network's proposed (non-electric) operating expenses.

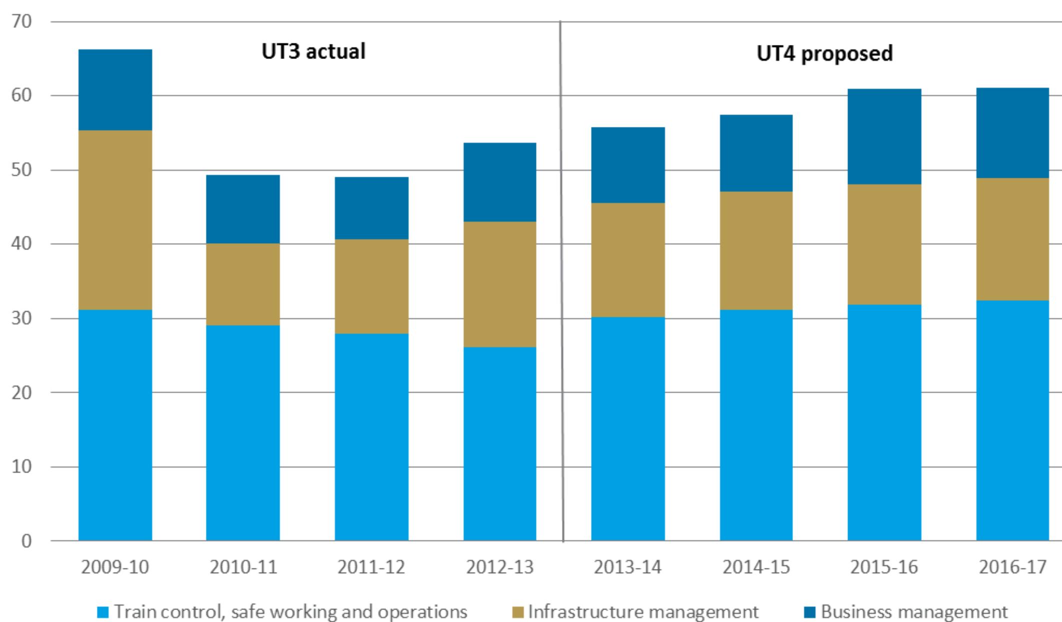
Table 17 Aurizon Network proposed system-wide and regional costs (excluding corporate overheads) ($ million, nominal)

Cost component	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Train control, safe working and operations	31.1	32.6	34.2	35.7
Infrastructure management	15.9	16.6	17.3	18.0
Business management	10.5	10.9	13.8	13.5
Total	**57.6**	**60.2**	**65.4**	**67.2**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, 2013 DAU, sub 3: 241.

On average, Aurizon Network's proposed costs represent an increase of around 5 per cent per annum over the period. Figure 8 shows Aurizon Network's 2014 DAU proposals relative to actual costs over UT3.

Figure 8 Aurizon Network actual and proposed operating expenditure (excluding corporate overheads) 2009–10 to 2016–17 ($2012–13 million)



Note: The increase in infrastructure management in 2012–13 is primarily due to Aurizon Network transferring around $5.8 million in costs from asset maintenance to infrastructure management.

Sources: RSMBC, 2013 DAU, pp. 112–118.

Summary of the MAR draft decision

Our MAR draft decision was to refuse to approve the system-wide and regional costs (excluding corporate overheads) proposed by Aurizon Network. Our full analysis and reasoning is contained in section 4.2 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

Our MAR draft decisions 4.1 to 4.5 were as follows:

> *4.1 We refuse to approve the system-wide and regional costs (excluding corporate overheads) proposed by Aurizon Network. We consider it appropriate that Aurizon Network amend its proposed system-wide and regional costs (excluding corporate overheads) to reflect our estimate of efficient costs as set out in Table 25.*
>
> *4.2 We approve Aurizon Network's proposal to escalate non-labour costs by CPI.*
>
> *4.3 We refuse to approve Aurizon Network's proposal to escalate labour costs by the Average Weekly Ordinary Time Earnings (AWOTE). We consider it appropriate that Aurizon Network amend its 2014 DAU to remove this escalation by AWOTE*
>
> *4.4 We consider it appropriate that Aurizon Network amend its labour cost escalation rate to reflect escalation in line with the ABS Wage Price Index.*
>
> *4.5 We approve Aurizon Network's proposal not to include a CPI-X adjustment factor to be applied for the 2014 DAU.*

The table referred to above as 'Table 25' appears below at Table 18.

Table 18 QCA's assessment of the appropriate system-wide and regional costs (excluding corporate overheads) ($ million, nominal)

	2013–14	*2014–15*	*2015–16*	*2016–17*
Aurizon Network proposed costs	57.6	60.2	65.4	67.2
QCA adjustments				
Train control, safe workings and operations	(4.7)	(5.4)	(6.1)	(6.7)
Infrastructure management	(1.1)	(1.3)	(1.6)	(1.8)
Business management	–	(0.3)	(1.1)	(1.4)
QCA MAR draft decision	**51.8**	**53.2**	**56.6**	**57.4**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, 2013 DAU, sub. 3: 241.

Aurizon Network did not provide a reconciliation of its UT3 actual costs with its proposed UT3 cost allowances. We considered this to be a significant omission from Aurizon Network's proposal. In particular, the impact of various restructures within Aurizon Network since 2010 has not been fully explained.

22.2.2 Approach to cost escalation for direct system-wide and operations costs

Aurizon Network's proposal

Aurizon Network prepared its proposed UT4 system-wide and regional cost estimates using 2012–13 as the base year and escalated:

- the labour costs by BIS Shrapnel's proprietary forecasts for average weekly ordinary time earnings (AWOTE) at an average 5 per cent per annum[31]
- the non-labour costs by forecast CPI of 2.5 per cent.

Summary of the MAR draft decision

Labour cost escalation

Our MAR draft decision was to refuse to approve Aurizon Network's proposal to escalate labour costs for wage inflation using the AWOTE. We considered the ABS WPI to be the better estimate of wage cost inflation for the 2014 DAU period.

The ABS WPI is designed to measure the pure price change in wages and salaries independent of compositional changes such as variations in the quality or quantity of work performed. Conversely, an observed change in the AWOTE may not necessarily reflect a change in wage inflationary pressure, but rather could be attributed to a shift in the workforce composition. It is difficult to separate the effects of compositional change over time to determine the causes of any particular movement.

As outlined in the BIS Shrapnel report submitted by Aurizon Network, a change in the skill levels of employees within a particular industry will be captured by the AWOTE but not the WPI.[32]

[31] Aurizon Network, Direct costs model.
[32] Aurizon Network, 2013 DAU, sub. 36: A-1–A-2.

According to the ABS, the AWOTE is designed to produce point-in-time estimates, and is not designed for producing estimates of the movement in earnings over time.[33] The ABS notes that since the AWOTE is not designed for movement in labour costs, the standard errors for period-to-period movements are much higher proportionally than for level estimates. In a report commissioned by the AER, Deloitte Access Economics used data from the ABS to show that the labour price index has a lower standard deviation in quarterly wage growth over the 10 years to December 2011 than the AWOTE.[34]

In our MAR draft decision, we recommended that the Queensland Treasury forecast for WPI be used.

Non-labour cost escalation

Our MAR draft decision accepted Aurizon Network's proposal to escalate non-labour costs by CPI, estimated at 2.5 per cent, noting the annual revenue cap adjustment process includes an adjustment for the difference between changes in forecast and actual CPI.

Stakeholders' comments on the MAR draft decision

Aurizon Network

For non-labour costs, Aurizon Network accepted our MAR draft decision on the appropriate escalation factor.[35]

However for labour costs, Aurizon Network considered that the input price escalator needs to reflect the actual costs that would be prudently incurred by a business operating in a workably competitive market.[36] Aurizon Network said that this is consistent with section 168A of the QCA Act. As such, Aurizon Network considered that the price escalator needs to reflect changes in the actual composition of employment rather than an abstract measure of 'underlying' wage inflation, given that changes in the actual composition of employment will influence the labour prices to which Aurizon Network is exposed.[37]

Aurizon Network proposed that the AWOTE is an appropriate index as:

- it is more likely to reflect the real labour costs faced by regional railway network providers
- it has the best capacity to take into account any changes in quality or quantity of works performed
- it is a reliable measurement of medium- to long-term trends, and reflects the labour prices firms actually face
- the forecast WPI prepared by Deloitte Access Economics is based on the labour price index, which does not measure sectoral trends within a state—it only captures those price changes that occur in the markets in which it is operating.[38]

Aurizon Network said that the BIS Shrapnel AWOTE index focuses on the skill classifications that constitute Aurizon Network's employment base.[39] Aurizon Network said it competes against large mining corporations for many common skills requirements, given that more than 80 per

[33] ABS 2014, Average Weekly Earnings, Australia, Quality Declaration, May 2014.
[34] Deloitte Access Economics, 2011: 1.
[35] Aurizon Network, 2014 DAU, sub. 59: 43.
[36] Aurizon Network, 2014 DAU, sub. 59: 46.
[37] Aurizon Network, 2014 DAU, sub. 59: 46.
[38] Aurizon Network, 2014 DAU, sub. 59: 46.
[39] Aurizon Network, 2014 DAU, sub. 59: 46.

cent of its workforce is located within the CQCN. Aurizon Network stated that the efficient, safe and reliable operation of the coal rail network is fundamentally linked to the employment of an appropriately skilled workforce.

Aurizon Network considered that skilled labour wages are not responsive to reductions in demand. Existing employees will expect the retention of higher wage levels—the absorption of those costs must be achieved through negotiation of productivity trade-offs. Aurizon Network said that the Queensland Treasury's forecast for WPI does not provide a satisfactory means of ensuring Aurizon Network recovers at least its efficient labour costs, given that it is not sector sensitive.[40]

Aurizon Network disagreed that the skill base of its workforce is simply a business choice for the owners. Aurizon Network said that this perspective neglects the criticality of an appropriately skilled workforce to the safe and effective performance of the supply chain, which is not a matter of discretion to be described as an optional business decision.[41] Aurizon Network considered that paying wage levels demanded by respective skill levels does not imply that additional productivity benefits will flow, but rather are costs that need to be incurred to achieve planned productivity levels.[42]

Other stakeholders

The QRC stated that coal producers have benefited from substantial rate reductions in labour hire across all trades, resulting from more competitive conditions in the market for services provided to mining companies.[43] The QRC would expect that Aurizon Network would also benefit from the more competitive conditions in the market for these services. The QRC supported our proposed approach to cost escalation for direct system-wide and operations costs.[44]

QCA analysis and consolidated draft decision

Our consolidated draft decision is to refuse to approve Aurizon Network's proposal to escalate labour costs by the AWOTE. We consider it appropriate that Aurizon Network amend its labour cost escalation rate to reflect escalation in line with the ABS WPI. We approve Aurizon Network's proposal to escalate the non-labour costs by forecast CPI of 2.5 per cent.

As identified in our MAR draft decision and not contested by Aurizon Network, we are concerned that the AWOTE is designed to produce point-in-time estimates rather than movement in earnings over time. The WPI was originally developed by the ABS because of the lack of a reliable indicator for the analysis of trends in the price of labour. The AWOTE index can provide a distorted view of movements in the price of labour due to compositional shifts in the employee workforce such as changes in average hours worked.

As identified in our MAR draft decision, the ABS notes that since the AWOTE is not designed for movement in labour costs, the standard errors for period-to-period movements are much higher proportionally than for level estimates.[45]

[40] Aurizon Network, 2014 DAU, sub. 59: 47.
[41] Aurizon Network, 2014 DAU, sub. 59: 47.
[42] Aurizon Network, 2014 DAU, sub. 59: 47.
[43] QRC, 2014 DAU, sub. 62: 7.
[44] QRC, 2014 DAU, sub. 62: 7.
[45] ABS 2014, Average Weekly Earnings, Australia, Quality Declaration, May 2014.

Aurizon Network acknowledged that the AWOTE takes into account both the quality and quantity of work performed. If the quality and quantity of work being performed per staff member is increasing, then the total number of staff employed can decrease over time. If labour costs are simply escalated at AWOTE without the associated productivity adjustment, then total labour costs will be overestimated. Given that Aurizon Network submitted that no productivity factor be applied, we consider it appropriate to use the WPI, an index that excludes productivity changes.

We consider the ABS WPI to be a more accurate and hence more appropriate estimate of wage price indexation for UT4. The QCA has accepted the ABS WPI in its previous decisions for SunWater, Seqwater and the Gladstone Area Water Board. The AER has also stated that the ABS WPI is its preferred index for assessing labour price changes over the forecast period.[46]

We consider the ABS WPI to be an objective and authoritative source of information for the estimation of future labour cost movements. We consider the WPI to be consistent with the requirements under section 138(2)(g) of the QCA Act.

We acknowledge that the WPI is neither sector-, nor region-specific. However, we consider that the scope of skills and geographic of Aurizon Network's business is sufficiently vast to properly allow the application of a broad index such as the WPI.

We do not agree that skilled labour wages are not responsive to reductions in demand. While we acknowledge that the adjustment is not instantaneous, we consider that over time, the labour market will adjust. We note QRC's submission that stated that coal producers have benefited from substantial rate reductions in labour hire across all trades, resulting from more competitive conditions in the market for services provided to mining companies. Aurizon Network should be able to pay wages that are consistent with the prevailing market conditions.

We consider that the skills base of a company's workforce is a business choice for the owners. A company could choose to increase the average productivity of its workforce. We acknowledge that this will likely require pay increases. However, we expect that the increased productivity would be offset by a reduction in staff numbers.

In our view, if the AWOTE series is used to escalate the labour cost allowance, staff numbers should be decreasing in the wake of improved labour productivity. Overall, the total staff costs will increase at a rate less than individual staff costs, as staff numbers are reducing over time.

Therefore, we consider that the AWOTE series is not reasonable and therefore is not an appropriate input to the calculation of efficient costs having regard to the criteria set out in section 138(2).

Having determined that the AWOTE series is not appropriate, we consider it appropriate that Aurizon Network amend its draft access undertaking to amend its labour cost escalation rate to reflect escalation in line with the ABS WPI.

On that basis, to determine the WPI over the UT4 period, we have used actual WPI growth estimates for 2013–14 and 2014–15, and Queensland Treasury's forecasts of annual growth in the Queensland WPI for the remainder of UT4 as set out in the following table.

[46] Australian Energy Regulator, Better Regulation Expenditure Forecast Assessment Guideline for Electricity Distribution, 2013: 10.

Table 19 QCA proposed WPI

	2013–14	**2014–15**	**2015–16**	**2016–17**
QCA proposed WPI	2.60%	2.11%	2.50%	2.75%

Note: 2013–14 and 2014–15 based on actual WPI; 2015-16 and 2016-17 based on forecast WPI. Sources: QCA analysis; ABS, Wage Price Index, Australia, June 2015 (ABS Catalogue Number 6345.0); Queensland Treasury and Trade, Budget Paper no 2: Budget Strategy and Outlook 2015: 29.

22.2.3 Application of a productivity factor for direct operating costs

Aurizon Network's proposal

Aurizon Network did not apply a productivity factor to its system-wide and regional costs. This contrasts to UT3 where a productivity factor was applied.

Summary of the MAR draft decision

Our MAR draft decision was to approve Aurizon Network's proposal not to include a CPI-X adjustment factor to be applied for the 2014 DAU.

RSMBC and SKM both considered Aurizon Network would achieve real cost reductions over the UT4 period and other productivity gains had been factored in to the costs. By contrast, Aurizon Network's stakeholders supported a CPI-X factor to encourage productivity gains.

We considered the application of credible productivity analysis would require the development of significantly more robust methodologies and consistent data sets. In particular, it would be necessary to develop suitably robust, objective evidence-based measurement systems and practical processes for the development and implementation of productivity targets. We considered that limitations of the benchmarking studies undertaken for the 2014 DAU period highlight this need.

For the 2014 DAU, in the absence of suitably robust benchmarking and productivity analysis, it is appropriate to adopt a cautious approach, and therefore we chose not to apply a productivity factor to direct costs.

However, we were of the view that we need to evolve the regulatory framework to place greater emphasis on transparent, achievable and measurable productivity targets. We considered that this would be beneficial to all stakeholders but that would need to be done effectively, objectively and equitably.

Stakeholders' comments on the MAR draft decision

Aurizon Network

Aurizon Network accepted our MAR draft decision on this issue.[47]

Other stakeholders

The QRC did not consider that the operational costs reflect significant efficiency improvements or cost reductions and said that a CPI-X factor should be introduced at a minimum.[48] The QRC considered that the very limited growth expected during the UT4 period should provide Aurizon

[47] Aurizon Network, 2014 DAU, sub. 59: 43.
[48] QRC, 2014 DAU, sub. 62: 8.

Network with substantial opportunities to reduce commercial development costs. The QRC did not see these opportunities reflected in the UT4 operating costs claim.[49]

Noting that Aurizon Network is subject to a revenue cap form of regulation, Anglo American considered that a CPI-X approach should be applied to escalate Aurizon Network's operating and maintenance costs over UT4 to ensure that Aurizon Network is appropriately incentivised to pursue efficiency gains.[50]

Vale considered that a reliance on voluntary reductions by Aurizon Network is important, but will not replicate competitive market pressures that drive innovation and efficiency.[51] Vale said that productivity focus is appropriate to reflect a competitive market environment and is important as Aurizon Network transforms from government ownership.[52]

The QRC and BMA supported evolving the regulatory framework to place greater emphasis on transparent, achievable and measureable productivity targets in the long run.[53] The QRC considered that for this to be achieved, substantial work will need to be undertaken by all stakeholders prior to the expiry of UT4.

QCA analysis and consolidated draft decision

Our consolidated draft decision is to approve Aurizon Network's proposal to not to include a CPI-X adjustment factor to be applied for the 2014 DAU. Based on the information before us, we consider that the proposed base-year costs (see Sections 21.2.4 to 21.2.6) are at an efficient level for escalation over the 2014 DAU period. The base-year costs reflect real cost reductions over the UT3 period, and our consultants RSMBC and SKM considered that a number of productivity gains had been factored into the base-year costs.

However, we acknowledge that there may be potential for further productivity gains and that there may be merit in setting productivity targets in the future. We consider it is necessary to develop suitably robust, objective evidence-based measurement systems and practical processes for the development and implementation of productivity targets.

For the 2014 DAU, in the absence of suitably robust benchmarking and productivity analysis, we consider it appropriate not to apply a productivity factor to direct costs, consistent with the analysis set out in our MAR draft decision.

22.2.4 Train control, safe working and operations

Aurizon Network's proposal

Aurizon Network said a large portion of its cost of providing a service to coal customers is the operation and planning of train paths in an environment that is heavily capacity constrained. Aurizon Network also attributed some cost increases to separation from Queensland Rail.[54]

Between 2009–10 and 2012–13, there has been a 20 per cent (real) reduction in Aurizon Network's actual costs for the delivery of train control, safe workings and operations (excluding

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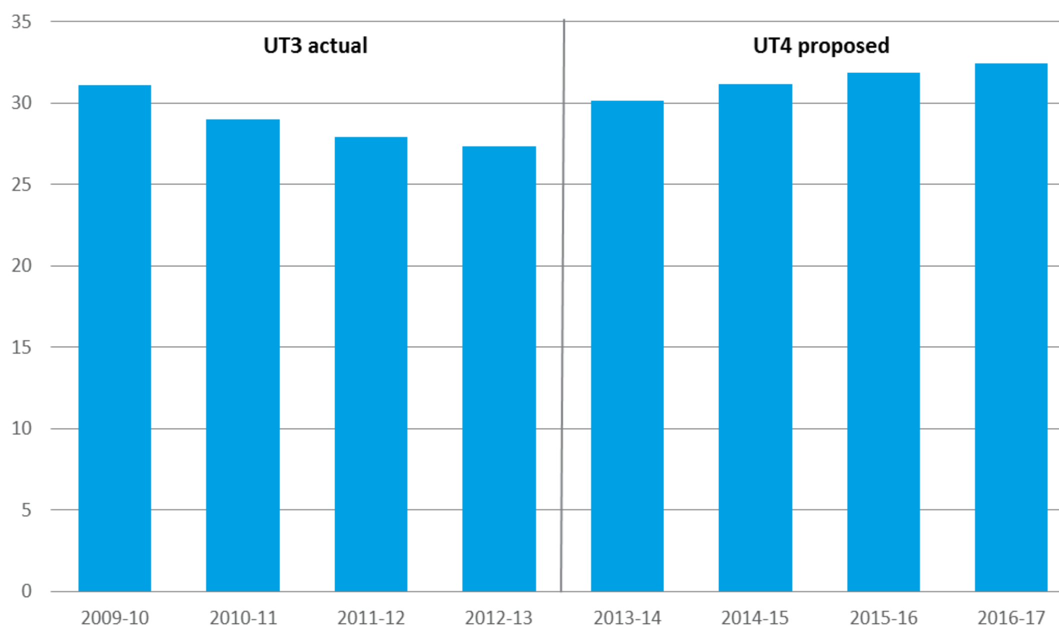
[49] QRC, 2014 DAU, sub. 62: 7.
[50] AngloAmerican, 2014 DAU, sub. 58: 24.
[51] Vale, 2014 DAU, sub. 54: 3.
[52] Vale, 2014 DAU, sub. 54: 3.
[53] QRC, 2014 DAU, sub. 62: 8 and BMA, 2014 DAU, sub. 53: 2.
[54] Aurizon Network, 2013 DAU, sub. 3: 201.

utility costs).[55] As outlined in Figure 9, this trend does not appear to be taken account of in Aurizon Network's submitted costs for the 2014 DAU.

Figure 9 Aurizon Network actual and proposed train control, safe working and operations costs 2009–10 to 2016–17 ($2012–13 million)



Aurizon Network indicated it is investing in new IT systems to improve network planning and scheduling. Aurizon Network considered the benefits of these system improvements will, amongst other things:

- allow it to manage contracted tonnes (estimated to be 310 Mt by 2016–17) without the requirement for additional train control resources
- decrease the turnaround time of the weekly plan by 24–48 hours, freeing up the planning team to improve ad hoc access requests and secure non-invasive maintenance windows
- improve the interface between maintenance teams and network control, allowing the existing train control team to absorb the additional contracted capacity expected over the UT4 period.[56]

Aurizon Network also noted it has structured train control to manage the movement of estimated contracted tonnages at the end of UT4. While Aurizon Network's operations may be becoming more complex and we welcomed the investment in new IT systems to improve network planning and scheduling, we were unconvinced by various aspects of Aurizon Network's proposals.

Train control

Aurizon Network's CQCN train control function is based at the Rockhampton Control Centre, with a fully functioning duplicate control facility in Mackay. Aurizon Network said consolidation of its train control centres to the Rockhampton Control Centre in 2011–12 had resulted in more

[55] RSMBC, 2013 DAU, 2014: 110–114.
[56] RSMBC, 2013 DAU, 2014: 137–138.

efficient train control costs with improved asset utilisation, lower staff costs, lower production costs and lower labour on-costs.[57]

Aurizon Network's original 2014 DAU submission proposed train control costs be shared on the basis of percentage of train kilometres for coal and non-coal traffic respectively. Accordingly, Aurizon Network estimated around 9 per cent of its train control and scheduling costs should be allocated to non-coal traffic.[58] Aurizon Network later proposed non-coal traffic in the CQCN should be revised to reflect 2 per cent of costs, a method based on its estimated FTEs dedicated to train control for non-coal traffic.[59]

Safe working and operations

Aurizon Network said its safe working and yard control costs have risen in recent years due to factors such as the increased need for manual safe working during construction and increased traffic in yards.[60]

Network operations consist of long-term, short-term and day-of-operations (DOO) planning. According to Aurizon Network there has been significant growth in the number and scope of activities within network operations, driven by longer-term growth in volumes, increasing integration between coal systems and increased network complexity.[61]

Summary of the MAR draft decision

Our MAR draft decision was to refuse to approve Aurizon Network's proposed train control, safe working and operations costs over the UT4 period. We proposed that the 2012–13 base-year costs be adjusted to reflect actual 2012–13 costs, with escalation over the UT4 period using the WPI. In particular, we were not of the view the CQCN is operating in a capacity constrained environment. While Aurizon Network moved 214.5 Mt of coal in 2013–14, this was still well short of contracted levels.[62] More importantly, we were not convinced it would be efficient (or necessary) for Aurizon Network to be managing its train control functions in a manner where it had the capacity to deliver contracted tonnes in UT4, particularly given there is no realistic expectation this level of demand will occur over this period.

Accordingly, in our MAR draft decision we considered it appropriate that Aurizon Network amend its draft access undertaking so that the 2012–13 base-year costs be adjusted to reflect actual 2012–13 costs, with escalation over the UT4 period using the WPI.

Assessment of train control, safe workings and operations costs

Of all the direct operating categories to assess, train control, safe workings and operations is the most complex. Our assessment of Aurizon Network's proposals was split into the following sections:

- our proposed base-year cost
- escalation and adjustments over the 2014 DAU period.

[57] Aurizon Network, 2013 DAU, sub. 3: 212.
[58] Aurizon Network, 2013 DAU, sub. 3: 212.
[59] Aurizon Network, 2013 DAU, sub. 109: 29–31.
[60] Aurizon Network, 2013 DAU, sub. 3: 212–213.
[61] Aurizon Network, 2013 DAU, sub. 3: 215–223.
[62] Aurizon Network, Financial Statements 2013–14, p. 2.

The appropriate base year

Aurizon Network's proposed system-wide and regional costs for the 2014 DAU period were largely based on the escalation of its 2012–13 base-year costs. These base-year costs were developed for its 2013 DAU submission in April 2013, and therefore differed from its 2012–13 actual operating costs.[63] The 2012–13 costs included in Aurizon Network's operating costs model were approximately $4.3 million higher than Aurizon Network's actual costs for both 2011–12 and 2012–13.

Given the cost reductions achieved by Aurizon Network across the train control, safe workings and operation function over the course of UT3, we considered that 2012–13 actual costs are either at, or are transitioning to, an efficient baseline cost for these cost components.

As a result, our MAR draft decision was that the base cost for estimating efficient costs for train control, safe working and operations costs for the 2014 DAU period was the 2012–13 actual costs.

We noted Aurizon Network's proposed train control costs are considerably higher than the available benchmarks for the Hunter Valley Coal Network (HVCN). Despite the differing views of Aurizon Network and its stakeholders about the benchmarking exercises undertaken and the relative complexity of the two systems, we did not consider there is a strong reason why the CQCN costs should be over double the cost per train path of the HVCN. We considered there was merit in developing a more rigorous benchmarking approach that could be adopted for UT5 in order to assess the scope for further real cost reductions in addition to those seen in the 2009–10 to 2012–13 period.

Adjustments over the 2014 DAU period

Aurizon Network's original UT4 submission proposed non-coal traffic costs be shared on the basis of percentage of train kilometres for coal and non-coal traffic respectively. Accordingly, Aurizon Network estimated around 9 per cent of its train control and scheduling costs should be allocated to non-coal traffic.[64] Aurizon Network's model made an adjustment for non-coal traffic at the Rockhampton Train Control Centre, but not the Mackay Train Control Centre.

Aurizon Network later proposed that the allocation of train control costs to non-coal traffic in the CQCN should be revised to reflect 2 per cent of costs, a method based on its estimated FTEs dedicated to train control for non-coal traffic.[65]

We were unconvinced Aurizon Network's revised proposal to allocate 98 per cent (rather than 91 per cent) of train control costs to coal traffic is properly reflective of the costs associated with non-coal traffic. In particular:

(a) in 2013–14, around 10 per cent of train paths in the CQCN were non-coal train paths, which is generally consistent with the train kilometre approach initially proposed by Aurizon Network

(b) we did not consider non-coal traffic costs should be treated as marginal. We considered Aurizon Network's original proposal using a percentage of track kilometres is more likely to be representative of 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.

[63] Aurizon Network, 2013 DAU, sub. 3: 204.
[64] Aurizon Network, 2013 DAU, sub. 3: 212.
[65] Aurizon Network, 2013 DAU, sub 109: 29–31.

Overall, we considered Aurizon Network's original approach for estimating non-coal traffic to be the better estimate of non-coal's share of train control costs and it is more likely to avoid a cross-subsidy between coal and non-coal traffic and an over-recovery of costs relative to an efficient level. On this basis, Aurizon Network's proposal was inappropriate having regard to the section 138(2) factors. We considered it appropriate to adjust the costs for the Mackay Train Control Centre to reflect a 91 per cent allocation of costs for coal traffic.

Table 20 summarises the adjustments we considered it would be appropriate for Aurizon Network to make to its proposal, based on our views regarding the starting base-year cost, escalation factors and adjustments for non-coal traffic.

Table 20 QCA proposed adjustments to train control, safe workings and operations ($ million, nominal)

	2013–14	***2014–15***	***2015–16***	***2016–17***
Aurizon Network proposed costs	31.1	32.7	34.2	35.7
QCA adjustments (including labour indexation)	*(4.7)*	*(5.4)*	*(6.1)*	*(6.7)*
QCA proposed costs	**26.5**	**27.3**	**28.1**	**29.1**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, 2013 DAU, sub. 3: 241.

Stakeholders' comments on the MAR draft decision

Aurizon Network

Aurizon Network said it could not replicate for 2013–14 our view of the appropriate costs for train control, safe working and operations using its 2012–13 actual costs and our proposed cost escalation factors.[66]

Aurizon Network said its actual costs for 2012–13, using a 9 per cent non-coal allocation for train control costs, were $26.0 million (and $27.4 million using 2 per cent non-coal allocation). Applying a labour cost escalation rate of 2.75 per cent as proposed by the QCA and including utilities costs of $1.2 million (escalated at 2.5 per cent), Aurizon Network calculated costs for 2013–14 to be $27.9 million. Aurizon Network said this does not reconcile with the QCA’s view of the appropriate cost allowance for 2013–14 of $26.5 million.[67]

Security costs

Aurizon Network said that no security costs were actually incurred within Aurizon Network cost centres in 2012–13. Therefore, Aurizon Network did not consider it appropriate to reduce security costs by $0.5 million per year (as recommended by RSMBC) where the base-year costs were calculated using 2012–13 actual costs.[68]

Revised cost proposal

Aurizon Network accepted there should be a reduction to the originally proposed costs due to timing of the review of headcount and efficiencies gained in the process. However, Aurizon Network did not accept a reduction that would push the allowance below the costs incurred for 2013–14.

[66] Aurizon Network, 2013 DAU, sub. 59:48.
[67] Aurizon Network, 2014 DAU, sub. 59: 48.
[68] Aurizon Network, 2014 DAU, sub. 59: 48.

Aurizon Network said there was no increase in FTEs factored into cost estimates for the UT4 period.[69] Noting that train control costs are primarily labour and oncost, Aurizon Network said that the train control function had been operating at below-optimal staffing levels during UT3 with a number of vacant positions. Aurizon Network also incorporated succession planning and costs of the driver training school into the revised costs.[70]

Aurizon Network accepted our assessment of the appropriate way to escalate costs of the base year to derive the 2014 DAU cost allowance. However, Aurizon Network proposed that 2013–14 be the base year for actual costs given that it is the most recent historical data available.[71]

Aurizon Network disagreed with our MAR draft decision analysis that it is not necessary for it to be managing train control functions in a manner where it has the capacity to deliver contracted tonnes in UT4. Aurizon Network noted that take-or-pay contracts oblige Aurizon Network to provide a certain amount of capacity to customers. Aurizon Network considered that it has no discretion to manage resources in a way that prejudices Aurizon Network's ability to honour contracted capacity promises.[72]

Aurizon Network said failure to operate in a manner that could deliver contracted tonnes would expose Aurizon Network to legal and commercial risk, and potentially create safety issues in the event that it had to meet surges in capacity without adequate resources.[73] Aurizon Network considered that our assessment that it is not efficient to manage train control functions based on the capacity to deliver contracted tonnes in UT4 has no regard to its business interests, and is not reasonable, nor sustainable—particularly given the lead time required to replace skilled operators.

Aurizon Network proposed revised costs for the 2014 DAU period for train control, safe working and operations using its 2013–14 actual costs, its proposed adjustment for non-coal services (see below) and its proposed cost escalation factors (see Section 1.2.2).

Table 21 Aurizon Network proposed adjustments to train control, safe workings and operations ($ million, nominal)

	2013–14	***2014–15***	***2015–16***	***2016–17***
QCA MAR draft decision—September 2014	26.5	27.3	28.1	29.1
Aurizon Network proposed adjustment	*1.9*	*2.5*	*3.1*	*3.5*
Aurizon Network—December 2014	**28.4**	**29.8**	**31.2**	**32.6**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, 2014 DAU, sub. 82: 48.

Adjustment for non-coal services

Aurizon Network said that the metric of track kilometres—which allocated 9 per cent of costs to non-coal services—is not more likely to be representative of the resources required to provide the train control service to non-coal customers. Aurizon Network said the adjustment:

[69] Aurizon Network, 2014 DAU, sub. 59: 48.
[70] Aurizon Network, 2014 DAU, sub. 59: 49.
[71] Aurizon Network, 2014 DAU, sub. 59: 48.
[72] Aurizon Network, 2014 DAU, sub. 59: 49.
[73] Aurizon Network, 2014 DAU, sub. 59: 49.

- does not take account of the greater complexities associated with the scheduling of coal traffic compared with non-coal traffic (which involves only small sections of the CQCN)
- does not take into consideration closures for maintenance and on-track vehicles, where the impact is predominantly on the coal network used almost exclusively by coal trains
- does not consider the substantial amount of train control activity created by cancellations and rescheduling of coal traffic.[74]

Aurizon Network said an alternative 'averaging' approach is a more accurate method of estimating and aligning train control operation costs between coal and non-coal traffics, as it considers the activities which are actually required to support their operations.[75] Aurizon Network considered that a 2 per cent reduction across the entire train control function is more appropriate and representative of the costs that should be allocated to non-coal train services.[76]

Benchmarking

Aurizon Network considered that a comparison based on a cost-per-train-path basis is an unreliable and misleading means of comparison. Aurizon Network said that the number of actual train paths is often an ineffective means of comparing costs between systems as it does not take into account the large number of train paths scheduled and subsequently cancelled by customers.[77] Aurizon Network also stated that:

- HVCN is considerably less complex than the CQCN, accounting for only a quarter of the track distance and delivering coal to a single port
- HVCN operates in a different regulatory environment for both economic and safety regulation
- it is of the understanding that the Hunter Valley Coal Chain Coordinator (HVCCC) performs some of the planning functions for HVCN and is funded by users of the HVCN infrastructure.[78]

Aurizon Network considered that there is no supporting evidence that there may be opportunities for the Aurizon Network to reduce operating expenditure, particularly in relation to control room operations and yard management. Aurizon Network said that actual 2013–14 costs are lower than the UT4 estimated costs, demonstrating that Aurizon Network constantly reviews and identifies opportunities to drive efficiencies.[79]

Aurizon Network questioned why a substantial discount has been applied to its cost estimates, given that RSMBC and SKM essentially found Aurizon Network's total forecast to be reasonable.[80]

Other stakeholders

The QRC supported the exclusion of Aurizon Network's proposed step changes and our approach to allocating costs to non-coal traffic.[81]

[74] Aurizon Network, 2014 DAU, sub. 59: 50.
[75] Aurizon Network, 2014 DAU, sub. 59: 50.
[76] Aurizon Network, 2014 DAU, sub. 59: 52.
[77] Aurizon Network, 2014 DAU, sub. 59: 52.
[78] Aurizon Network, 2014 DAU, sub. 59: 52.
[79] Aurizon Network, 2014 DAU, sub. 59: 52.
[80] Aurizon Network, 2014 DAU, sub. 59: 53.
[81] QRC, 2014 DAU, sub. 62: 8.

The QRC said that customers expect Aurizon Network to be able to meet its contractual commitments when required, however there is also an expectation that Aurizon Network should be able to adjust its resourcing and costs based on actual demand. The QRC considered that it would not make sense for UT4 to reflect operating costs based on contracted demand, while forecast volumes are substantially lower.[82]

Vale were concerned about using Aurizon Network's actual cost to set the base-year cost, as Aurizon Network is still transitioning from government ownership and should continue to achieve efficiency and cost reductions over the next few years.

Vale said that there is no clear understanding of the efficiency of the 2012–13 base cost. Vale said that in 2012–13 significant restructuring costs were incurred that are unlikely to be incurred in future years.[83] The QRC also noted that the efficiency of the 2012–13 base cost has not been demonstrated and that this cost appears inefficient in comparison to the HVCN benchmark.[84] The QRC and Vale considered that our proposed approach to assessing train control, safe workings and operations costs is likely to overstate costs, when these cost adjustments are benchmarked against the HVCN on a cost-per-train-path basis.

Anglo American considered that it is a reasonable approach in the circumstances to benchmark, where appropriate, the operation of the CQCN against the HVCN.[85] While acknowledging there are significant differences in scope and geographical characteristics of the two networks, Anglo American said it is the closest option for benchmarking a major coal chain network within Australia. While Anglo American did not expect that Aurizon Network's train control costs should be as low as those on the HVCN, it did suggest that the costs of the two networks should be more similar on a cost-per-train-path basis.[86]

Anglo American believed that a significant portion of Aurizon Network's inflated costs can be directly linked to the scheduling of the CQCN, not purely in relation to rail operation but also for whole of supply chain coordination.[87] Anglo American considered that the HVCCC is an excellent example of how independent, transparent central coordination can significantly improve the functioning of a supply chain.[88] Anglo American believed that we should consider further options for greatly improving the potential efficiency of the CQCN.

QCA analysis and consolidated draft decision

Our consolidated draft decision is to refuse to approve Aurizon Network's proposed train control, safe workings and operations costs.

Consistent with our MAR draft decision, we consider that Aurizon Network's overall 2012–13 actual costs for train control, safe workings and operations appear to be efficient and, as such, it would be inappropriate for Aurizon Network to adopt any other figure as the base for calculating its train control, safe workings and operations costs.

We engaged experts to review Aurizon Network's base-year costs and accepted their views that Aurizon Network's 2012–13 actual costs for train control, safe workings and operations are the best estimate of efficient costs.

[82] QRC, 2014 DAU, sub. 62: 8.
[83] Vale, 2014 DAU, sub. 54: 2.
[84] QRC, 2014 DAU, sub. 62: 8.
[85] Anglo American, 2014 DAU, sub. 58: 24.
[86] Anglo American, 2014 DAU, sub. 58: 24.
[87] AngloAmerican, 2014 DAU, sub. 58: 25
[88] AngloAmerican, 2014 DAU, sub. 58: 25.

Accordingly, we also do not consider that Aurizon Network's further proposal to use actual 2013–14 costs as base-year costs for escalation over the remainder of the UT4 period would be efficient. Without a similar independent review of 2013–14 actual costs, we cannot ascertain whether Aurizon Network's 2013–14 actual costs are efficient and do not include any one-off costs that would not be expected to apply over the remainder of the UT4.

Adjustments for non-coal traffic

We have considered the issues raised by Aurizon Network in its submission and have concluded that there is no new information or analysis that would require a change from our MAR draft decision. Aurizon Network has largely repeated the arguments that it put forward in March 2014 when it first proposed to change the non-coal adjustment from its 2013 DAU allocator of 91 per cent to a revised 98 per cent.[89]

We do not consider it appropriate to estimate the non-coal proportion based on the FTE dedicated to train control for non-coal traffic for only those sections of track for which the proportion of non-coal traffic is not negligible. We consider this approach does not adequately account for the complexity associated with scheduling coal traffic for those sections of track which also service non-coal traffic.

In estimating stand-alone cost, we consider that train kilometres is the most relevant cost driver for train control operations. We consider that the use of train kilometres is more likely to be representative of the resources used by Aurizon Network in providing train control service to non-coal customers, given train control costs are a function of scheduling and the time spent on the track. As noted in our MAR draft decision, the proportion of non-coal services based on train kilometres is broadly consistent with the proportion of non-coal services using train paths.

Subsequent to the release of our MAR draft decision, we noted that Aurizon Network had applied the 91 per cent allocation factor to its updated 2012–13 actual costs for Mackay Train Control Centre (to which we re-applied the 91 per cent allocation factor).

We consider it appropriate for Aurizon Network modify the starting base year cost and escalation factors.

Table 22 QCA proposed adjustments to train control, safe workings, operations and non-coal traffic ($ million, nominal)

	2013–14	*2014–15*	*2015–16*	*2016–17*
Aurizon Network proposed costs	31.1	32.6	34.2	35.7
QCA adjustments (including labour indexation)	*(3.1)*	*(4.1)*	*(4.9)*	*(5.6)*
QCA proposed costs	**28.0**	**28.6**	**29.3**	**30.1**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, 2013 DAU, sub. 3: 241.

22.2.5 Infrastructure management

Aurizon Network's proposal

Aurizon Network's infrastructure management group is responsible for a range of functions, including:

[89] Aurizon Network, 2013 DAU, sub. 109: 29–31.

- asset management and assurance—covering track as well as civil, electrical and telecommunications assets
- asset strategy—covering regulatory compliance for maintenance and renewals activities and corridor asset management.[90]

In 2012–13 Aurizon Network restructured and transferred its costs of the engineering and compliance functions from asset maintenance to operations. This resulted in around $5.8 million of additional costs being included in system-wide operating expenditure.[91] Aurizon Network also transferred its telecommunication backbone costs from infrastructure management to corporate overheads.

The proposed infrastructure management costs include a proportion of the costs of the Executive Vice President (EVP) of Aurizon Network.[92]

Summary of the MAR draft decision

Developing a base-year cost

We acknowledged that Aurizon Network has worked to improve its infrastructure management arrangements, including identifying opportunities to improve the performance of the network through improved maintenance scheduling. SKM said the separation of maintenance activities from capital works has allowed for the improved utilisation and targeted focus of both the maintenance and construction services.

We also noted Aurizon Network is implementing its Network Asset Management System (NAMS) which is intended to address some of the significant asset management challenges.[93]

Against this background, in 2012–13, $5.8 million ($2012–13) of engineering and compliance function expenditure was transferred from asset maintenance costs to system–wide costs.[94] We were satisfied this cost reallocation has been excluded from Aurizon Network's maintenance cost estimates.

Having regard to Aurizon Network's actual costs in 2012–13, including the above cost reallocation, and the reviews by SKM and RSMBC, we considered Aurizon Network's overall actual costs for 2012–13 infrastructure management to be generally efficient.

Adjustment factors over the 2014 DAU period

In terms of adjustments over the 2014 DAU period, our MAR draft decision was to not approve the inclusion of costs for the EVP President of Aurizon Network (the equivalent position to the CEO of Aurizon Network) in this group of costs. We considered those costs should be considered as part of the assessment of corporate overheads, to avoid any potential double counting of the costs normally attributed to a CEO.

Table 23 summarises the adjustments we consider would be appropriate for Aurizon Network to make to its draft access undertaking based on our view regarding the starting base year cost, escalation factors and adjustments for the costs associated with the EVP of Aurizon Network. This represents a $5.75 million reduction across the 2014 DAU period.

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[90] Aurizon Network, 2013 DAU, sub. 3.
[91] RSMBC 2013 DAU, 2014: 110.
[92] Aurizon Network, direct cost model emailed to the QCA on 13 September 2014.
[93] SKM, 2013 DAU, 2014: 31.
[94] RSMBC, 2013 DAU, 2014: 110.

Table 23 QCA proposed adjustments to infrastructure management costs ($ million, nominal)

	2013–14	***2014–15***	***2015–16***	***2016–17***
Aurizon Network proposed costs	15.9	16.6	17.3	18.0
QCA adjustments (including labour indexation)	*(1.1)*	*(1.3)*	*(1.6)*	*(1.8)*
QCA proposed costs	**14.9**	**15.3**	**15.8**	**16.3**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, 2013 DAU, sub. 3: 241.

Stakeholders' comments on the MAR draft decision

Aurizon Network

Aurizon Network said it could not replicate our 2013–14 proposed costs for infrastructure management using its 2012–13 actual costs and our proposed cost escalation factors.[95]

Aurizon Network proposed that the 2013-14 actual costs of $18.5 million for infrastructure management be used as the base year, as this is the most recent historical data and the most representative of the costs to be incurred for UT4.[96] Aurizon Network noted that the infrastructure management costs have been the most variable of the different divisions during UT3 due to the restructures, the variable nature of capital projects to which costs may be capitalized and also the rotation of graduate engineers throughout the division.

Aurizon Network stated that FTEs have increased from 2010–11 to 2013–14 reflecting the recovery from loss of economies of scale with Queensland Rail (which was felt in assurance, strategy, commercial and training activities), realignment of positions within the Network division under the Group functional model and the further restructure of the Network division to a stand-alone model in June 2013.[97] Aurizon Network said the new organisational structure is consistent with its regulatory obligations and creates a transparent and sustainable financial structure.

Aurizon Network said that the 2012–13 forecast assumed that not all the positions in the restructured organizational chart would be filled.[98] According to Aurizon Network, some roles were required for compliance, health and safety and business assurance.

Aurizon Network said that the current structure of the infrastructure management team has been designed to support its focus of proactively managing asset preventative maintenance requirements to minimise infrastructure faults.[99]

Aurizon Network said its proposed base-year costs for infrastructure management were prepared using an assumption that 24 per cent of the costs in this division would be capitalised or related to non-regulated activities and not to be included in the allowance.[100] This was derived from a sample of timesheets for the period July to November 2012. Aurizon Network noted that the capitalisation rate will vary depending on the projects in progress during the

[95] Aurizon Network, 2014 DAU, sub. 59: 53.
[96] Aurizon Network, 2014 DAU, sub. 59: 53.
[97] Aurizon Network, 2014 DAU, sub. 59: 54.
[98] Aurizon Network, 2014 DAU, sub. 59: 54.
[99] Aurizon Network, 2014 DAU, sub.59: 54.
[100] Aurizon Network, 2014 DAU, sub. 59: 54.

year. Aurizon Network considered that a more conservative capitalisation assumption is appropriate, given the expectation of fewer growth projects during UT4 than in UT3.[101]

Aurizon Network proposed revised costs for the 2014 DAU period for infrastructure management using its 2013–14 actual costs and its proposed cost escalation factors.

Table 24 Aurizon Network proposed adjustments to infrastructure management costs ($ million, nominal)

	2013–14	*2014–15*	*2015–16*	*2016–17*
QCA MAR draft decision—September 2014	14.9	15.3	15.8	16.3
Aurizon Network proposed adjustment	*3.6*	*4.0*	*4.4*	*4.7*
Aurizon Network—December 2014	**18.5**	**19.3**	**20.2**	**21.0**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, 2014 DAU, sub. 82: 48..

Other stakeholders

The QRC accepted our MAR draft decision.[102]

QCA analysis and consolidated draft decision

Our consolidated draft decision is to refuse to approve Aurizon Network's proposed infrastructure management costs. Consistent with our MAR draft decision, we consider that Aurizon Network's overall actual costs for 2012–13 infrastructure management appear to be generally efficient. As such, we consider it appropriate that Aurizon Network amend its draft access undertaking to use this as the base-year cost to be extrapolated over the remainder of UT4 using appropriate escalation factors.

Base-year costs

We do not accept Aurizon Network's proposal to use actual 2013–14 costs as base-year costs for escalation over the remainder of the UT4 period. We engaged experts to review Aurizon Network's base-year costs and accepted their views that Aurizon Network's 2012–13 actual costs for infrastructure management are generally reasonable and efficient. Without a similar independent review of 2013–14 actual costs, we cannot ascertain whether Aurizon Network's 2013–14 actual costs are reasonable and efficient and do not include any one-off costs that would not be expected to apply over the remainder of the UT4.

Allocation of unregulated and capitalised costs

For our MAR draft decision, RSMBC adjusted Aurizon Network's actual 2012–13 costs for its infrastructure management division to remove non-regulated activities and capitalised costs using Aurizon Network's proposed allocation (76 per cent) of costs.[103] RSMBC said this allocation factor was based on an analysis of timesheets of staff for the 2012–13 financial year.[104]

[101] Aurizon Network, 2014 DAU, sub. 59: 54.
[102] QRC, 2014 DAU, sub. 62: 8.
[103] Aurizon Network applied this same allocation factor in its 2013 DAU submission, but applied it to forecast rather than actual 2012–13 costs.
[104] RSMBC, 2013 DAU: 115.

However, upon utilisation of actual 2012–13 costs, we consider that this adjustment should relate to costs on a similar basis.

Accordingly, our consolidated draft decision is to refuse to approve the allocation proposed by Aurizon Network. We consider it appropriate that Aurizon Network amend its draft access undertaking to use actual costs relating to non-regulated activities and capitalised costs rather than applying Aurizon Network's proposed cost allocation factor. Given the lower proportion of non-regulated activities and capitalised costs derived based on actual 2012–13 costs, the result would be an upward adjustment to Aurizon Network's proposed costs (based on forecast 2012–13 costs).

Summary

We consider it appropriate that Aurizon Network amend its draft access undertaking to reflect the 2012–13 actual costs as our base year, with escalation based on our proposed factors in Section 1.2.2.

Note that in our MAR draft decision we incorrectly used Aurizon Network's proposed 2013–14 costs as our base year for escalation over the remainder of the 2014 DAU period.

Table 25 QCA proposed adjustments to infrastructure management ($million, nominal)

	2013–14	*2014–15*	*2015–16*	*2016–17*
Aurizon Network proposed costs	15.9	16.6	17.3	18.0
QCA adjustments (including labour indexation)	*2.7*	*2.4*	*2.2*	*2.0*
QCA proposed costs	**18.7**	**19.0**	**19.5**	**20.0**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, 2013 DAU, sub. 3: 241.

22.2.6 Business management

Aurizon Network's proposal

Aurizon Network's business management group is responsible for, amongst other things, commercial development and policy and regulation.

The commercial development function is the primary interface between Aurizon Network and its customers for the negotiation and provision of access—an area of significant growth given its capacity constrained environment. This function is also responsible for network planning and development, including the implementation of capital projects.

Business management also includes regulatory responsibilities, such as preparation and compliance with access undertakings. Regulatory costs are relatively constant over the regulatory period, although a one-off $4.5 million is proposed to be spent across 2015–16 and 2016–17, for the preparation of UT5.[105]

Summary of the MAR draft decision

We assessed the 2012–13 actual costs to be a reasonable and efficient cost for the base year.

We took the same view on the appropriateness of the escalation factors as outlined in the previous sections for the purposes of developing the cost profile over the 2014 DAU period. In

[105] RSMBC 2013 DAU, 2014: 110; Aurizon Network, 2013 DAU, sub. 3: 227.

terms of adjustments over the 2014 DAU period, we noted that the major driver of the increase in business management costs in UT4 is the costs for the preparation of UT5 in the latter two years of the UT4 period.

We were unconvinced that the $4.5 million proposed for the preparation of UT5 is an efficient level of expenditure, considering the extensive rewrite of the 2014 DAU and general stakeholder concerns regarding the cost efficiency of the overall UT4 process. However, we did recognise that there is some associated incremental cost in preparing an undertaking and have included $3 million over the last two years of the 2014 DAU period to account for this.

We refused to approve Aurizon Network's business management costs proposal. Table 26 summarises the adjustments to the draft access undertaking that we considered were appropriate. This resulted in a $2.8 million reduction across the UT4 period.

Table 26 QCA proposed adjustments to business management costs ($ million, nominal)

	2013–14	***2014–15***	***2015–16***	***2016–17***
Aurizon Network proposed	10.5	11.0	13.8	13.5
QCA adjustments (including labour indexation)	—	*(0.3)*	*(1.1)*	*(1.4)*
QCA MAR draft decision	**10.5**	**10.7**	**12.8**	**12.1**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, 2013 DAU, sub no 3: 241.

Stakeholders' comments on the MAR draft decision

Aurizon Network

Aurizon Network said it could not replicate our 2013–14 proposed costs for business management using its 2012–13 actual costs and our proposed cost escalation factors.[106]

Aurizon Network disagreed that the development of UT4 was an inefficient process and believed the redrafting from the 2013 DAU was a necessary part of the regulatory process, as it largely involved incorporating feedback from industry consultation.[107] Aurizon Network questioned why the UT5 preparation costs were reduced by $1.5 million, given RSMBC’s comments that the forecast costs do not appear unreasonable.[108]

Aurizon Network noted that in its original submission some business support costs in UT3 were included in corporate overhead for UT4 due to the functional restructure within the Aurizon Holdings Group.[109] Aurizon Network considered that it is more appropriate to include Network Finance costs within business management, rather than in corporate overheads. Aurizon Network said that costs should be directly attributed wherever practicable and reallocating the cost of these activities from overheads to direct costs in line with the reporting structure is more appropriate.[110] Aurizon Network noted that Finance, Commercial, Regulation and Network Operations have direct reporting lines to the CEO of Aurizon Network and are directly employed by Aurizon Network.

[106] Aurizon Network, 2014 DAU, sub. 59: 55.
[107] Aurizon Network, 2014 DAU, sub. 59: 55.
[108] Aurizon Network, 2014 DAU, sub. 59: 55.
[109] Aurizon Network, 2014 DAU, sub. 59: 55.
[110] Aurizon Network, 2014 DAU, sub. 59: 55

Aurizon Network said that there is no duplication of activities and costs by including Network Finance within business management costs, and residual finance activities within corporate overhead.[111] To mitigate perceived duplication of costs, Aurizon Network proposed that the costs of the Network Finance team be included as part of business support costs in their entirety with additional functions required for a stand-alone business included in the corporate overhead allowance.

Aurizon Network proposed revised costs for the 2014 DAU period for business management using its 2013–14 actual costs and its proposed cost escalation factors (see Section 1.2.2).

Table 27 Aurizon Network proposed adjustments to business management ($ million, nominal)

	2013–14	***2014–15***	***2015–16***	***2016–17***
QCA MAR draft decision—September 2014	10.5	10.7	12.8	12.1
Aurizon Network proposed adjustment	*(0.4)*	–	*1.7*	*1.9*
Reallocation of Network Finance costs	*5.5*	*5.8*	*6.1*	*6.4*
Aurizon Network— December 2014	**15.6**	**16.5**	**20.5**	**20.4**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, 2014 DAU, sub. 82: 48.

Other stakeholders

The QRC supported our proposed reduction to cost allowances associated with the preparation of UT5. However, the QRC suggested that the cost of permanent Aurizon Network staff involved in the preparation of undertakings may be in addition to this allowance and only relate to the cost of consultants and experts engaged specifically for the UT5 process.[112] The QRC remain concerned that a budget of this magnitude will continue to encourage the inefficient and excessive use of expert reports which characterised the early stages of the UT4 process.[113]

QCA analysis and consolidated draft decision

Our consolidated draft decision is to refuse to approve Aurizon Network's proposed business management costs. Consistent with our MAR draft decision, we consider that Aurizon Network's overall actual costs for 2012–13 business management appear to be generally efficient. As such, we consider it appropriate that Aurizon Network amend its draft access undertaking using 2012–13 as the base year for costs to be extrapolated over the remainder of UT4 using the relevant escalation factors.

Base–year costs

We do not accept Aurizon Network's proposal to use actual 2013–14 costs as base-year costs for escalation over the remainder of the UT4 period.

Regulation and policy costs

Consistent with our MAR draft decision, we consider that regulation and policy costs are cyclical with the following cost movements included in Aurizon Network's proposed 2014 DAU costs:

[111] Aurizon Network, 2014 DAU, sub. 59: 55
[112] QRC, 2014 DAU, sub. 62: 8.
[113] QRC, 2014 DAU, sub. 62: 8.

- a decrease in regulation and policy costs of around $2 million in 2013–14 as a result of some UT4 related costs being one-off cost in 2012–13[114]
- an increase in cost budgeted for 2015–16 and 2016–17 associated with the development and review of UT5.[115]

Consequently, we used Aurizon Network's proposed 2014 DAU costs which were reviewed by RSMBC to be reasonable, with the exception of an adjustment to Aurizon Network's proposed UT5 preparation costs.

While RSMBC said that Aurizon Network's proposed UT5 preparation costs of $4.5 million over 2015–16 and 2016–17 were not unreasonable, this was on the basis that it was anticipated that the preparation of UT5 would require only a slightly lower level of costs than the corresponding costs for UT4.

We consider that Aurizon Network's internal costs for UT5 will be substantially less than for UT4. The QCA has been reviewing UT4 for over three years. We expect that the QCA's review of UT5 will be quicker.

We remain of the view that Aurizon Network's preparation costs for UT5 should be significantly lower than UT4 costs, and so our consolidated draft decision is to refuse to approve Aurizon Network's proposal. We have retained the view from our MAR draft decision that it is appropriate that Aurizon Network amend its draft access undertaking by reducing its UT5 preparation costs by $1.5 million.

Network Finance

We have retained Network Finance as a cost category within corporate overheads. We will separately assess it below. Irrespective of its cost allocation, we are not convinced by Aurizon Network's proposed categorisation of these costs given that its corporate overheads include other cost categories (e.g. Network Legal) that are directly attributable to Aurizon Network.

Summary

With the exception of regulation and policy costs, we consider it appropriate that Aurizon Network amend its draft access undertaking to reflect the 2012–13 actual costs as the base year, with escalation based on our proposed factors in Section 22.2.2.

Note that in our MAR draft decision, we used Aurizon Network's proposed 2013–14 costs as our base year for escalation over the remainder of the 2014 DAU period. We now consider that this was not appropriate.

Table 28 QCA proposed adjustments to business management costs ($million, nominal)

	2013–14	*2014–15*	*2015–16*	*2016–17*
Aurizon Network proposed costs	10.5	11.0	13.8	13.5
QCA adjustments (including labour indexation)	*(1.9)*	*(2.2)*	*(2.2)*	*(2.6)*
QCA proposed costs	**8.6**	**8.8**	**11.7**	**10.8**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, 2013 DAU, sub. 3: 241.

[114] RSMBC, 2013 DAU: 118.
[115] RSMBC, 2013 DAU: 119.

20.1.1 Summary of the consolidated draft decision

For the reasons outlined above, the system-wide and regional costs proposed by Aurizon Network would result in an over-recovery of those costs by Aurizon Network. This outcome would not accurately reflect the legitimate business interests of Aurizon Network and would not be in the public interest or the interests of relevant stakeholders. Over-recovery would also reduce incentives for Aurizon Network to reduce costs or otherwise improve productivity. In addition, such outcome would not promote the economically efficient operation, use of and investment in infrastructure underpinning the service, and may have detrimental effects on competition in upstream and downstream markets.

We have therefore decided to refuse to approve Aurizon Network's proposed system-wide and regional costs in the 2014 DAU.

We consider it appropriate for Aurizon Network to amend the 2014 DAU in the manner outlined in Table 29 in respect of system-wide and regional costs.

Table 29 QCA proposed adjustments to system-wide and regional costs (excluding corporate overheads) ($ million, nominal)

	2013–14	***2014–15***	***2015–16***	***2016–17***
Aurizon Network proposed	57.6	60.2	65.4	67.2
QCA adjustments				
Train control, safe workings and operations	*(3.1)*	*(4.1)*	*(4.9)*	*(5.6)*
Infrastructure management	*2.7*	*2.4*	*2.2*	*2.0*
Business management	*(1.9)*	*(2.2)*	*(2.2)*	*(2.6)*
QCA consolidated draft decision	55.3	56.4	60.5	61.0

Note: Numbers may not sum due to rounding. Source: Aurizon Network, 2013 DAU, sub. 3: 241.

We consider that proposed amendments would prevent Aurizon Network from over-recovering on system-wide and regional costs. This would accurately reflect Aurizon Network's legitimate business interests and would generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service and provide a risk-adjusted return on investment to Aurizon Network.

Our proposed amendments would also appropriately balance Aurizon Network's interests, the public interest, and the interests of relevant stakeholders. In addition, this would promote the objective of Part 5 of the Act and provide incentives for Aurizon Network and relevant stakeholders to reduce costs or otherwise improve productivity.

Consolidated draft decision 22.1

(1) After considering Aurizon Network's proposal for system-wide and regional costs (excluding corporate overheads), our consolidated draft decision is to refuse to approve Aurizon Network's original proposal.

(2) The way in which we consider it appropriate for Aurizon Network to amend the 2014 DAU is to make the following adjustments:

(a) Amend its proposed system-wide and regional costs (excluding corporate overheads) to reflect our estimate of efficient costs as set out in Table 29.

(b) Amend its labour cost escalation rate to reflect escalation in line with the ABS Wage Price Index.

(3) We approve the following aspects of Aurizon Network's proposal for system-wide and regional costs (excluding corporate overheads):

(a) Aurizon Network's proposal to escalate non-labour costs by CPI.

(b) Aurizon Network's proposal not to include a CPI-X adjustment factor to be applied for the 2014 DAU.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the above reasons set out in our analysis above.

22.3 Corporate overheads

22.3.1 Aurizon Network's proposal

Overview

Aurizon Network proposed corporate overheads relating to operating costs of $67.0 million in 2013–14 increasing to $75.1 million in 2016–17. This is a substantial increase compared to UT3, and a significant contributor to the proposed increase in tariffs for the 2014 DAU.

Aurizon Network said the corporate overhead costs allocated to below-rail network using the methodology proposed would result in around 18 per cent of the Aurizon Holdings Limited corporate overhead base being allocated to the regulated below-rail business. Aurizon Network said this is reasonable given the total corporate overhead base and benchmarking data, but acknowledged it results in a higher proposal for corporate overheads than in previous years.[116]

Aurizon Network also proposed $13.1 million in 2013–14 increasing to $14.9 million in 2016–17 for its maintenance corporate overheads.[117]

In addition to the corporate overheads, Aurizon Network's infrastructure management costs included the office of the EVP, Network.

Aurizon Network's proposed corporate overhead costs are shown in Table 30.

[116] Aurizon Network, 2013 DAU, sub 3: 238.
[117] RSMBC, 2013 DAU, 2014: 62.

Table 30 Aurizon Network's proposed corporate overheads ($ million, nominal)

	2013–14	*2014–15*	*2015–16*	*2016–17*
Corporate overheads (operating costs)	67.0	69.7	72.5	75.1
Corporate overheads (maintenance)	13.1	13.7	14.3	14.9
Corporate overheads (Total)	**80.1**	**83.4**	**86.8**	**90.0**

Notes: (1) Operating cost corporate overhead includes Office of the EVP Network. (2) Numbers may not sum due to rounding.

Sources: Aurizon Network, 2013 DAU, sub.3: 241; Aurizon Network, 2013 DAU, sub. 4: 14; Aurizon Network unpublished information.

Aurizon Network said its proposed corporate overhead costs reflect the costs that would be reasonably attributable to the provision of services for the CQCN, if it operated as a stand-alone entity.[118]

In UT3, Aurizon Network's corporate overhead costs were calculated as a 'mark-up' on operating costs excluding fuel, energy, depreciation and maintenance costs. Aurizon Network said the UT3 method:

- resulted in an under-recovery of costs over the UT3 period
- was no longer consistent with the QCA Act
- was deficient because it failed to adequately consider the corporate costs that were not allocated to business units and that would have been incurred by a stand-alone entity.[119]

Corporate overhead cost allocation for operating costs

To support its 2014 DAU, Aurizon Network engaged Ernst & Young to develop a cost-allocation method for corporate overheads and to benchmark Aurizon Network's proposed corporate overheads with those of other comparable entities.[120]

Aurizon Network proposed allocating Aurizon Holdings' corporate overhead cost centres to the below-rail regulated business based on 'causal' and 'blended' allocation factors. For cost centres where a clear cost driver could be determined, costs were allocated to the below-rail regulated business based on the respective causal cost allocation factor. For the majority of cost centres, no clear causal cost driver could be determined and costs were allocated using the blended allocation factor.

The blended allocation factor is based on a blended average of network FTE, revenue and asset allocation factors. Aurizon Network said using these three factors allows the materiality, scale and size of non-regulated activities, in comparison to regulated activities, to be taken into account.[121]

Aurizon Network used a benchmarking report prepared by Ernst & Young to support the reasonableness of the overhead costs allocated to its regulated below-rail business at the corporate function level. Aurizon Network said this benchmarking analysis showed that its

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[118] Aurizon Network, 2013 DAU, sub 3: 229.
[119] Aurizon Network, 2013 DAU, sub 3: 229.
[120] Aurizon Network, 2013 DAU, sub. 11: 2.
[121] Aurizon Network, 2013 DAU, sub. 109: 11.

proposed corporate overhead costs placed it within the benchmark range expected of a stand-alone business of similar size and in a similar industry.[122]

Aurizon Network was of the view that a number of the cost differences between it and its benchmark comparators were attributable to Aurizon Holdings Limited being a listed public company, whereas the comparator companies were both government-owned.[123] Ernst & Young also noted organisational strategy and structure, geographic location, regulatory regime, and organisational maturity can materially affect an entity's cost performance.[124]

Corporate overhead allocation for maintenance costs

For its maintenance activities, Aurizon Network proposed an allocation of $12.6 million ($2012–13) in 2013-14 for corporate overhead costs attributable to the office of the CEO and Board, human resources, finance, procurement, information systems, system development, legal and audit.

Aurizon Network provided a report by Deloitte Access Economics[125] in support of its proposal. This report provided a 'bottom up' estimate for the corporate overheads of a stand-alone maintenance business of similar size[126] as Aurizon Network's maintenance division. The Deloitte Access Economics report indicated Aurizon Network's maintenance cost overhead proposal was for a 6 per cent overhead on the $200 million estimated maintenance costs and was consistent with benchmark corporate overheads for other regulatory decisions, which suggested an average corporate overhead of around 7 per cent.[127]

22.3.2 Summary of the MAR draft decision

Review of Aurizon Network's approach

Our MAR draft decision was to refuse to approve Aurizon Network's proposed corporate overhead cost. Our full analysis and reasoning is contained in section 4.3 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

Our MAR draft decision was as follows:

> *4.6 We refuse to approve Aurizon Network's proposed methodology for estimating its corporate overhead costs, that is, the use of a blended cost allocator for allocating Aurizon Holdings' corporate overhead costs.*
>
> *4.7 We consider it appropriate that Aurizon Network amend its 2014 DAU in relation to the corporate overhead allowance to reflect our current estimate of the efficient corporate overheads costs that is associated with all aspects of Aurizon Network's business, as identified in Table 34.*

The stand-alone business concept

Whilst we agreed that the concept of an efficient 'stand-alone business' is a useful tool to adopt when assessing efficient corporate overhead costs, we are not of the view that Aurizon Network has used this approach in all circumstances. We noted that Aurizon Network developed its corporate overheads for maintenance costs on a 'bottom up', stand-alone basis. However, this

[122] Aurizon Network, 2013 DAU, sub. 3: 191.
[123] Aurizon Network, 2013 DAU, sub. 3: 233.
[124] Aurizon Network, 2013 DAU, sub. 11: 10.
[125] Aurizon Network, 2013 DAU, sub. 35 Annex AE.
[126] In terms of staff numbers and expenditure.
[127] Aurizon Network, 2013 DAU, sub. 35 Annex AE: 10.

approach has not been used for assessing the corporate overheads associated with operating costs. Corporate overhead costs applied to operating costs have been developed using a cost allocation methodology.

Cost category inclusion and duplication

We were unconvinced that Aurizon Network's combined proposal for corporate overheads (operating costs, maintenance and EVP Network) accurately reflected the costs that would be incurred by an efficient 'stand-alone business' providing a similar service, to a similar customer base and demand profile to that of Aurizon Network. In particular:

(a) we concluded that Aurizon Holding's corporate overheads included a range of costs that are not necessary to the same extent as for an efficiently operated stand-alone business of a similar size and in a similar industry. Such costs include:

   (i) investor relations and corporate branding

   (ii) company secretary, which is much higher than is reasonable for a 'stand-alone business' the size of Aurizon Network

(b) we considered there was duplication across the three overhead proposals made by Aurizon Network. For example:

   (i) an allowance for a CEO appearing three times and an allowance for a board appearing twice

   (ii) we shared RSMBCs concerns about the duplication of costs for a fully identified legal service function within Aurizon Network and the legal services proposed for the maintenance corporate overhead

   (iii) similarly, we considered Aurizon Network's proposed methodology may give rise to potential duplication across its finance costs [128]

(c) We considered there was potential duplication between Aurizon Network's system-wide and regional costs and its corporate overhead allowance, compared to an efficiently operated stand-alone business of a similar size and in a similar industry. This includes the proposed costs for stakeholder relations and national policy, which would otherwise be undertaken by Aurizon Network's business management group.

Benchmarking and comparator companies

In our MAR draft decision, we expressed concerns that the benchmarks from the Ernst & Young report provided by Aurizon Network did not relate to those of efficient and comparable businesses. As identified above, an important means of determining whether Aurizon Network's costs are efficient is to demonstrate that those costs are consistent with those of an efficient business in similar circumstances (i.e. a comparable business in a competitive market).

Use of the blended cost allocation method

Our MAR draft decision did not accept Aurizon Network's proposed use of the blended cost allocation method (average of revenue, FTEs and assets) for the following reasons:

- inclusion of both revenue and assets in the allocator: revenue includes a return on and return of assets. Consequently including assets in the blended allocator appears to overstate the impact of assets as a driver of corporate overhead costs

[128] Aurizon Network has subsequently indicated that its finance costs should be separately identified as Aurizon Network specific costs but did not identify areas where these costs would be duplicated.

- inclusion of revenue in the allocator: revenue will be affected by changes in policies which have no direct link to overhead costs, such as depreciation rates. Furthermore, revenue includes the pass-through of electricity costs, which appear to have no strong relationship to overheads.

Overall, we considered that the proposed blended allocation method appears to overstate the level of corporate overheads reasonably attributable to the operation of Aurizon Network. Furthermore, we were not satisfied that the below-rail business would not be cross-subsidising the above-rail functions.

Treatment of maintenance overheads

We accepted the use of a separate corporate overhead allocation method for maintenance costs in UT3. This comprised a 5.75 per cent allowance on maintenance costs for corporate overheads and working capital that applied to labour costs only.[129]

For the 2014 DAU, we were concerned that the use of two different approaches to estimate corporate overheads for Aurizon Network could lead to potential duplication of costs. We considered an allowance for corporate overheads for Aurizon Network should be considered consistently so there is greater confidence that duplication is not occurring.

On this basis, our MAR draft decision was that it was not appropriate to provide a separate allowance for corporate overheads for maintenance costs, but that it was appropriate to treat these costs as part of the overall estimate for Aurizon Network's corporate overhead costs.

QCA's proposed approach

Direct cost allocation approach

Our MAR draft decision was that it was appropriate that Aurizon Network amend its 2014 DAU in relation to the corporate overhead allowance by replacing, where applicable, the Aurizon Network blended allocator with a direct cost allocator to allocate corporate overheads. This was applied to operating and maintenance costs. We considered a direct cost allocator to be more reflective of an efficient corporate overhead cost allocation because:

(a) using direct costs of the regulated business as a percentage of total direct costs of the integrated entity is a tried and tested methodology adopted in the regulatory environment.[130] We have previously applied a direct cost allocation method to allocate corporate overheads in regulated businesses including for SunWater and Seqwater irrigation prices

(b) we considered there to be a clearer relationship between Aurizon Network's corporate overhead costs and direct costs than there is between the value of its revenue and assets (the blended allocator created by Aurizon Network) and its corporate overhead costs

(c) a large proportion of Aurizon Network's revenue relates to the return on and the return of capital in relation to the RAB. The use of revenue would therefore appear to include reference to the value of Aurizon Network's asset values.[131] Further, many of the asset-intensive activities are already reflected in the costs of infrastructure management and maintenance.

[129] QCA (2010), draft decision, QR Network's 2010 DAU—Tariffs and Schedule F, June 2010: 79.
[130] RSMBC, 2013 DAU, 2014: 52.
[131] RSMBC, 2013 DAU, 2014: 7.

We did not consider the direct cost allocation method should include the costs of electricity supply (and fuel) as these costs are generally cost pass-through items.

On this basis, we developed an updated version of the RSMBC direct cost allocator method. It included maintenance costs, but excluded the costs of electricity supply.

We considered that this direct cost approach for the allocation of corporate overheads represented a sufficiently robust method for allocating overhead costs between Aurizon Network and the remainder of Aurizon Holdings.

Stand-alone cost base for corporate overheads

We completed our own review of Aurizon Holdings' corporate overhead costs in order to develop an appropriate starting cost base from which to assess the efficient corporate overhead costs of a 'stand-alone business'. As a result of this review, we considered that it was appropriate that the following adjustments be made by Aurizon Network to its draft access undertaking:

(a) Adjust for costs which would not be considered part of the efficient cost base for a 'stand-alone business' providing a similar service, to a similar customer composition and demand profile to that of Aurizon Network. This includes:

  (i) providing an allowance for a single CEO and Board

  (ii) removing costs associated with investor and stakeholder relations, as well as corporate branding

  (iii) reducing cost allowances that are higher than would be expected for a 'stand-alone business'.

(b) Remove costs which would be considered as Aurizon Holding's business re-engineering costs and not part of the efficient cost of providing a rail network.

(c) Remove costs associated with corporate restructuring as these represent commercial decisions for an integrated entity and need not represent part of the efficient cost base that a 'stand-alone business' would pass through to access holders.

(d) Remove costs associated with the national policy team as we consider these are a duplication of cost associated with the regulatory and legal team in Aurizon Network.

(e) Allocate identified savings in the Aurizon Holdings group to Aurizon Network, taking account of the cost savings identified by RSMBC, but adjusted to reflect the costs excluded as part of (a) above. These savings are then escalated by CPI.

(f) Adjust Aurizon Network's legal costs to reflect the proportion for un-regulated activities based on the 87 per cent allocation of costs assumed for the business management costs.

(g) Include $9.5 million per annum ($2013–14) for the telecommunications backbone, offset this cost by revenue received from Queensland Rail as a contribution to this service.

(h) Reduce the allowance for company secretary to be commensurate with an organisation the size of Aurizon Network, operating as a stand-alone business.

(i) Adjust the labour costs escalation factors to reflect the forecast WPI, rather than the AWOTE index.

Our estimated efficient stand-alone costs for Aurizon Network corporate overheads for the UT4 period are outlined in Table 31.

Table 31 QCA estimated efficient stand-alone costs for Aurizon Network corporate overheads 2013–14 to 2016–17 ($million, nominal)

	2013–14	***2014–15***	***2015–16***	***2016–17***
Aurizon Network proposed corporate overheads (including operating costs and maintenance costs)	80.1	83.4	86.8	90.0
QCA adjustments	(33.8)	(35.5)	(37.2)	(38.7)
QCA proposed costs	**46.2**	**47.9**	**49.6**	**51.2**

Note: Numbers may not sum due to rounding.

We made no adjustments for the net impact of economies of scale. We considered that in order for us to assess whether any scale adjustments are relevant, Aurizon Network would need to provide:

- an objectively justified analysis that outlines the magnitude of the scale impacts it considers relevant
- empirical evidence of a direct causal relationship of the cost impact on a 'stand-alone business' if it were not considered part of the integrated group
- evidence that an efficiently operated stand-alone business would not be able to mitigate some or all of any incremental operating cost increase.

Benchmarking

We considered that only high-level comparisons between Aurizon Network and other rail comparators can be drawn and these should be viewed cautiously. As a high-level comparison, we estimated that Aurizon Network's corporate overhead costs, excluding the costs of the telecommunications backbone, represented around 0.05 c/gtk, compared to 0.04 c/gtk in the HVCN in 2013–14. This was more than 20 per cent higher than in the HVCN.

22.3.3 Stakeholders' comments on the MAR draft decision

Aurizon Network

Revised cost proposal for corporate overheads

Aurizon Network considered that our proposed corporate overhead allowance is insufficient and that it should be entitled to recover the operating expenses that would be incurred by an efficient stand-alone business.[132] Aurizon Network submitted that an allocation of at least $52.3 million would be required in 2013–14[133] based on the cumulative industry benchmark in the Ernst & Young report.[134] Aurizon Network submitted a revised cost proposal based on this benchmark.

[132] Aurizon Network, 2014 DAU, sub. 59: 57.

[133] This has been derived by applying 2.5 per cent to the 2012–13 cumulative industry benchmark in the Ernst & Young report. If we apply the 3.7 per cent applied at the individual benchmark level by Aurizon Network in its December 2014 submission, this equates to $53 million.

[134] These benchmarks were provided in the Ernst & Young report submitted as part of Aurizon Network’s original 2013 DAU submission in April 2013. Aurizon Network's December 2014 submission has applied the original benchmark rate to Aurizon Network's revenue adjusted to include asset maintenance activities.

In its December 2014 revised cost proposal, Aurizon Network applied a consistent costing methodology for corporate overhead between the asset maintenance division and other divisions. An indicative cumulative industry benchmark was calculated to include asset maintenance and exclude the non-benchmarked functions.

Table 32 Aurizon Network's revised corporate overheads, December 2014

	2013–14	*2014–15*	*2015–16*	*2016–17*
Aurizon Network revised corporate overheads (including Network Finance costs)	64.1	66.5	68.9	71.2
Less Network Finance costs	*(5.5)*	*(5.8)*	*(6.1)*	*(6.4)*
Aurizon Network revised corporate overheads (excluding Network Finance costs)	**58.6**	**60.7**	**62.8**	**64.8**

Note: Numbers may not sum due to rounding.

Aurizon Network provided revised costs for each of the overheads functions based on the Ernst & Young benchmarks for corporate overhead cost allocation. Aurizon Network submitted that the benchmark data is appropriate to use as a starting point for the build-up of the allowance, given the QCA's preference not to use an allocation methodology. Aurizon Network considered that there is a case for including amounts that can be readily benchmarked in the cost allowance.

Aurizon Network used the Ernst & Young benchmark as the basis for its revised corporate costs allowance in six of the nine overhead sub functions.

Table 33 Aurizon Network's revised costs for each of the overheads functions

Function	*Sub-function*	*Source*	*Benchmark used*
Board & CEO	Board & CEO	Ernst & Young benchmark	Median costs derived from ASX data
Finance	Total including Network Finance	Ernst & Young benchmark	Distribution/transport industry
Enterprise Services	General Counsel and Company Secretary	Allocation method	QCA direct costs allocator
	Internal Audit and Enterprise Risk Management	Ernst & Young benchmark	GAIN median ($0.5–1 billion revenue)
	Information Technology	Ernst & Young benchmark	Distribution/transport industry
	National Policy	Not benchmarked[1]	–
Human Resources	Human Resources	Ernst & Young benchmark	Distribution/transport industry
Business Sustainability	Safety, Health and Environment	Allocation method	QCA direct costs allocator
	Enterprise Real	Combination of methods	Rail company 2

Function	Sub-function	Source	Benchmark used
	Estate		
	Enterprise Procurement	Ernst & Young benchmark	Distribution/transport industry
	Innovation; Operational Excellence, Enterprise Effectiveness	Not benchmarked[1]	–
Strategy	Strategy	Not benchmarked[1]	–

Note: The revised cost proposal did not include an allocation to Aurizon Network for these overheads sub-function.

Source: Aurizon Network, 2014 DAU, sub. 82: 65.

Aurizon Network said there is not sufficient detail in our MAR draft decision to compare at a functional level its submitted costs or the components of the Ernst & Young benchmarks with our corporate overheads cost estimate.[135]

Aurizon Network considered that the amounts in the Ernst & Young industry benchmarks for General Counsel, Corporate Secretary, and Safety, Health and Environment were inadequate due to specific industry factors. For these corporate functions, Aurizon Network considered that the application of the QCA's direct cost allocator resulted in costs more representative of a stand-alone below-rail network operator:

- General Counsel—The revised proposal for General Counsel includes costs of $5.2 million using the direct cost allocator.[136] Aurizon Network did not consider there is any duplication of costs by including an allocation of the corporate legal division.
- Company Secretary—Aurizon Network considered that the cost of $0.9 million derived from the application of the QCA direct cost allocator to the original cost base is representative of the Company Secretary costs for a stand-alone company like Aurizon Network and has been included in the revised proposal[137].
- Safety, Health and Environment—The revised cost is based on Aurizon Network's 2014 DAU proposed methodology but replaces the blended allocator with the QCA's direct cost allocator. The revised Safety, Health and Environment cost is $6.5 million which Aurizon Network believes is reasonable.[138] Aurizon Network considered that if the direct cost allocator were applied to total forecast costs of the Safety, Health and Environment function, the cost allowance would be insufficient for a stand-alone company and is insufficient for Aurizon Network.

[135] Aurizon Network, 2014 DAU, sub. 59: 66.
[136] Aurizon Network, 2014 DAU, sub. 59: 69.
[137] Aurizon Network, 2014 DAU, sub. 59: 66.
[138] Aurizon Network, 2014 DAU, sub. 59: 72.

Aurizon Network proposed that Network Finance be included in the business management support costs rather than corporate overhead.[139] It said this aligns with the principle that costs be directly attributed wherever practicable.

Benchmarking of corporate costs

Aurizon Network said that a robust approach to estimating efficient corporate costs for the 2013 DAU was implemented, which included assessing the reasonableness of allocated costs using independent benchmarking from Ernst & Young.[140] Aurizon Network based the benchmarking analysis on the costs it would incur as a stand-alone below-rail network operator, stating that this process did not result in a duplication of costs. Aurizon Network said that savings from economies of scale and efficiencies, as well as additional cost savings targets on specific business areas within the Aurizon Group, were incorporated into the corporate overhead forecasts submitted in the 2013 DAU.[141]

Aurizon Network confirmed that the two companies used in the benchmarking exercise are in the rail industry; Energex was not used.[142] Aurizon Network's proposed corporate cost allowance is between the two rail companies they benchmarked against.[143]

Allocation methodology

Aurizon Network maintained its position that the allocation of corporate overhead costs (not subject to specific cost drivers) using the proposed blended allocator is reasonable. Aurizon Network said that it applied an allocation methodology for the 2013 DAU consistent with approaches used by other regulated businesses in Australia and is aligned with commonly accepted principles for an appropriate cost allocation methodology.[144]

In the analysis for our MAR draft decision, the QCA consultant RSMBC proposed the use of an alternative cost allocation methodology to allocate overheads for cost centres where no clear cost driver can be determined, noting that it is the primary methodology adopted by Energex. Aurizon considered RSMBC's response to be misleading, stating that Energex's methodology is used to allocate direct costs between regulated services segments of their business.[145] Aurizon Network claimed that Energex uses a three-factor (blended) allocator to distribute costs between the non-regulated and regulated segments of their business, which is directly comparable to Aurizon Network's use of the blended allocator.[146]

Aurizon Network considered that RSMBC's analysis did not demonstrate a strong correlation between total direct spend and the consumption of corporate overhead in the Aurizon Network business.[147] Aurizon Network disagreed with RSMBC's statement that there is generally a stronger correlation between an entity’s direct costs and its corporate overhead costs than the value of an entity’s assets and its corporate overhead costs. Aurizon Network stated that allocable corporate costs (including Information Technology, Safety, CEO, Finance and Board) do

[139] Aurizon Network, 2014 DAU, sub. 59: 66.
[140] Aurizon Network, 2014 DAU, sub. 59: 59.
[141] Aurizon Network, 2014 DAU, sub. 59: 59.
[142] Aurizon Network, 2014 DAU, sub. 59: 60.
[143] Aurizon Network, 2014 DAU, sub. 59: 60.
[144] Aurizon Network, 2014 DAU, sub. 59: 61.
[145] Aurizon Network, 2014 DAU, sub. 59: 61.
[146] Aurizon Network, 2014 DAU, sub. 59: 61.
[147] Aurizon Network, 2014 DAU, sub. 59: 61.

not have a strong causal relationship with the main direct costs of the Aurizon Network business.[148]

Aurizon Network said that research undertaken by Ernst & Young indicated that the use of a blended allocator in the absence of a clear causal driver of costs is supported by regulatory precedent.[149] Aurizon Network proposed that the blended allocator comprise assets, revenue and FTE's for the following reasons:

- Aurizon Network's asset base makes up almost 50 per cent of those of the Aurizon Limited Group.
- Aurizon Network accounts for over 25 per cent of the total Aurizon Limited Group earnings before interest and tax.
- Ernst & Young confirmed that FTEs are 'an acceptable component of the blended rate and are commonly used as a causal allocator'.[150]

Aurizon Network considered that the blended allocator should not be rejected in favour of the proposed direct cost methodology in the absence of more conclusive justification.[151] Aurizon Network said that using the direct cost method results in a substantial understatement of costs. Aurizon Network suggested that concerns about the blended allocator being skewed towards asset value (since a significant portion of MAR is a return on assets) could be resolved by including the direct costs in the blended allocator instead of revenue.[152]

Calculation of the direct cost allocator

Aurizon Network considered that the direct costs allocator, which excludes capitalised costs from the calculation, results in an unreasonably lower allocation of corporate overhead for many functions, including procurement, safety, insurance, IT and finance.[153] Aurizon Network considered that not including the asset base or capital expenditure into the allocation methodology neglects the fact that Aurizon Network is an asset intensive business.

Aurizon Network noted that Aurizon Holdings incurred $328.9 million of external track access costs related to above-rail business in 2012–13, which it believed to have no correlation with overhead costs incurred in relation to the Network business.[154]

Calculation of allocable cost base

Aurizon Network said the QCA noted in its MAR draft decision that reductions have been made to the cost base for costs associated with corporate restructuring and business re-engineering.[155] Aurizon Network said it is unclear which particular functions or cost centres have been excluded on this basis.[156] Aurizon Network assumed this included Operational Effectiveness, Innovation and parts of Capital Excellence. While Aurizon Network excluded these

[148] Aurizon Network, 2014 DAU, sub. 59: 62.
[149] Aurizon Network, 2014 DAU, sub. 59: 61.
[150] Aurizon Network, 2014 DAU, sub. 59: 61.
[151] Aurizon Network, 2014 DAU, sub. 59: 62.
[152] Aurizon Network, 2014 DAU, sub. 59: 62.
[153] Aurizon Network, 2014 DAU, sub. 59: 63.
[154] Aurizon Network, 2014 DAU, sub. 59: 63.
[155] Aurizon Network, 2014 DAU, sub. 59: 63.
[156] Aurizon Network, 2014 DAU, sub. 59: 63.

costs from the calculation of its revised overheads proposal, it noted that incurring these costs has made and continues to make Aurizon Network more responsive and efficient.[157]

Aurizon Network considered that it is appropriate for costs of the National Policy, Operational Excellence and Branding functions to be included in the cost allowance. However, Aurizon Network did not include them in its revised cost proposal. Aurizon Network noted the following:

- The work that is undertaken by the National Policy team on national access regulation, response to legislative change and engagement with government officials would otherwise fall into the ambit of the Regulation team.[158] Resources in this team would need to be supplemented as a result, and it is estimated an additional estimated cost of $100,000 would be required.
- This Operational Excellence team oversees and drives project-specific outcomes for strategic, growth and key operational projects. The cost allocated to this function under the QCA revised cost allocator of direct costs percentage is $0.9 million ($2013–14) which Aurizon Network believes is reasonable.[159]
- The costs within Branding relate to more than just advertising and promotional activities. Costs incurred within Branding include filming of DVDs on expansion projects for stakeholders and the community, printing of posters for specific awareness campaigns and induction material for new staff members. Financial records for the last two years support Network related costs of $0.1 million per year.[160]

Other stakeholders

Anglo American, Asciano, BMA and the QRC all supported QCA adjustments to Aurizon Network's corporate overheads costs. However, the QRC and Anglo American could not conclude that the reduced cost is efficient, or 'not unreasonable'. Based on the HVCN benchmark, the QRC considered that the reduced overhead allowance proposed in our MAR draft decision still exceeds the efficient costs of the below rail network.[161] Anglo American believed that there are more costs that can be extracted from corporate overheads.[162]

The QRC considered that our proposed cost reductions should be maintained, at a minimum, to limit the extent to which overhead costs are overestimated for UT4.[163] The QRC also suggested we apply a CPI-X factor to escalation of overhead costs, given the extent of cost reductions announced by Aurizon Network in recent years. The QRC did not consider it credible that efficiency improvements have now been implemented to the maximum extent possible, especially given the level of costs relative to benchmarks.[164]

Both Anglo American and Asciano said that we should ensure that the broader Aurizon Group cannot shift costs between its various entities.

[157] Aurizon Network, 2014 DAU, sub. 59: 64.
[158] Aurizon Network, 2014 DAU, sub. 59: 76.
[159] Aurizon Network, 2014 DAU, sub. 59: 77.
[160] Aurizon Network, 2014 DAU, sub. 59: 77.
[161] QRC, 2014 DAU, sub. 62: 10.
[162] Anglo American, 2014 DAU, sub. 58: 23.
[163] QRC, 2014 DAU, sub. 62: 10.
[164] QRC, 2014 DAU, sub. 62: 10-11.

Anglo American was concerned that corporate overheads are an area where inappropriate cost allocation has the potential to occur.[165] Anglo American considered that users should not be required to subsidise the broader costs of the Aurizon Group, where other Aurizon Group entities are direct competitors with users and train operators.[166] Anglo American said that where possible any overheads should relate directly to the running of the Aurizon Network business.

Asciano said that Aurizon Network's proposed increase in corporate costs impacted on competition and efficiency, such as shifting tariffs away from being cost reflective and providing Aurizon Operations with a competitive advantage as they would no longer have to carry a reasonable allocation of corporate costs.[167]

The QRC were concerned that Aurizon Network's corporate overhead increased substantially and was a significant contributor to tariff increases.[168] The QRC considered that there was little evidence to suggest that those overheads were efficient, and cost reductions achieved in recent years did not seem to be adequately reflected in the claim.[169] The QRC said that the allocation methodology was inappropriate, resulting in instances of double-counting and an allocation to the network business which would exceed the efficient costs of a stand-alone network business.[170]

Given the available information, the QRC said it was difficult to identify the cause of any excess or the areas requiring further adjustment.[171] The QRC suggested that the final decision should document the limitations faced by the QCA, in terms of the lack of bottom-up costing and reliable benchmarking, so that UT4 costs are not taken to represent a baseline for UT5. Anglo American supported the QRC comments.[172] Vale supported the concept of developing a more rigorous benchmarking approach for UT5.[173]

Anglo American said that Aurizon Network has not provided adequate detail to establish what costs are actually included in the 'enterprise strategy and branding' section.[174] Anglo American submitted that any costs related to the advertising or branding should not be included in Aurizon Network corporate overhead costs. Anglo American said that based on regulatory precedent, costs intended to promote company image are not in the ambit of allowable costs—as advertising is specifically for the benefits of the shareholders of the corporate entity and does not do anything to benefit the users of the regulated asset.[175] Anglo American also noted that Aurizon Network claimed $1.8 million in 'enterprise strategy and branding' costs in 2013–14, which was $700,000 more than the rail company that Aurizon Network benchmarked its costs against.[176]

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[165] Anglo American, 2014 DAU, sub. 58: 16
[166] Anglo American, 2014 DAU, sub. 58: 16.
[167] Asciano, 2014 DAU, sub. 52: 6.
[168] QRC, 2014 DAU, sub. 62: 8.
[169] QRC, 2014 DAU, sub. 62: 9.
[170] QRC, 2014 DAU, sub. 62: 9
[171] QRC, 2014 DAU, sub. 62: 10.
[172] QRC, 2014 DAU, sub. 62: 11.
[173] Vale, 2014 DAU, sub. 54: 2.
[174] Anglo American, 2014 DAU, sub. 58: 21.
[175] Anglo American, 2014 DAU, sub. 58: 21–22.
[176] Anglo American, 2014 DAU, sub. 58: 21.

22.3.4 QCA's analysis and consolidated draft decision

Our consolidated draft decision is to refuse to approve Aurizon Network's proposed corporate overhead costs (including maintenance overhead costs). We consider it appropriate that Aurizon Network amend its 2014 DAU in relation to the corporate overhead allowance to reflect our estimated efficient costs for Aurizon Network corporate overheads for the UT4 period as outlined in Table 34.

Table 34 QCA estimated efficient stand-alone costs for Aurizon Network corporate overheads 2013–14 to 2016–17 ($million, nominal)

	2013–14	***2014–15***	***2015–16***	***2016–17***
Aurizon Network proposed corporate overheads (including operating costs and maintenance costs)	80.1	83.4	86.8	90.0
QCA adjustments	(26.1)	(28.4)	(30.4)	(32.2)
QCA proposed costs	**54.0**	**55.0**	**56.4**	**57.8**

Note: Numbers may not sum due to rounding.

The stand-alone business concept

Consistent with our MAR draft decision, we do not consider that Aurizon Network's proposed 2014 DAU corporate overhead costs have been developed on a 'bottom up', stand-alone basis. We also do not consider Aurizon Network's revised corporate overheads[177] using benchmarks from its previously submitted Ernst & Young report are based on a comprehensive 'bottom-up' review of the corporate overheads of an efficient 'stand-alone' business.

For the purposes of this Consolidated draft decision, we have retained the allocation methodology from our MAR draft decision as the basis for estimating the corporate overhead costs of a 'stand-alone business'. However, the upcoming review of Aurizon Network's costing manual needs to ensure that it appropriately accounts for the integrated structure of Aurizon Holdings. This process should focus on developing an improved baseline for corporate overhead allowances for Aurizon Network for UT5.

Benchmarking of corporate costs

In its response to our MAR draft decision, Aurizon Network maintained its UT4 proposed allocation methodology was the most appropriate approach to estimating its corporate overheads allowance. However, given Aurizon Network's view that our proposed overheads allowance in the MAR draft decision was too low, it proposed a revised corporate overhead allowance using the Ernst & Young benchmarking results provided in its 2013 DAU submission. In effect, while the Ernst & Young report was provided as supporting evidence in Aurizon Network's 2014 DAU submission, its December 2014 response proposes using these benchmark costs as the primary estimation approach for its corporate overheads allowance.

For six of its nine overhead functions, Aurizon Network has applied the 'cost as percentage of revenue' benchmark rate from its 2014 DAU submission to revised revenue that includes maintenance cost recoveries. In the remaining three overhead functions[178], Aurizon Network

[177] Aurizon Network, 2014 DAU, sub. 59: 65.
[178] General Counsel and Company Secretary; Safety, Health and Environment; and Enterprise Real Estate.

considered that the benchmark costs resulted in an allowance that was too low given the specific nature of its operations. For two of these remaining functions, Aurizon Network proposed estimates derived using our proposed direct cost allocation method.

We do not consider that Aurizon Network has provided any new information or arguments to justify the use of its benchmark costs as the primary estimation approach for its corporate overheads allowance. In particular, Aurizon Network did not address concerns raised by our consultant, RSMBC, in relation to the appropriateness of the Ernst & Young benchmarking results, including:

- costs being normalised solely based on revenue to account for the differences in the size and nature of the comparable companies
- the benchmarking of Aurizon Network to a 'stand-alone' entity with no allowance being made for the benefits of Aurizon Network being part of a larger group with centralised overhead functions
- no analysis in relation to the appropriateness of the comparable entities that comprise the benchmark
- no allowance or explanation being made for outlying costs and the implications of these for the benchmarking exercise, including when assessing cost in total.[179]

We are not convinced that Aurizon Network's corporate overhead costs should be solely driven by revenue. This assumes that corporate overheads are fully variable and that all of Aurizon Network's revenue would be a driver of overhead costs. We are not convinced, for instance, that the pass-through of electricity costs would be a driver of the efficient level of Aurizon Network's corporate costs.

We are also concerned that the Ernst & Young benchmarking report does not provide any analysis in relation to the comparable entities that comprise the benchmark to ensure their relevance for developing benchmark costs for Aurizon Network. We note that Aurizon Network has provided a list of the distribution/transport companies used to develop some of the benchmark costs[180]; however, it is not possible to determine whether the large range of companies selected would have a similar cost structure to Aurizon Network.

We are also concerned that Aurizon Network's revised cost proposal results in significantly higher cost allowances as compared to its benchmark for three of the nine overhead functions. We are concerned that the only justification for this is that the benchmark costs are too low for these particular functions. We consider that a consistent methodology should be used to derive costs for all overhead functions.

Accordingly, we have adopted the full analysis and reasoning contained in our MAR draft decision, subject to the above comments, in our consolidated draft decision.

Allocation methodology

Our consolidated draft decision is to retain the cost allocation approach that we used in our MAR draft decision to develop and assess the corporate overheads allowance. Under this approach, our consolidated draft decision is to replace the Aurizon Network blended allocator with a direct cost allocator to allocate corporate overheads with no causal driver. We adopt the

[179] RSMBC, 2013 DAU, 2014: 55–57.
[180] Aurizon Network, 2014 DAU, sub. 59: 86.

full analysis and reasoning contained in our MAR draft decision, subject to the comments below, in our consolidated draft decision.

Aurizon Network maintained its UT4 proposed allocation methodology is the most appropriate approach to estimating its corporate overheads allowance. While it said that it understood our reasons for developing a consistent approach to estimating overheads for operating and maintenance activities, it did not modify its blended cost allocation method so as to incorporate its maintenance activities. We maintain our view from our MAR draft decision that the use of two different approaches to estimate corporate overheads could lead to the potential duplication of costs.

Consistent with our MAR draft decision, our consolidated draft decision is to not accept Aurizon Network's proposed use of the blended cost allocation method (average of revenue, FTEs and assets). In particular, we do not consider that revenue and assets will have a strong relationship to overheads:

- Revenue will be affected by changes in policies which have no direct link to overhead costs, such as depreciation rates. Furthermore, revenue includes the pass-through of electricity costs, which appear to have no strong relationship to overheads.
- Given that the carrying value of assets is largely fixed from year to year, this would not correlate well with factors that cause Aurizon Network's overhead costs to vary.

We note Aurizon Network's view that assets should be considered as part of the assessment because it is an asset intensive business. However, we consider that a direct cost method for allocating Aurizon Network's overheads will reflect the direct costs of an asset intensive business including infrastructure management and maintenance of the assets.

We consider that there has only been limited use of the blended allocation approach in regulatory contexts, with Aurizon Network identifying Energex and CitiPower/Powercor as the only two examples of regulatory precedents. We do not consider that Aurizon Network has provided any new information or arguments supporting the relevance of these two examples as comparable businesses.

We consider that the use of a direct cost allocator is the most established and reasonable methodology for similar businesses in the regulatory environment. In addition to a direct cost allocation method being applied by us for regulated businesses such as SunWater and Seqwater, this method has been applied for regulated businesses including those mentioned in the Ernst & Young report.

The direct cost allocator compares closely to other allocators based on annual activity levels—sitting just below the revenue allocator and higher than the FTE allocator. We are not convinced that an allocator based on the carrying value of assets, which remain largely fixed from year to year, is appropriate to be used alongside allocators such as revenue and FTE which vary on an annual basis. Aurizon Network receive a relatively higher capital allowance reflecting asset ownership.

QCA's proposed approach—direct cost allocation for operating and maintenance costs

Consistent with our MAR draft decision, we have undertaken the following process to develop the corporate overheads allowance that we consider to be appropriate to be adopted by Aurizon Network in its amended access undertaking:

- Step 1: We have used Aurizon Network's corporate overhead allocation cost model and applied this to both operating and maintenance costs.

- Step 2: Within this model, where the blended allocator approach was used to apportion corporate overhead costs to Aurizon Network, we replaced this with a direct cost allocation methodology. We also revised Aurizon Network's FTE allocator.
- Step 3: We have removed any costs within the corporate overhead function that we do not consider appropriate for a stand-alone business. We have also made further adjustments to corporate overhead cost centres based on our assessment of Aurizon Network's approach.
- Step 4: We have cross-checked the implications of our assessment against relevant benchmarks.

Steps 2, 3 and 4 are outlined in more detail below.

Calculation of cost allocators

Our consolidated draft decision is to use direct costs to allocate costs with no causal driver, derived using Aurizon Network's direct costs as a percentage of total Aurizon Holdings' direct costs, with the following assumptions:

- exclude capitalised costs
- exclude the costs of electricity (and fuel)
- exclude external track access charges associated with the above-rail business.

Consistent with our MAR draft decision, we consider that capitalised costs should not be included in the calculation of the direct costs allocator. We agree with RSMBC's assessment that capitalised costs should be excluded given that Aurizon Network capitalises a separate corporate overhead component into its capitalised expenditure.

We have also maintained our view that the direct cost allocation method should not include the costs of electricity (and fuel) as these are generally cost pass-through items. Consequently, there is not a clear relationship between these costs and overheads.

However, we consider that external track access charges appear to generally be a cost pass-through item, and should therefore be excluded on the same basis as the costs of electricity and fuel. On this basis, there does not appear to be a clear relationship between this cost and overheads.

We also note that track access fees are only captured as direct cost for a portion of the above-rail services operated by the above-rail business. For example, this will not include access fees for those above-rail services on the CQCN (as access fees paid to Aurizon Network are consolidated out) or those that involve an end user access agreement.

We considered that a direct cost method will still allocate overheads to the unregulated above-rail business for the management effort associated with external track access agreements. This is because direct costs of the above-rail business will include costs associated with infrastructure management, which includes the management of external access agreements.

On this basis, we have developed an updated version of the direct cost allocator method that appeared in our MAR draft decision. The derivation of the direct cost allocator is shown in Table 35. This includes maintenance costs, but excludes the costs of electricity and external track access fees.

Table 35 QCA calculations for direct cost allocation method (operating and maintenance costs) ($'000, $2012-13)

*Aurizon Network direct costs**	*Costs*	*Aurizon Holdings direct costs****	*Costs*
Consumables less electricity** less finance corporate overhead	$300,000 ($103,600) ($XXXX)[1]	Consumables less electricity and fuel less external track access costs less overhead costs***	$1,353,000 ($374,800) ($328,900) ($XXXX)[1]
Employee expenses Less voluntary redundancy**	$63,500 ($6,100)	Employee expenses Less voluntary redundancy	$1,182,500 ($95,700)
Total direct costs Aurizon Network	**$XXXX[1]**	**Total direct costs Aurizon Holdings**	**$XXXX[1]**
Percentage of direct costs to be allocated to Aurizon Network - XX%[1]			
Source: *Aurizon Network Audited Annual Report—30 June 2013 **Aurizon Network Audited Annual Report—30 June 2013 (Note 5) *** Aurizon Holdings—Historic Corporate Costs Spreadsheet ****Aurizon Holdings Audited Annual Report—30 June 2013			
Aurizon Network FTEs		*Aurizon Holdings FTEs*	
Operations	444		
Maintenance	850		
Total	**1294**	**Total**	**8386**
Percentage of FTE costs to be allocated to Aurizon Network: 15.43%			

Note: (1) Aurizon Network has indicated this information is confidential.

Source: RSMBC, 2013 DAU, 2013: 7, 54.

Review of corporate overhead costs

Our consolidated draft decision is to retain many of the adjustments that we considered in the MAR draft decision were appropriate for Aurizon Network to amend its draft access undertaking. We have adopted that analysis and reasons for the purposes of this consolidated draft decision, subject to the comments below. The key change in our consolidated draft decision, as compared to our MAR draft decision, is our acceptance of Aurizon Network's December 2014 submission that the Network Finance cost centre is directly attributable to Aurizon Network.

Since our MAR draft decision, Aurizon Network has provided additional information outlining the activities undertaken by Network Finance functions. We consider that network finance costs are generally directly attributable to Aurizon Network. We also note that similar finance activities relating to the non-regulated business (e.g. Marketing and Operations Finance) have been excluded from the allocable cost base. Based on additional information provided by Aurizon Network since the MAR draft decision, we also consider that corporate finance

functions are relevant to Aurizon Network and do not duplicate the functions undertaken by the network finance unit.

However, we have adjusted network finance costs to reflect the proportion of unregulated activities based on the 87 per cent allocation of cost assumed for business management costs.

Our consolidated draft decision is that it is appropriate that the following adjustments to Aurizon Network's proposed 2014 DAU corporate overheads allowance should be made:

(a) Adjust costs so as to align with what we considered the efficient cost base for a 'stand-alone business' providing of a similar size and industry to that of Aurizon Network.

(b) Adjust for those cost savings identified by RSMBC that have not been reflected in part (a) above.

Table 36 outlines the adjustments that are appropriate to be made to corporate overhead cost centres provided by Aurizon Network.

Table 36 Costs adjustments made to Aurizon Network's 2014 DAU corporate overhead model

Cost category	***Aurizon Network response to the MAR draft decision***	***QCA consolidated draft decision***
Costs excluded from corporate costs		
Investor relations	Aurizon Network said that, as a listed company, there are ASIC and ASX requirements that need to be maintained, and that it is also imperative to keep investors and analysts informed about the performance of the company.	Accept that this cost category is a core activity of a stand-alone monopoly business such as Aurizon Network. Investor relations costs would be expected to be incurred by Aurizon Network given that it is a subsidiary of Aurizon Holdings, a listed company.
Corporate marketing and branding	Aurizon Network said that costs incurred within Branding relate to more than just advertising and promotional activities. Aurizon Network said that in 2012-13 these included one-off costs of rebranding from QR National to Aurizon Network.	Retain the MAR draft decision to remove as branding and marketing is not a core activity for a stand-alone, monopoly business such as Aurizon Network, which has a small well-informed customer base.
National policy	Aurizon Network said that work undertaken by the National Policy team would otherwise fall into the ambit of the Regulation team and resources would need to be supplemented as a result.	Retain the MAR draft decision to remove as duplication between Aurizon Network's system-wide and regional costs (business management) and its corporate overhead allowance, compared to an efficiently operated stand-alone business of a similar size and in a similar industry.
Stakeholder relations	Aurizon Network said that it is necessary to keep stakeholders and other interested parties within the community informed about status of projects and activities being undertaken in the CQCN. Aurizon Network said these activities are not duplicated within the Regulation or Investor Relations teams.	Retain the MAR draft decision to remove as we consider there is potential duplication between Aurizon Network's system-wide and regional costs and its corporate overhead allowance. These activities would otherwise be undertaken by Aurizon Network's business management group.

Cost category	*Aurizon Network response to the MAR draft decision*	*QCA consolidated draft decision*
Business re-engineering and corporate restructuring	Aurizon Network said that incurring these costs has made and continues to make Aurizon Network more responsive and efficient.	Retain the MAR draft decision to remove as corporate costs associated with corporate restructuring represent decisions for the integrated company. Further, it could be expected that such costs would be offset over time by efficiencies arising from an effective restructuring.
Cost adjustments		
Network finance	Aurizon Network considered that costs should be directly attributed wherever practicable and reallocating the cost of these activities from overheads to direct costs in line with the reporting structure is more appropriate.	Accept Aurizon Network's December 2014 submission that this cost centre is mainly attributable to Aurizon Network, with the exception of costs to reflect the proportion of unregulated activities.
Telecommunications backbone	Aurizon Network said that over the years the telecommunications backbone has been expanded in size, complexity and technical sophistication to cater for technical developments in train control and signalling.	Retain the MAR draft decision to provide $9.5 million ($2013–14) for the telecommunications backbone costs, offset by revenue received from Queensland Rail as a contribution to this service.
Legal costs	Aurizon Network accepted the QCA's proposed reduction to reflect a portion of work on non-regulatory activities.	Retain the MAR draft decision to adjust Aurizon Network's legal costs to reflect the proportion for unregulated activities. This is based on the same allocation of costs to regulated activities as Aurizon Network assumed for business management functions.

Notes: (1) Adjustments were made to these categories prior to applying the applicable cost allocator. (2) We allocated savings identified by RSMBC, adjusted to reflect the costs excluded as part of (a) above.

Our consolidated draft decision is to retain RSMBC's proposed adjustment relating to the overall corporate overheads stretch target. This stretch target represents an overall corporate overhead cost saving that Aurizon Holdings' management is targeting in 2013–14. While Aurizon Network considered that these cost savings would mainly relate to the above rail business, we consider that a consistent allocation approach should be applied to the entire corporate cost base.

RSMBC said that Aurizon Holdings advised that there was a drive to reduce shared corporate costs by $100 million over FY 2014 and FY 2015.[181] Aurizon Network advised that some of these cost savings had been identified when the UT4 cost submission was prepared, but others had not and the specific areas where these will be achieved were still to be identified. In its 2014–15 Annual Report, Aurizon Holdings said that structural reform of its corporate support functions had achieved cumulative savings of $57 million over 2013–14 and 2014–15, with accelerated

[181] RSMBC, 2013 DAU, 2014: 140.

savings expected to achieve the cumulative target savings of $100 million by the end of 2015–16.[182]

Table 37 Allocation of RSMBC identified savings for 2012–13 ($2012–13 million)

Cost category	*RSMBC report*	*Allocator*	*Allocator %*	*QCA savings to be allocated to Aurizon Network*
Finance	XXXX[1]	Direct	XXXX[1]	XXXX[1]
General counsel and company secretary	XXXX[1]	Direct	XXXX[1]	XXXX[1]
Human resources	XXXX[1]	FTE	15.43%	XXXX[1]
Safety, health and environment	XXXX[1]	FTE	15.43%	XXXX[1]
Overall corporate overhead stretch target	XXXX[1]	Direct	XXXX[1]	XXXX[1]
Total RSMBC identified savings				**5.2**

Note: (1) Aurizon Network has indicated this information is confidential.

Source: RSMBC, 2013 DAU, 2014: 23.

Cost escalation

For our consolidated draft decision, we have retained our MAR draft decision escalation approach for labour and non-labour costs, consistent with our escalation approach for system-wide and regional costs.

Benchmarking

We noted in our MAR draft decision the difficulty in applying a benchmark cost estimate for Aurizon Network due to the inclusion of a range of costs, including its telecommunications backbone, and health and safety functions in its overheads allocation. We consider that only high-level comparisons between Aurizon Network and other rail comparators can be drawn and these should be viewed cautiously.

Conclusion

For the reasons outlined above, the corporate costs proposed by Aurizon Network would result in an over-recovery of those costs by Aurizon Network. This outcome would not accurately reflect the legitimate business interests of Aurizon Network and would not be in the public interest or the interests of relevant stakeholders. Over-recovery would also reduce incentives for Aurizon Network to reduce costs or otherwise improve productivity. In addition, such outcome would not promote the economically efficient operation, use of and investment in infrastructure underpinning the service, and may have detrimental effects on competition in upstream and downstream markets.

Our consolidated draft decision is to refuse to approve Aurizon Network's proposed corporate overhead costs in the 2014 DAU.

We consider the approach we have adopted in our consolidated draft decision to be the most robust method for allocating corporate costs to Aurizon Network given the evidence provided

[182] Aurizon Annual Report 2014–15: 14.

to us over the 2014 DAU approval process. For the purposes of our consideration of Aurizon Network's 2014 DAU, we have not had the benefit of a detailed bottom-up assessment of the corporate overhead costs of a 'stand-alone business' providing a similar service, to a similar customer composition and demand profile, as that of Aurizon Network.

However, we are strongly of the view that the upcoming review of Aurizon Network's costing manual needs to ensure that it appropriately accounts for the integrated structure of Aurizon Holdings. This process should focus on developing an improved baseline for corporate overhead allowances for Aurizon Network for UT5.

We consider that proposed amendments would prevent Aurizon Network from over-recovering on system-wide and regional costs. This would accurately reflect Aurizon Network's legitimate business interests and would generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service and provide a risk-adjusted return on investment to Aurizon Network.

Our proposed amendments would also appropriately balance Aurizon Network's interests, the public interest, and the interests of relevant stakeholders. In addition, this would promote the objective of Part 5 of the Act and provide incentives for Aurizon Network and relevant stakeholders to reduce costs or otherwise improve productivity.

Consolidated draft decision 22.2

(1) After considering Aurizon Network's proposal for corporate overheads, our consolidated draft decision is to refuse to approve Aurizon Network's original proposal.

(2) We consider it appropriate for Aurizon Network to amend the 2014 DAU to make the following adjustments:

- **(a) Replace the use of its blended allocator with our proposed direct cost allocator**
- **(b) Reflect our current estimate of the efficient corporate overheads costs that is associated with all aspects of Aurizon Network's business, as identified in Table 34.**

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the above reasons.

22.4 Risk and insurance

22.4.1 Aurizon Network's proposal

Aurizon Network holds commercial insurance for a range of activities, but self-insures for force majeure events (in excess of $1 million), dewirement and derailment.

Aurizon Network proposed insurance premium costs based on a Willis Australia Ltd (Willis) report, while the estimates for self-insurance costs are based on a (confidential) Finity Consulting report.

Aurizon Network's proposed costs for risk and insurance are set out in Table 38.

Table 38 Risk and insurance costs ($ million, nominal)

	2013–14	*2014–15*	*2015–16*	*2016–17*
Insurance premium costs	3.3	3.8	4.0	4.1
Self-insurance costs	5.0	5.6	6.3	6.9
Total risk and insurance	**8.3**	**9.4**	**10.3**	**11.0**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, 2013 DAU, sub.. 3: 192.

The proposed risk and insurance costs included insurance premium and self-insurance costs, totalling approximately $39 million over the UT4 period. Aurizon Network assumed a 4 per cent cost escalation factor for its insurance premium costs.[183]

Aurizon Network said its insurance coverage, including commercial arrangements, is largely the same between UT3 and the 2014 DAU period. These arrangements are summarised in Table 39.

Table 39 Aurizon Network proposed insurance arrangements

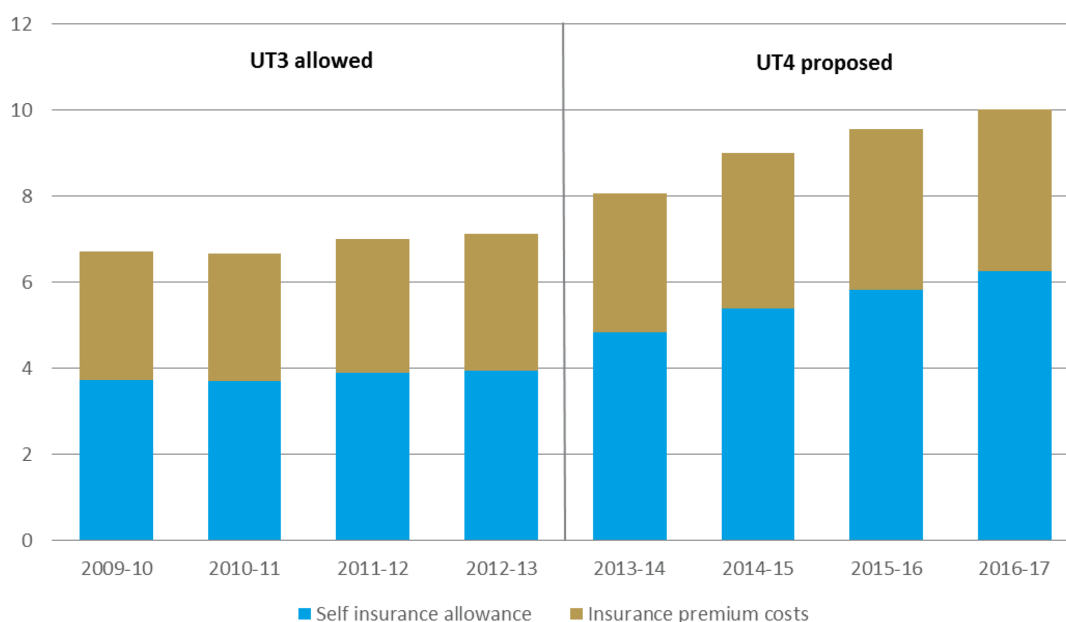
Risk	*2014 DAU assumptions*
Damage to rail infrastructure from force majeure events Industrial and special risks	Self-insurance arrangements to a value of $1 million for weather related events, then covered by cost-pass through provisions. Nominated major rail infrastructure assets commercially insured
Dewirement	Self-insured to $1 million, then included in the cost-pass through arrangements
Derailment	Self-insured to $8 million per incident, then assumed to be a cost-pass through arrangement
Liability	Self-insured to $8 million per incident, then assumed to be a cost-pass through arrangement (including for derailment)
General liability	$350 million per occurrence and in the aggregate in respect of product, pollution and bushfire liability. $500,000 deductable on each and every loss.

Source: Aurizon Network, 2013 DAU, sub. 3.

Aurizon Network proposed a 20 per cent (real) increase in insurance allowance from 2012–13 to 2013–14. The main cost increase proposed is the self-insurance allowance, with an increase of almost 30 per cent (real) from 2012–13 to 2013–14.

[183] Aurizon Network, 2013 DAU, sub. 3: 271.

Figure 10 UT3 allowed costs and UT4 proposed costs 2009–10 to 2016–17 ($2012–13 million)



22.4.2 Summary of the MAR draft decision

We considered that Aurizon Network's revenues should include allowance for efficient insurance costs. We accepted in previous undertakings that Aurizon Network's insurance and risk arrangements for the CQCN will include a combination of corporate insurance premiums, self-insurance and cost pass-through arrangements.

Our full analysis and reasoning is contained in section 4.4 of the MAR draft decision. We adopt that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

Our MAR draft decision was as follows:

> *4.8 We accept the methodology proposed by Aurizon Network for estimating self-insurance costs, but will require Aurizon Network to resubmit its cost escalations to be adjusted for volumes and turnover, consistent with the Draft Decision.*
>
> *4.9 Aurizon Network is to report on its self-insurance arrangements as part of the annual regulatory accounts including disclosing the number of self-insurance events by type and value each year.*
>
> *4.10 We refuse to approve Aurizon Network's proposed insurance premium costs. We would accept Aurizon Network's insurance premium costs if:*
>
> *(a) insurance premium costs are escalated at 2.5% not at the proposed 4%, and*
>
> *(b) the insurance costs of feeder stations are allocated to the operating costs for electric assets only.*

Self-insurance

SKM assessed Aurizon Network’s proposed self-insurance costs for derailment and dewirement. SKM found:

- Aurizon Network's derailment risks may be overstated because: the impact of preventive maintenance on these risks is not adequately represented; and the data supporting Aurizon Network's claim is, among other things, based on a year characterised by unusually severe weather events.

- Aurizon Network's proposed dewirement costs were likely to be inflated because the risk-of-dewirement data covered an 'outlier' year (i.e. 2011), which was characterised by a period of severe weather events.

SKM recommended Aurizon Network's proposed weather self-insurance costs be examined for any double-counting (i.e. to ensure these costs do not include compensation for derailments and dewirements which are caused by weather-related events).[184]

We had concerns about the robustness of data used to estimate self-insurance claims and about the lack of transparency of events covered by self-insurance. Given these concerns, in UT3 we provided for Aurizon Network to implement a formal self-insurance function by 31 December 2010. However, Aurizon Network decided not to do this and has excluded this provision from its 2014 DAU.[185]

The major increase in self-insurance-related costs in UT4 is driven by an increased allowance for weather-related events, with an increase of over 100 per cent in real terms.[186] This was a result of the UT3 period including a number of flood and cyclone events which caused a higher level of damage to the network than had occurred in previous periods. It has also been impacted by derailment costs being around 30 per cent higher than expected over the UT3 period.

Overall, we accepted the methodology proposed by Aurizon Network (Finity) for the development of the self-insurance estimates, while acknowledging these estimates and the methodology are not transparent to Aurizon Network's customers. We noted that reports supporting self-insurance arrangements are publicly available for electricity network providers and see no reason why Aurizon Network should not disclose the information.

We considered that it would be good practice for Aurizon Network to develop and maintain a comprehensive database of self-insured losses, which could be used to demonstrate there is no duplication of maintenance costs and the costs associated with dealing with self-insurance-related events. As part of our MAR draft decision on policy and pricing we required Aurizon Network to report its self-insurance arrangements as part of the annual regulatory accounts, including disclosing the number of self-insurance events by type and value each year.

Aurizon Network's proposed self-insurance allowance increases by 13–16 per cent (real) across the 2014 DAU.

Table 40 Summary of exposure measures—self-insurance

Loss type	***Exposure measure***
Derailment	gtk (billions)
Weather-related losses	Track km
Dewirements	Electrified Track km
Liability	Turnover (million)

Source: Aurizon Network, 2013 DAU, sub. 3: 272.

[184] SKM, 2013 DAU, 2014: 21.
[185] Aurizon Network, 2013 DAU, sub. 2: 276.
[186] Aurizon Network, 2013 DAU, sub. Annex H: 32 [confidential].

Self-insurance—cost pass-through events

Review events (with cost pass-through arrangements) are a common regulatory arrangement for the recovery of costs associated with force majeure events, including weather. The review event arrangements were triggered on two occasions during UT3 following two major flood events in the CQCN. These two events amounted to $7.9 million ($2010–11) following the 2011 flood event and $16.1 million ($2011–12) following the 2013 flood event.

Particularly as a result of the 2013 flood event, we were no longer convinced that the process for recovery of costs through reference tariffs (cl. 4.3 (c), Schedule F, 2014 DAU) represented an efficient balance of risk between Aurizon Network and its customers, in comparison to a commercial insurance arrangement where insurance costs would be shared across all customers. In particular, we were concerned that the costs of a large force majeure event may have a material financial impact if miners are small.

Insurance premium costs

RSMBC also reviewed Aurizon Network’s insurance premium cost for the year 2012–13 against that of the benchmark entities and Aurizon Holdings Limited. Following these reviews, RSMBC concluded the proposed insurance premium costs are reasonable.

We accepted Aurizon Network's proposed insurance premium costs for 2013–14 as the base year, but did not accept Aurizon Network escalating its premium costs using a 4 per cent factor, based on 'Insurance and Financial Services' data obtained from the ABS. While we noted the increases in 2014 DAU regulatory period to be reasonable, we considered insurance cost increases have already been reflected in the premium increases and there did not seem to be a reason for these costs to continue increasing at rates above CPI. Our MAR draft decision was that it would be appropriate for Aurizon Network to amend its draft access undertaking to escalate the insurance premium costs at 2.5 per cent and not at the proposed 4 per cent.

Our MAR draft decision was also that Aurizon Network should amend its draft access undertaking to separately identify the costs of insuring feeder stations, which are wholly attributable to the operation of the electric network, with these costs to be allocated to operating costs for electric assets and included in AT5.

Our estimated insurance costs for the 2014 DAU period are set out in Table 41.

Table 41 QCA estimated insurance costs ($ million, nominal)

	2013–14	***2014–15***	***2015–16***	***2016–17***
Insurance premium costs	3.3	3.8	4.0	4.1
Self-insurance costs	5.0	5.6	6.1	6.6
Total risk and insurance	**8.3**	**9.4**	**10.1**	**10.7**

Note: Numbers may not sum due to rounding.

22.4.3 Stakeholders' comments on the MAR draft decision

Aurizon Network

Self-insurance

Aurizon Network did not support the QCA's adjustment of escalations for the volumes and turnover in our MAR draft decision. Aurizon Network said it was willing to submit updated cost estimates for self-insurance once a position on volumes and turnover have been finalised.[187]

Aurizon Network accepted the proposal in the MAR draft decision to report on its self-insurance arrangements as part of the annual regulatory accounts.[188] However, Aurizon Network proposed that a threshold be applied where incidents under $50,000 are aggregated for reporting purposes.[189]

Insurance premium costs

Aurizon Network accepted our MAR draft decision relating to insurance premium costs.

Aurizon Network said the industrial special risks premiums had been further adjusted to account for the capital expenditure on specialised track equipment (e.g. ballast undercutting and resurfacing machines) during the period to June 2017.[190] Aurizon Network said it would like to ensure that changes in insurance coverage are maintained and that the 2013–14 base year is not simply escalated only at 2.5 per cent each consecutive year.[191]

Aurizon Network also accepted the QCA's proposal that the insurance costs for the feeder stations be allocated to operating costs for electric assets. Willis (a global insurance broker) provided an allocation for the feeder stations based on a percentage of the overall asset values applied to the industrial special risk’s total premium (prior to the inclusion of rolling stock in the premium).[192]

Aurizon Network's revised proposed costs for risk and insurance are set out in Table 42.

Table 42 Risk and insurance costs ($ million, nominal)

	2013–14	***2014–15***	***2015–16***	***2016–17***
Insurance premium costs	3.3	3.8	4.0	4.1
Non-electric	*2.6*	*3.0*	*3.2*	*3.3*
Electric	*0.7*	*0.8*	*0.8*	*0.8*
Self-insurance costs	5.0	5.6	6.1	6.7
Total risk and insurance	**8.3**	**9.4**	**10.1**	**10.8**

Note: Numbers may not sum due to rounding. Sources: Aurizon Network, 2014 DAU, sub. 82: 44; Aurizon Network unpublished information.

[187] Aurizon Network, 2014 DAU, sub. 59: 77.
[188] Aurizon Network, 2014 DAU, sub. 59: 77.
[189] Aurizon Network, 2014 DAU, sub. 59: 77.
[190] Aurizon Network, 2014 DAU, sub. 59: 77.
[191] Aurizon Network, 2014 DAU, sub. 59: 77.
[192] Aurizon Network, 2014 DAU, sub. 59: 78.

Other stakeholders

Self-insurance

The QRC were concerned about the robustness of data used to estimate self-insurance claims and regarding the lack of transparency in this area.[193] The QRC did not support the increase in self-insurance costs as it appears to be entirely based on losses experienced in UT3. While acknowledging that risks and premium should be informed by past losses, the QRC said it should not be determined by a small sample period which included an unusual number of large scale flood and cyclone events.[194]

Vale also believed the development of premiums should be based on a transparent and robust process that assesses future risk, which is guided by claims but not determined by history repeating itself.[195]

BMA supported the decision to require Aurizon Network to provide details on self-insurance activities as part of the annual regulatory accounts.[196]

Anglo American said there is no information on whether unutilised money will be returned to customers, or whether it will be put towards self-insurance costs for the following year.[197] Anglo American also noted that there is no mechanism in place for users or the QCA to hold Aurizon Network to account for how these funds are held or invested.[198] Noting this uncertainty created, Anglo American considered that the self-insurance component is not appropriate and should be removed from UT4. Anglo American stated that Aurizon Network is entitled to reclaim the entire reasonable and prudent costs of repairing the CQCN through the Review Event process after any force majeure and, as such, bears no risk on this aspect of its network (after escalating its costs at the appropriate holding rate in order to recover the full value of its expenses).[199] Anglo American considered that the form of self-insurance proposed is likely to lead to Aurizon Network double recovering the costs of force majeure events.

Self-insurance—cost pass-through events

The QRC noted that a number of options are available that may limit the severity of impacts on individual customers when such events occur, including greater coverage by commercial insurance.[200] The QRC considered that a key requirement will be to ensure that any arrangement does not involve cross subsidies between systems or mines.

Vale considered that the level of risk and exposure to potential review events are influenced by the design of the infrastructure; the level of maintenance within the system; and the geographic location of the infrastructure.[201] Vale believes that equally sharing this risk across the CQCN is not appropriate for an efficient allocation of costs as it does not reflect the historical decisions made by each individual coal system. Vale said it would be inappropriate to allow the users of a

[193] QRC, 2014 DAU, sub. 62: 11.
[194] QRC, 2014 DAU, sub. 62: 11.
[195] Vale, 2014 DAU, sub. 54: 3.
[196] BMA, 2014 DAU, sub. 53: 2.
[197] Anglo American, 2014 DAU, sub. 58: 16.
[198] Anglo American, 2014 DAU, sub. 58: 16–17.
[199] Anglo American, 2014 DAU, sub. 58: 17.
[200] QRC, 2014 DAU, sub. 62: 11.
[201] Vale, 2014 DAU, sub. 54: 3.

coal system to gain an advantage of lower tariffs, due to a lower maintenance task, but then socialise cost pass-through events across all CQCN users.[202]

Insurance premium costs

The QRC supported the QCA MAR draft decision that premium costs should escalate at CPI and the recovery of insurance premiums relating to feeder stations through AT5.[203]

Anglo American considered that any cost escalation that Aurizon Network usually applies to costs would be inappropriate as:

- Aurizon Network would bear no risk on the maintenance activities, as the money would already be available to it through the self-insurance mechanism
- Aurizon Network would be able to complete maintenance activities without needing to outlay any of its own funds.[204]

20.1.2 QCA analysis and consolidated draft decision

After considering submissions received on the MAR draft decision, and assessing comments having regard to the criteria listed in section 138(2) of the QCA Act, we have decided to refuse to approve Aurizon Network's proposed risk and insurance costs.

For the reasons outlined above, the risk and insurance costs proposed by Aurizon Network would result in an over-recovery of those costs by Aurizon Network. This outcome would not accurately reflect the legitimate business interests of Aurizon Network and would not be in the public interest or the interests of relevant stakeholders. Over-recovery would also reduce incentives for Aurizon Network to reduce costs or otherwise improve productivity. In addition, such an outcome would not promote the economically efficient operation, use of, and investment in infrastructure underpinning the service, and may have detrimental effects on competition in upstream and downstream markets. We note that our MAR draft decision proposal to require Aurizon Network to report on its self-insurance arrangements as part of its annual regulatory accounts is considered in Section 5.2.2 of our consolidated draft decision. As outlined in Section 5.2.2, we consider maintaining such a record to be good practice to demonstrate there is no duplication of maintenance costs and to clearly distinguish the costs associated with self-insurance related events.

We have recalculated insurance premium costs so that these are escalated at the rate of CPI, rather than the 4 per cent proposed by Aurizon Network in its 2014 DAU proposal (see Table 43).

We have re-escalated the self-insurance costs to reflect our consolidated draft decision on the Maintenance Cost Index (MCI) (see Section 23.4). Since our MAR draft decision, we have requested updated estimates from Aurizon Network of its self-insurance forecasts that adjust for updated volumes and turnover. Aurizon Network was unable to provide updated self-insurance forecasts prior to the finalisation of our proposed consolidated draft decision volumes.

[202] Vale, 2014 DAU, sub. 54: 3.
[203] QRC, 2014 DAU, sub.. 62: 11
[204] Anglo American, 2014 DAU, sub. 58: 17.

Table 43 Risk and insurance costs ($ million, nominal)

	2013–14	***2014–15***	***2015–16***	***2016–17***
Insurance premium costs	3.3	3.7	3.8	3.9
Non-electric	*2.5*	*2.9*	*3.0*	*3.1*
Electric	*0.7*	*0.7*	*0.8*	*0.8*
Self-insurance costs	5.0	5.5	5.9	6.3
Total risk and insurance	**8.2**	**9.2**	**9.8**	**10.2**

Note: Numbers may not sum due to rounding. Sources: Aurizon Network, 2014 DAU, sub. 82: 44; Aurizon Network unpublished information.

We consider that the proposed amendments would prevent Aurizon Network from over-recovering on risk and insurance costs. This would accurately reflect Aurizon Network's legitimate business interests and would generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service and provide a risk-adjusted return on investment to Aurizon Network.

Our proposed amendments would also appropriately balance Aurizon Network's interests, the public interest, and the interests of relevant stakeholders. In addition, this would promote the objective of Part 5 of the Act and provide incentives for Aurizon Network and relevant stakeholders to reduce costs or otherwise improve productively.

Consolidated draft decision 22.3

(1) After considering Aurizon Network's proposal for risk and insurance costs, our consolidated draft decision is to refuse to approve Aurizon Network's original proposal.

(2) We consider it appropriate for Aurizon Network to amend the 2014 DAU to make the following adjustments:

(3) resubmit its cost escalations for self-insurance to be adjusted for updated volumes and turnover, consistent with Table 43

(a) escalate insurance premium costs at 2.5 per cent, not at the proposed 4 per cent, and

(b) allocate the insurance premium costs of feeder stations to the operating costs for electric assets only.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the above reasons.

22.5 Audit and condition-based assessment

22.5.1 Aurizon Network's proposal

Aurizon Network incurs annual audit costs associated with the preparation of its regulatory accounts and maintenance report. Aurizon Network said these costs are reflected in its proposed system-wide and regional costs. In UT3, we required Aurizon Network to prepare a

condition-based assessment to inform our consideration of asset condition and maintenance requirements.

Aurizon Network proposed to recover an adjustment of $248,620 (in $2012–13 dollars) for actual audit costs in UT3, recognising that these costs were higher than the forecast included in the UT3 operating expenditure allowance.[205] Aurizon Network proposed that for UT4, audit costs shall be payable by Aurizon Network, but proposed in its explanatory material to vary the system allowable revenues for any unrecovered audit costs.[206] Aurizon Network's forecast audit costs for UT4 are included in their system-wide and regional costs.[207]

Aurizon Network also proposed to recover the costs of the condition-based assessment of $636,000 (in 2012–13 dollars) from UT3 (for which there was no allowance) during the 2014 DAU period.[208] Aurizon Network had not included an allowance in its operating cost expenses for a condition-based assessment during the 2014 DAU period and proposed an amount of $550,000 in 2016–17.[209]

Aurizon Network also noted there are some external costs it incurs as a direct consequence of its compliance with the undertaking and some costs are uncertain as the QCA can request an audit of any matter under the undertaking, provided we have reasonable grounds to do so.

22.5.2 Summary of the MAR draft decision

RSMBC reviewed Aurizon Network's forecast audit costs for accounting practices and assessing the physical condition of its network. RSMBC considered Aurizon Network's historical compliance audit costs, and also benchmarked these costs against those of other regulated entities. RSMBC concluded the proposed audit costs are reasonable.[210]

Our full analysis and reasoning is contained in section 4.5 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

Our MAR draft decision was as follows:

> *4.11 We accept the proposed costs for the annual audit process to be included as part of the system-wide and regional costs, but not subject to an ex-post review.*
>
> *4.12 We accept audit costs for any audits initiated by the QCA being treated as a cost pass-through item to be reflected in an adjustment to system allowable revenues. This is subject to such costs being efficiently incurred and Aurizon Network providing objective evidence that they cannot be absorbed.*
>
> *4.13 We accept the condition-based assessment costs proposed by Aurizon Network, including recovery of the condition-based assessment costs from UT3 of $0.8 million in 2013–14, and including $0.55 million in 2016–17 for a UT4 condition-based assessment.*

Audit costs

Our MAR draft decision accepted the annual audit costs included in the system-wide and regional costs for Aurizon Network. However, we did not accept these costs should be subject

[205] Aurizon Network, 2013 DAU, sub. 3: 70.
[206] Aurizon Network, 2013 DAU, sub. 2: 246.
[207] Aurizon Network, 2013 DAU, sub. 3: 226.
[208] Aurizon Network, 2013 DAU, sub. 3: 34, 70.
[209] Aurizon Network, 2013 DAU, sub. 109: 31.
[210] RSMBC, 2013 DAU, 2014: 89.

to any form of ex post review. As a result, we did not accept the proposed adjustment for the difference between UT3 actual and forecast costs.

With regard to unplanned audits, we noted Aurizon Network's concerns and the QRC's preference that such costs be included as part of the QCA levy. The QCA levy can only be used to recover costs we incur, not those incurred by Aurizon Network. We accepted that any unplanned audit costs Aurizon Network incurs could be treated as a cost pass-through and reflected in adjustments to system allowable revenue—subject to the condition that such costs have been efficiently incurred and Aurizon Network can provide objective evidence that they cannot be absorbed.

Condition-based assessment

With regard to the recovery of the costs of the condition-based assessment undertaken by Evans & Peck in UT3, our MAR draft decision accepted Aurizon Network's revised proposal of $0.80 million being recovered in 2013–14.

We considered a condition-based assessment should occur during each regulatory period. Considering the amount Aurizon Network incurred for the condition-based assessment in UT3, we considered the $0.6 million in 2016–17 proposed by Aurizon Network to be reasonable.

22.5.3 Stakeholders' comments on the MAR draft decision

Aurizon Network's position

Audit costs

Aurizon Network welcomed our MAR draft decision to include audit costs as part of the system-wide and regional costs, and any audits initiated by the QCA being treated as a cost pass-through item to be reflected in an adjustment to system allowable revenues.[211] However, Aurizon Network was unclear on what objective evidence would be required in order for the cost recovery to be made.[212] Aurizon Network considered it should not be required to absorb audit costs relating to additional audits initiated by the QCA that had not been contemplated or allowed for under the allowance.[213]

Aurizon Network disagreed with the decision not to allow the recovery of UT3 audit costs and maintained that it should be able to recover additional audit costs arising from additions to scope prescribed by the QCA. Aurizon Network stated that the audit scope during the UT3 period significantly understated the scope of audit plans that were prepared in line with the requirements of clause 10.7 (including clauses 3.3.2, 3.7 and 9.7) and approved each year by the QCA.[214] Aurizon Network considered that this resulted in higher costs borne by Aurizon Network than its operating allowance. Aurizon Network noted that RSMBC considered the historical audit costs to be reasonable.[215]

Condition-based assessment

Aurizon Network accepted our MAR draft decision to accept the proposed condition-based assessment costs.

[211] Aurizon Network, 2014 DAU, sub. 59: 78.
[212] Aurizon Network, 2014 DAU, sub. 59: 78.
[213] Aurizon Network, 2013 DAU, sub. 59 78.
[214] Aurizon Network, 2013 DAU, sub. 59: 78.
[215] Aurizon Network, 2013 DAU, sub 59: 78.

Other stakeholders

The QRC accepted our MAR draft decision in regard to the costs of audits and condition-based assessment.[216] The QRC noted that if the QCA engaged the auditors directly, audit costs would be incurred by the QCA (not Aurizon) and would allow audit costs to be recovered through the QCA levy. The QRC said the driver for this suggestion is not related to the cost recovery mechanism, but rather:

- to ensure that the audit is independent
- to ensure that the auditor owes a duty of care to the QCA
- to simplify the undertaking—there will be no need to assess and approve forecast costs, variances, or cost adjustment mechanisms.[217]

22.5.4 QCA analysis and consolidated draft decision

Our consolidated draft decision is to accept Aurizon Network's proposed audit costs for the 2014 DAU period included in the system-wide and regional costs for Aurizon Network.

We note that our MAR draft decision proposal to accept the cost of audits required by the QCA (if these have been efficiently incurred) was considered further in section 17.7 of our draft decision on policy and pricing in January 2015.

Consistent with our MAR draft decision, our consolidated draft decision is to refuse to approve Aurizon Network's proposed adjustment for the difference between UT3 actual and forecast audit costs. Aurizon Network has not demonstrated that the audit scope undertaken in UT3 was greater than would have been expected at the beginning of UT3, given the requirements of the 2010 AU. Accordingly, audit costs proposed by Aurizon Network would result in an over-recovery of those costs by Aurizon Network. This outcome would not be appropriate having regard to the s. 138(2) factors. Our consolidated draft decision is to approve Aurizon Network's proposal of $0.8 million being recovered in 2013–14 for the condition-based assessment undertaken by Evans & Peck in UT3.

We remain of the view that a condition-based assessment should occur during each regulatory period. We consider Aurizon Network's proposed $0.6 million in 2016–17 for a condition-based assessment to be reasonable.

We consider it appropriate for Aurizon Network to amend its draft access undertaking to include the proposed amendments. This would prevent Aurizon Network from over-recovering on audit and condition-based assessment costs. It would accurately reflect Aurizon Network's legitimate business interests and would generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service and provide a risk-adjusted return on investment to Aurizon Network.

Our proposed amendments would also appropriately balance Aurizon Network's interests, the public interest, and the interests of relevant stakeholders. In addition, the proposed amendments would promote the objective of Part 5 of the Act and provide incentives for Aurizon Network and relevant stakeholders to reduce costs or otherwise improve productivity.

[216] QRC, 2014 DAU, sub. 62: 12.
[217] QRC, 2014 DAU, sub. 62: 12.

Consolidated draft decision 22.4

(1) After considering Aurizon Network's proposal for audit costs, our consolidated draft decision is to refuse to approve Aurizon Network's original proposal. We consider it appropriate for Aurizon Network to amend the 2014 DAU to:

(a) remove the Aurizon Network's proposed allowance reflecting the difference between its actual and forecast audit costs over the UT3 period.

(2) We approve the following aspects of Aurizon Network's proposal for audit and condition-based assessment costs:

(a) proposed costs for the annual audit process to be included as part of the system-wide and regional costs, but not subject to an ex post review

(b) the condition-based assessment costs proposed by Aurizon Network, including recovery of the condition-based assessment costs from UT3 of $0.8 million in 2013–14, and including $0.6 million in 2016–17 for a UT4 condition-based assessment.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the above reasons.

22.6 Environmental charges

22.6.1 Aurizon Network's proposal

Environmental charges are the costs relating to compliance with relevant state and Australian government energy legislation, including the Queensland Gas Scheme (which ceased from 1 January 2014), and the Enhanced Renewable Energy Target, which is separated into the following two parts—Large-scale Renewable Energy Target (LRET) and Small-scale Renewable Energy Scheme (SRES).[218]

In UT3, environmental charges were recovered through the electricity charge (EC) reference tariff which passes through the supply costs of electricity to electric train services. Under its 2014 DAU proposal, Aurizon Network is seeking to recover these costs through non-electric tariffs (AT2 to AT5) payable by both diesel and electric train services.

Aurizon Network proposed environmental charges be included in the non-electric operating cost expenditure:

> *In order to avoid distorting the competitiveness of more efficient electric traction services Aurizon Network has classified the costs associated with compliance with schemes as a tax and included as an overhead.*[219]

22.6.2 Summary of the MAR draft decision

Our MAR draft decision was to refuse to approve Aurizon Network's proposal to include environmental charges in its operating expenditure costs for non-electric assets.

We did not see merit in Aurizon Network's view that environmental charges should be included in operating costs for all train services (electric and non-electric) 'to avoid distorting the competitiveness of the more efficient electric traction services'.

[218] Aurizon Network, 2013 DAU, sub. 3: 252.
[219] Aurizon Network, 2013 DAU, sub. 3: 253.

Environmental charges arise solely due to the operation of electric train services and should be attributed to the electrical charge (EC) tariff only. These costs should not be borne by non-electric users.

22.6.3 Stakeholders' comments on the MAR draft decision

Aurizon Network's position

Aurizon Network accepted our MAR draft decision on this issue. Aurizon Network agreed that environmental charges should be included in the cost build-up for the EC tariff.[220]

Other stakeholders

The QRC supported the recovery of environmental charges relating to the supply of electricity through the EC component.[221]

20.1.3 QCA analysis and consolidated draft decision

We remain of the view that environmental charges should be solely attributed to the EC tariff, given that they arise solely due to the operation of electric train services and should not be borne by non-electric use. To impose those charges on non-electric users would not be cost reflective. Accordingly, it would not be efficient and would not be in the public interest or the interests of relevant stakeholders. Over-recovery would also reduce incentives for Aurizon Network to reduce costs or otherwise improve productivity. In addition, such outcome would not promote the economically efficient operation, use of, and investment in infrastructure underpinning the service, and may have detrimental effects on competition in upstream and downstream markets.

Consolidated draft decision 22.5

(1) After considering Aurizon Network's proposal for environmental charges, our consolidated draft decision is to refuse to approve Aurizon Network's original proposal.

(2) We consider it appropriate for Aurizon Network to amend the 2014 DAU to make the following adjustment:

(a) Remove environmental charges from the operating expenditure allowances. These costs are to be included in the electric charge only.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the above reasons.

22.7 Operating costs—electric assets

22.7.1 Aurizon Network's proposal

Aurizon Network proposed $68.3 million in 2013–14, increasing to $82.9 million in 2016–17 for operating costs for its electric network.

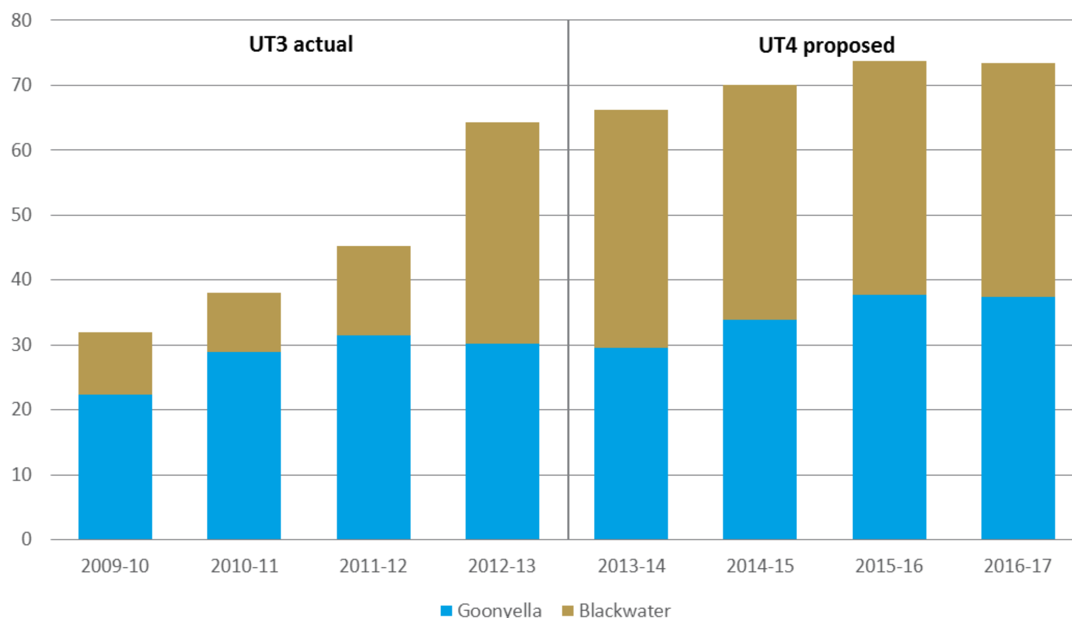
These costs reflect the transmission connection charges only and are recovered through the AT5 tariff. Transmission connection charges are the costs of connection to the National

[220] Aurizon Network, 2014 DAU, sub.59: 79.
[221] QRC, 2014 DAU, sub. 62: 12.

Electricity Market (NEM) via Powerlink's overhead power systems. Aurizon Network pays regulated charges for older connections and negotiated charges for newer connections.[222]

Aurizon Network's transmission connection charges increased significantly in 2012–13, largely driven by increased costs in the Blackwater system (see Figure 11).

Figure 11 Actual and proposed transmission connection charges (excluding Rolleston) 2009–10 to 2016–17 ($ million, 2012–13 dollars)



Aurizon Network said it committed to one additional connection in UT4, with the Wotonga feeder station expected to be commissioned in 2014–15. The need for the Wotonga feeder station was identified in the 2010 Coal Rail Infrastructure Master Plan (CRIMP) and Aurizon Network obtained user support for the project in February 2012.[223]

Aurizon Network indicated an additional connection is being studied to support electrification of the Rolleston branch line. Aurizon Network considered there are incremental benefits in this investment, with electric train services from the Rolleston branch line to make a positive contribution to common system costs.[224]

22.7.2 Summary of the MAR draft decision

Stakeholders raised concerns regarding the proposed increases in transmission connection costs. Principally, concerns relate to the lack of transparency of information and involvement of stakeholders in the negotiation and decision making process. We reviewed the transmission connection costs and noted the 2013–14 proposed costs are comparable to the actual costs in 2012–13. The increased costs are due, in part, to Powerlink negotiating unregulated charges for new connection assets with Aurizon Network.

We shared stakeholders' concerns regarding substantial increases in connection charges and Aurizon Network's commitment to prepayment and proposal for an annuity recovery from customers. Stakeholders indicated that they have had limited information about how these

[222] Aurizon Network, 2013 DAU, sub. 3: 243–244.
[223] Aurizon Network, 2013 DAU, sub. 3: 247.
[224] Aurizon Network, 2013 DAU, sub. 3: 159

charges were developed, negotiated or accepted. We were particularly concerned that both Aurizon Network and Powerlink each operate from a monopoly position. We were not confident that the Powerlink costs reflect an efficient cost as they had not been subject to consultation and external scrutiny by a broader group of affected stakeholders.

Our MAR draft decision did not form a view as to whether the proposed costs are either prudent or efficient. We considered appointing a consultant to review the prudency and efficiency of the proposed expenditure with a particular focus on the commerciality of the terms settled between Aurizon Network and Powerlink.

We considered the proposed Rolleston transmission connection costs of $5.2 million to be reasonable, based on evidence (confidential agreements) from Aurizon Network. However, it is subject to an ex post capital expenditure approval process and we were yet to accept the Rolleston electrification capital expenditure into the RAB.

22.7.3 Stakeholders' comments on the MAR draft decision

Aurizon Network

Aurizon Network disagreed with the proposed review of transmission connection costs, noting that:

- existing connection costs have all been approved by the QCA in the past
- Connection and Access Agreements (CAA) between Aurizon Network and Powerlink were entered into in 2004 (extended to 2017) and 2009 respectively, long before UT4
- Powerlink does not consent to QRN disclosing the Connection and Access Agreement to the QCA—connection services were provided under a commercial framework agreed between the parties consistent with Powerlink's AER-approved Negotiating Framework.[225]

Aurizon Network provided further information to demonstrate the prudency of the negotiated connection costs:

- The 2009 CAA was negotiated as a result of changes to the National Electricity Rules (NER) which required all subsequent connections to be 'negotiated', rather than 'prescribed'. The 2009 CAA acts as a master agreement, with subsequent connections being added via 'Deeds of Variation'.
- Feeder stations were all endorsed by end users via the regulatory pre-approval process in the Coal Rail Infrastructure Master Plan (CRIMP) 2006–10. Users were fully aware that not voting and not seeking additional information during the CRIMP process constituted implicit acceptance.
- The negotiations with Powerlink were conducted under the Powerlink Negotiating Framework for Negotiated Services. Powerlink (regulated by the AER) is required to not discriminate between customers seeking connection services and Aurizon was provided connection services in accordance with the NER.
- Aurizon Network's traction experts conducted technical review of Powerlink's design and selected the option for each substation that provided the best fit with lowest cost. The final

[225] Aurizon Network, 2014 DAU, sub. 59: 79.

connection charges were lower than those indicated in Powerlink's Offer to Connect, with cost reductions included in the AT5 rates from the endorsed variation in 2012–13.[226]

Given the concerns about including the Wotonga Connection as a prepayment to Powerlink with an annuity recovery, Aurizon Network decided not to proceed with the proposal and treat Wotonga the same way as all the other negotiated connections with Powerlink.[227]

Aurizon Network provided revised connection charges to be included in the AT5 calculations.

Endorsed variation event—July 2015

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 2.2 of Schedule F of the 2010 access undertaking (UT3), Aurizon Network is able to submit a variation in reference tariffs within 60 days of being aware of an endorsed variation event.

On 17 July 2015, Aurizon Network advised that electricity transmission prices for 2015-16 would change the electricity costs in the approved transitional AT5 tariff for 2015-16 by more than 2.5 per cent. In September 2015, Aurizon Network provided updated 2015–16 transmission costs which are presented below.

Table 44 Transmission and connection forecast, 2015–16

System	*2015-16 transmission costs in MAR draft decision ($m)*	*2015-16 new transmission costs ($m)*
Blackwater	40.8	43.0
Goonyella	40.4	41.8
Total	**81.3**	**84.9**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, unpublished information.

Aurizon Network is entitled to vary current tariffs to recover the increase in electricity transmission costs. However, following consultation with the QRC, Asciano and Aurizon Operations, Aurizon Network proposed that higher transmission prices be considered in our final decision on the 2014 DAU, instead of a separate tariff variation process. Deferral avoids unnecessary administrative burden prior to a comprehensive assessment of tariffs in our final decision on UT4.

Summary

Table 45 shows the revised connection charges proposed by Aurizon Network since our MAR draft decision.

[226] Aurizon Network, 2014 DAU, sub. 59: 80.
[227] Aurizon Network, 2014 DAU, sub. 59: 81.

Table 45 Aurizon Network proposed revised connection charges ($million, nominal)

	2013–14	*2014–15*	*2015–16*	*2016–17*
QCA MAR draft decision	68.3	74.4	81.3	82.9
Aurizon Network—December 2014	69.7	71.6	81.2	84.7
Aurizon Network—September 2015	69.7	71.6	84.9	82.9

Note: Numbers may not sum due to rounding. Sources: Aurizon Network, 2013 DAU, sub.. 3: 21, 248; Aurizon Network, 2014 DAU, sub. 59: 81; Aurizon Network, unpublished information.

Aurizon Network's proposal did not include the actual costs of electricity purchase, which were treated as a separate cost pass-through item.

22.7.4 Other stakeholders

The QRC and Vale supported our proposal to conduct a review of transmission connection costs. The QRC said that customers have had no transparency in regard to connection arrangements.[228] Vale wanted to better understand the additional risks that Powerlink is exposed to in order to justify unregulated charges and the details of Aurizon network's prepayment proposal.[229] Vale said that there is very little incentive on the two monopoly infrastructure providers to ensure the costs are prudent and efficient.[230]

Anglo American questioned why some connection charges have been claimed as regulated, while others have been claimed as commercially negotiated.[231] Anglo American believed that where Aurizon Network have accepted commercially negotiated connection charges but should be receiving regulated charges, the costs passed through to users should be capped at the regulated rates.[232]

22.7.5 QCA analysis and consolidated draft decision

Review of transmission connection costs

In our MAR draft decision, we said we had concerns with the commerciality of the commercial terms settled between Aurizon Network and Powerlink.

Aurizon Network is liable to pay prescribed (regulated) charges for older connections and negotiated charges for newer connections. Powerlink determines and publishes the regulated transmission service prices for directly connected customers in accordance with Chapter 6A of the National Electricity Rules (NER) and Powerlink’s AER-approved pricing methodology. The negotiated charges are subject to negotiation between the transmission network provider and user and do not have their terms and conditions determined by the AER.

The negotiated transmission services were implemented, in place of the prescribed charges, in amendments to the NER in 2009. That is, this arrangement has not been specifically prescribed by Powerlink or Aurizon Network. Aurizon Network is subject to Powerlink's regulatory arrangements.

[228] QRC, 2014 DAU, sub. 62: 12.
[229] Vale, 2014 DAU, sub. 54: 4.
[230] Vale, 2014 DAU, sub. 54: 4.
[231] Anglo American, 2014 DAU, sub. 58: 19.
[232] Anglo American, 2014 DAU, sub. 58: 19.

Although negotiated transmission services do not have their terms and conditions determined by the AER, the negotiation of these services is facilitated by:

- a negotiating framework—sets out the procedures to be followed when negotiating terms and conditions of access for a negotiated transmission service
- a negotiating transmission service criteria—sets out the criteria that a service provider will apply in negotiating terms and conditions of access to its network, including the prices and access charges for negotiated transmission.

The AER is required to make a determination relating to the transmission network provider’s negotiating framework, negotiating transmission service criteria and pricing methodology in accordance with the NER. The NER outlines the negotiated transmission services principles and requirements for the negotiating framework. The NER states that the terms and conditions of access for a negotiated transmission service should be fair and reasonable and any access charges should be based on the costs reasonably incurred by the Transmission Network Service Provider in providing transmission network user access.

The AER has approved Powerlink's negotiating framework, negotiating transmission service criteria and pricing methodology for the 2012–13 to 2016–17 regulatory control period.

We consider that Aurizon Network has the incentive to negotiate for lower transmission connection costs as this will result in a lower AT5 tariff. Setting the AT5 at an efficient level will encourage efficient utilisation of electric assets. In the Blackwater system, this may increase electric utilisation and reduce asset stranding risk for Aurizon Network resulting from the option of bypass by Blackwater customers.

Assessment of Aurizon Network's proposed transmission connection costs

We have internally reviewed Aurizon Network's transmission connection charges. Over the UT4 period, transmission connection charges for prescribed services increase in line with published Powerlink pricing schedules.

Aurizon Network's revised cost estimates included adjustments to 2013–14 and 2014–15 actual costs. In addition, Aurizon Network has also provided the 2015–16 costs incorporating Powerlink's 2015–16 pricing schedule. The costs forecasts for 2016-17 escalated the 2015–16 estimated costs at CPI of 2.5 per cent.

The increase in transmission connection costs over the UT4 period is primarily driven by the large increase in costs in 2015–16. The two key drivers of the transmission connection costs increase in 2015–16 are:

- increases in prescribed transmission connection charges of around 10 per cent, consistent with the increases in Powerlink's 2015–16 pricing schedule
- the commissioning of the new feeder station at Wotonga.

As noted above, Powerlink determines for directly connected customers in accordance with Chapter 6A of the NER and Powerlink’s AER-approved pricing methodology.

The new feeder station at Wotonga accounts for a large increase in the transmission connection charges. Aurizon Network identified the need for the feeder station in its 2010 coal rail infrastructure master plan and its construction was endorsed by users in February 2012.

For the reasons outlined above, we are of the view that the revised transmission connection costs submitted by Aurizon Network after the MAR draft decision are reasonable.

For the reasons outlined above, the transmission costs originally proposed by Aurizon Network would result in an over-recovery of those costs by Aurizon Network. This outcome would not accurately reflect the legitimate business interests of Aurizon Network and would not be in the public interest or the interests of relevant stakeholders. Over-recovery would also reduce incentives for Aurizon Network to reduce costs or otherwise improve productivity. In addition, such outcome would not promote the economically efficient operation, use of and investment in infrastructure underpinning the service, and may have detrimental effects on competition in upstream and downstream markets. Accordingly we refuse to approve Aurizon Network's original proposal.

We consider it appropriate for Aurizon Network to make adjustments (outlined in Table 46) to the 2014 DAU which are based on the updated connection costs for each year of UT4 as proposed by Aurizon Network after our MAR draft decision.

Table 46 QCA consolidated draft decision for connection charges ($ million, nominal)

Transmission connection costs	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Blackwater (excluding Rolleston)	38.6	38.6	41.0	39.7
Rolleston	–	1.0	2.1	2.1
Goonyella	31.1	31.9	41.8	41.1
Total transmission connection costs	**69.7**	**71.6**	**84.9**	**82.9**

Note: Numbers may not sum due to rounding. Source: Aurizon Network, unpublished information.

We consider that above amendments would prevent Aurizon Network from over-recovering on transmission connection costs. This would accurately reflect Aurizon Network's legitimate business interests and would generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service and provide a risk-adjusted return on investment to Aurizon Network.

Our proposed amendments would also appropriately balance Aurizon Network's interests, the public interest, and the interests of relevant stakeholders. In addition, this would promote the objective of Part 5 of the Act and provide incentives for Aurizon Network and relevant stakeholders to reduce costs or otherwise improve productivity.

Consolidated draft decision 22.6

(1) After considering Aurizon Network's proposal for transmission connection charges, our consolidated draft decision is to refuse to approve Aurizon Network's original proposal.

(2) We consider it appropriate for Aurizon Network to amend the 2014 DAU to make the following adjustments:

(a) use Aurizon Network's revised transmission connection charges as presented in its December 2014 response to our MAR draft decision and as part of its endorsed variation event application in July 2015.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the above reasons.

22.8 Summary

For the reasons set out above, our consolidated draft decision is to refuse to approve Aurizon Network's operating costs proposal. The way in which we consider it appropriate for Aurizon Network to amend its draft access undertaking is summarised in Table 47. We consider that the most significant driver of our proposed increase is corporate overheads, noting our MAR draft decision on corporate overheads takes into account an overhead allowance for maintenance.

Table 47 QCA proposed operating expenditure ($ million, nominal)

	2013–14	*2014–15*	*2015–16*	*2016–17*
System-wide and regional costs	55.3	56.4	60.5	61.0
Corporate overheads	54.0	55.0	56.4	57.8
Insurance (non-electric)	7.6	8.5	9.0	9.4
Audit and condition-based assessment costs	0.8	—	—	0.6
Environmental charges	—	—	—	—
QCA proposed operating costs—non-electric	**117.6**	**119.8**	**125.8**	**128.8**
Transmission connection costs	69.7	71.6	84.9	82.9
Insurance (electric)	0.7	0.7	0.8	0.8
QCA proposed operating costs—electric	**70.4**	**72.3**	**85.6**	**83.7**
QCA proposed total operating costs ($nominal)	**188.0**	**192.2**	**211.4**	**212.5**

Note: Numbers may not sum due to rounding.

We consider it appropriate to make these consolidated draft decisions having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons contained in our analysis above.

23 MAINTENANCE COSTS

Maintenance costs represented around 22 per cent of the annual MAR under Aurizon Network's proposed 2014 DAU. The proposed allowance, excluding ballast undercutting costs, amounted to $739.6 million over the 2014 DAU period. The assessment of ballast undercutting costs is covered in a separate chapter.

Our MAR draft decision was to refuse to approve Aurizon Network's proposed maintenance costs (excluding ballast undercutting costs which are considered separately). We considered that while many aspects of the proposal were reasonable, the proposed allowance was more than necessary to provide efficient services for the CQCN.

Our consolidated draft decision is largely consistent with our MAR draft decision. We consider it appropriate that Aurizon Network amends its 2014 DAU to remove $189.5 million from its proposed maintenance allowance (excluding ballast undercutting costs). Further, we consider it appropriate that the reporting regime is strengthened to provide more transparency and accountability regarding Aurizon Network's maintenance performance.

23.1 Overview

23.1.1 Aurizon Network's proposal

Under its 2014 DAU, Aurizon Network proposed a total allowance of $1,066.2 million (in nominal terms) for maintenance over the 2014 DAU period (see Table 48[233]). Aurizon Network applied various indices, including the maintenance cost index (MCI), to convert the costs from real to nominal terms.

Aurizon Network broke down its proposed maintenance expenditure into two broad categories: direct and indirect costs. Direct costs include costs associated with internal labour, externally procured resources (materials, fuel, etc.) and depreciation of maintenance assets (plants, trucks, etc.) used in undertaking maintenance activities.[234] Indirect costs comprise a return on inventory, a return on working capital, a return on maintenance assets, and corporate costs.

We have separately assessed Aurizon Network's ballast undercutting costs in Chapter 24 given the significance of these costs (comprising around 35 per cent of Aurizon Network's submitted direct maintenance costs).

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[233] Costs shown in Table 48 reflect revised forecasts Aurizon Network provided to us in December 2013 as part of its updated financial model. In real terms ($2011–12); the maintenance cost forecasts in December 2013 were the same as those of the original April 2013 submission. In nominal terms, total maintenance costs differed slightly to the April 2013 submission primarily due to a revised maintenance cost index (applied to escalate some aspects of the maintenance costs).

[234] Aurizon Network, sub. 4: 112–13.

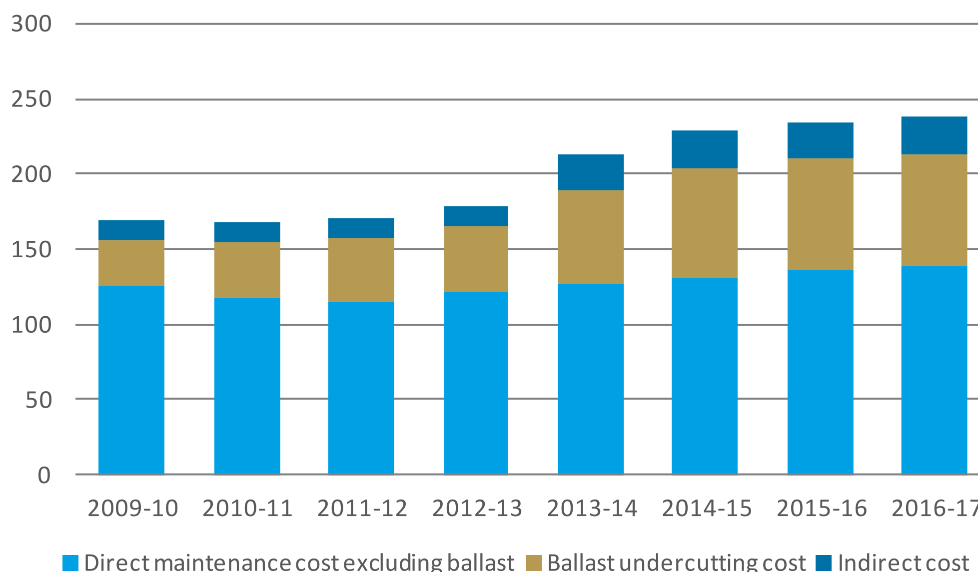
Table 48 Aurizon Network's proposed maintenance costs ($2011–12 million)

Maintenance discipline	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Direct costs	**189.5**	**204.3**	**210.3**	**213.9**
• Mechanised maintenance				
– Ballast undercutting	55.3	64.9	65.9	66.4
– Resurfacing	19.0	19.0	20.9	20.9
– Rail grinding	12.5	13.5	14.0	14.4
• General track maintenance	47.3	50.5	52.0	53.6
• Re-railing	15.3	15.1	15.7	16.1
• Structures	2.7	2.8	2.8	2.9
• Traction power	9.6	9.6	9.6	9.6
• Signalling	22.6	23.5	23.9	24.4
• Telecommunications	5.4	5.5	5.5	5.5
Indirect costs	**22.9**	**24.9**	**24.5**	**24.4**
• Return on inventory, working capital & fixed assets employed	10.8	12.8	12.4	12.3
• Corporate costs	12.1	12.1	12.1	12.1
Total maintenance costs ($2011–12)	**212.4**	**229.1**	**234.9**	**238.3**
Total maintenance costs ($nominal)[1 2]	**232.6**	**261.2**	**278.4**	**294.1**

Notes: (1) Based on updated MCI provided by Aurizon Network in December 2013. (2) Aurizon Network has applied different escalation rates for different components of the maintenance expenditure: (a) direct maintenance costs (excluding depreciation) and return on fixed assets are escalated based on the maintenance cost index (MCI); (b) depreciation is escalated based on the CPI; (c) return on inventory is escalated based on a consumables index; (d) corporate costs are escalated based on a weighted labour and CPI index. Source: Aurizon Network, sub. 4: 13–14; subsequent information provided by Aurizon Network on escalation rates in December 2013; QCA analysis.

Aurizon Network's submitted maintenance expenditure for 2013–14 was approximately 19 per cent higher in real terms than its actual expenditure for 2012–13 (final year of UT3). Figure 12 compares Aurizon Network's actual and proposed maintenance expenditure over the UT3 and 2014 DAU periods respectively.

Figure 12 Aurizon Network's actual and proposed maintenance costs across UT3 and 2014 DAU periods ($2011–12 million)



Note: The general track maintenance costs, as defined by Aurizon Network, include some costs associated with ballast undercutting. These costs have been removed from the general track maintenance costs and added to the ballast undercutting costs in this figure.

Source: Jacobs.

23.1.2 Legislative framework

In forming a view regarding the appropriateness of Aurizon Network's proposed maintenance expenditure for the 2014 DAU, we must have regard the factors in section 138(2) of the QCA Act and give them an appropriate level of weighting.

Against this background, we consider:

- the factors listed in section 138(2)(a), (b), (d), (e), (g) and (h) should be given more weight, as identified below
- section 138(2)(g) refers to the pricing principles mentioned in section 168A, of which we consider those listed in section 168A(a), (c) and (d) should be given more weight, as identified below
- the factors listed in sections 138(2)(c), 138(2)(f) and 168A(b) should be given less weight, as they are not practically relevant to our assessment of the maintenance expenditure proposal.

Efficient costs

Section 138(2)(b) of the QCA Act requires that we have regard to the object of Part 5 of the QCA Act (section 69E), which is to promote the economically efficient operation and use of, and investment in, the CQCN as the significant infrastructure by which the declared service are provided. We consider the object is best promoted by setting the maintenance cost allowance at the efficient level.

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. Maintenance costs should reflect the efficient cost and scope associated with the requisite level of maintenance required for the 2014 DAU period.

Aurizon Network's legitimate business interests in relation to maintenance expenditure (which we have considered in accordance with section 138(2)(b) of the QCA Act) can vary, depending on the maintenance-related activities Aurizon Network undertakes. However, in broad terms, we consider that:

- Aurizon Network has an obligation to manage, operate, repair and maintain the CQCN in accordance with good operating practices, in line with safety and environmental laws and authorisations, and to the extent necessary to maintain insurance required by its lease arrangement.
- Aurizon Network has an interest in ensuring its assets are maintained to a certain standard—that is, a standard that allows it to meet its safety and other obligations.

These interests will be served if Aurizon Network is permitted to recover at least the costs of delivering an efficient maintenance regime for the CQCN, in a manner which meets its legal obligations and its customers' requirements, both present and future.

Section 138(2)(e) and (d) of the QCA Act requires us to have regard to the interests of access seekers and the public interest. We also consider that the rights of existing access holders are relevant under section 138(2)(h), to the extent they are no longer 'access seekers' under section 138(2)(e). As identified earlier, consideration of all of these interests leads to a conclusion that Aurizon Network should be permitted to recover no more than efficient costs and return on investment commensurate with regulatory and commercial risks involved as identified in section 168A(a). In this manner, effective competition in markets upstream and downstream of the CQCN will be promoted as contemplated by the objective of Part 5 specified in section 69E of the QCA Act.

Moreover, if Aurizon Network is permitted to recover no more than its efficient costs and return on investment as identified in section 168A(a), it will have incentives to incur costs efficiently for the purposes of section 168A(d) and will have less scope to discriminate in favour of its downstream operations—which could otherwise raise concerns under section 168A(c). The need for costs to be minimised is also in the public interest under clause 138(d).

Furthermore, an approach should be adopted which provides for regulatory certainty, where possible. We have had regard to this factor pursuant to section 138(2)(h) of the QCA Act. We make every effort to provide a stable and predictable regulatory environment for Aurizon Network, an environment in which there are changes to methodology only where there is a clear case for such changes.

Having regard to all these factors, we consider that the maintenance cost allowance should reflect efficient costs.

Efficient allocation of costs

In considering the allocation of costs, we have had regard to section 137(1A)(b), in addition to section 138(2) of the QCA Act. 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, via the access price, costs that are not reasonably attributable to the provision of the service.

Our assessment of Aurizon Network's proposal is set out below. We have also identified our assessment approach and its linkages to the legislative framework.

23.1.3 QCA assessment approach

To assess efficient maintenance costs for UT4 in the context of section 138(2) of the QCA Act, we apply the assessment approach set out in Table 49.

Table 49 QCA's assessment approach for Aurizon Network's proposed maintenance costs

Assessment criterion	***Rationale***
Is the proposed scope efficient for the 2014 DAU period?	We consider an efficient scope comprises the level of maintenance necessary to maintain the CQCN to a standard consistent with industry best practice for the 2014 DAU period, assuming the requisite level of maintenance for maintaining the CQCN has occurred in prior periods.
Are the proposed costs efficient for the 2014 DAU period?	We consider efficient costs comprise: • an allowance for efficient costs of providing the requisite level of maintenance for the CQCN for the 2014 DAU period • an appropriate return on and return of fixed assets employed • an appropriate escalation factor to take account of changes in costs • In practice, as outlined in Chapter 2, we have used a 'reasonableness' test as the relevant test for efficient costs for the 2014 DAU period, in the absence of robust, evidence-based benchmarks for assessing efficient costs in the CQCN. We have identified our approach to the measurement of efficient cost in Sections 2.9.2 and 2.18.2 of Chapter 2 (Legislative Framework) of this decision

We consider that, taken as a whole, this assessment approach for identifying efficient maintenance costs allows us to have regard to an appropriate weighing of factors set out in section 138(2) of the QCA Act, as contemplated earlier in this chapter.

Our assessment of Aurizon Network's maintenance expenditure proposal is set out below. We have split the assessment into three parts: direct maintenance costs; indirect maintenance costs; and the MCI.

23.2 Direct maintenance costs (excluding ballast undercutting costs)

23.2.1 Aurizon Network's proposal

The breakdown of Aurizon Network's proposed direct maintenance costs under its 2014 DAU is presented in Table 50. Aurizon Network said it used the actual maintenance expenditure in 2011–12 to develop the UT4 cost inputs.[235] It also said it included a number of efficiency gains in its cost build-up, hence the efficiency factor (i.e. X-factor) previously applied to the MCI escalation under UT3 would no longer be appropriate.[236]

[235] Aurizon Network, sub. 4: 110.
[236] Aurizon Network, sub. 4: 108.

Table 50 Aurizon Network's proposed direct maintenance costs excluding ballast undercutting costs ($2011–12 million)

Maintenance discipline	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Mechanised maintenance				
• Resurfacing	19.0	19.0	20.9	20.9
• Rail grinding	12.5	13.5	14.0	14.4
General track maintenance1	39.8	42.1	43.3	44.7
Re-railing	15.3	15.1	15.7	16.1
Structures	2.7	2.8	2.8	2.9
Traction power	9.6	9.6	9.6	9.6
Signalling	22.6	23.5	23.9	24.4
Telecommunications	5.4	5.5	5.5	5.5
Total direct costs ($2011–12)	126.7	131.0	135.8	138.7
Total direct costs ($nominal)2	136.6	146.9	158.2	168.1

Notes: (1) the general track maintenance costs, as defined by Aurizon Network (see Table 48), include some costs associated with ballast undercutting. These costs have been removed from the general track maintenance costs in the table above; (2) based on Aurizon Network's updated MCI and CPI forecasts provided in December 2013.
Sources: Aurizon Network, sub. 4: 13–14; nominal costs based on subsequent information provided by Aurizon Network on proposed escalation rates; QCA analysis.

23.2.2 Condition-based assessment

In December 2012, Aurizon Network engaged Evans & Peck to conduct an independent condition-based assessment of the CQCN, as required under the 2010 AU (Schedule A, Section 5).[237] Evans & Peck found, on the basis of the 2011–12 asset records, the CQCN generally performed and was maintained in a manner consistent with the targets for lagging indicators, leading indicators and operational key performance indicators.

23.2.3 QCA MAR draft decision

Our MAR draft decision was to refuse to approve Aurizon Network's proposed direct maintenance expenditure (excluding ballast undercutting costs, which are dealt with separately in Chapter 24).

Specifically, we stated in our MAR draft decisions 5.1 and 5.2:

> *5.1 Our Draft Decision is to refuse to approve Aurizon Network's forecast direct maintenance costs (excluding for ballast undercutting). We consider it appropriate for Aurizon Network to amend the 2014 DAU to make the following adjustments:*
>
> *(a) revising its maintenance estimates to reflect revised volume forecasts and*
>
> *(b) reclassifying its re-railing costs as asset renewals.*

[237] Evans & Peck 2013a.

5.2 We seek stakeholder views on the merits of developing a maintenance performance incentive during the course of the UT4.

Our proposed draft adjustments to the direct maintenance costs are presented in Table 51.

Table 51 Draft QCA proposed adjustments to Aurizon Network's direct maintenance costs excluding ballast undercutting costs ($2011–12 million)

	2013–14	*2014–15*	*2015–16*	*2016–17*
Aurizon Network's proposed direct maintenance expenditure (excluding ballast undercutting costs)	126.7	131.0	135.8	138.7
QCA adjustments to re-railing costs	(15.3)	(15.1)	(15.7)	(16.1)
QCA adjustments for revised volumes	1.7	(2.5)	(6.6)	(3.4)
QCA's proposed direct maintenance expenditure (excluding ballast undercutting costs)	113.2	113.4	113.4	119.1

Our MAR draft decision with respect to direct maintenance costs is summarised in Table 52. We considered our proposed adjustments reflected the efficient scope and costs required to adequately maintain the CQCN. Our full analysis and reasoning is contained in section 5.2 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to new information from Aurizon Network and stakeholders.

Table 52 QCA MAR draft decision

Topic	*MAR draft decision*
Re-railing costs	We proposed to remove the re-railing cost from maintenance and re-allocate them to capital expenditure. In our view, re-railing extends the useful life of the asset as it involves replacing tracks over a certain length with new tracks. If such activity was classified as maintenance, today's users would be effectively subsidising future users by bearing the full costs of assets that would also be used by the latter.
Maintenance efficiency	We largely accepted Aurizon Network's proposed direct maintenance costs (except for re-railing and ballast undercutting costs) but proposed adjustments to reflect our revised volume forecasts. Overall, we considered Aurizon Network's proposal reasonable to meet the scope proposed for the 2014 DAU, so long as Aurizon Network delivered the proposed scope. We also accepted Aurizon Network's assumed efficiency improvements. We considered the inclusion of efficiency improvements in Aurizon Network's cost base meant that it would be unnecessary to apply a general X-factor parameter to the MCI.
Cost adjustments for revised volume forecasts	We adjusted direct maintenance costs to reflect the revised volume forecasts. These adjustments were based on Jacobs' methodology.
Under-delivery in UT3	We considered Aurizon Network's under delivery of maintenance in UT3 inefficient given that the actual maintenance spend in UT3 was close to the approved allowance. In our view, this issue would be best dealt with in an ex

Topic	*MAR draft decision*
	post review of Aurizon Network's maintenance performance.
Maintenance performance incentive scheme	We sought stakeholder views on the merits of developing a maintenance performance incentive scheme. We considered there was merit in developing a more formal approach to monitoring Aurizon Network's performance against its maintenance scope targets, and ultimately linking it to a financial incentive mechanism for the delivery of major aspects of maintenance scope.
Non-coal traffic	We noted that we would consider the issue of non-coal traffic in subsequent decisions on the 2014 DAU.

23.2.4 Aurizon Network's response

In its response to our MAR draft decision, Aurizon Network proposed revised direct maintenance costs for the 2014 DAU period, as set out in Table 53. While we have taken Aurizon Network's revised proposal into account in our analysis (and this revised proposal is relevant to the manner in which we consider 2014 DAU should be amended), we are required to make our consolidated draft decision on the basis of the direct maintenance costs originally submitted by Aurizon Network in 2014 DAU.

Table 53 Aurizon Network's revised proposal for direct maintenance costs excluding ballast undercutting costs ($2011–12)

	2013–14	*2014–15*	*2015–16*	*2016–17*
Aurizon Network proposal (2014 DAU)	126.7	131.0	135.8	138.7
QCA MAR draft decision (September 2014)	113.2	113.4	113.5	119.1
Aurizon Network adjustments to QCA MAR draft decision (December 2014):				
• add back re-railing costs	15.3	15.1	—	—
• other adjustments (net)[1]	3.0	2.4	6.0	2.5
Aurizon Network revised proposal (December 2014)	**131.5**	**130.9**	**119.4**	**121.6**

Note: (1) These adjustments represent revised volumes based on Aurizon Network's methodology. Source: Aurizon Network RFI.

Capitalisation of re-railing costs

Aurizon Network accepted our proposal to capitalise re-railing costs but proposed to implement this from 2015–16 rather than from the beginning of the 2014 DAU period.[238]

Aurizon Network said that retrospective implementation of this policy change would be inconsistent with its commercial interests. It claimed that the policy change could cause short-term negative impact on its cash flow, which might adversely influence investors' view on the stability of the regulatory regime. It considered its proposed transitional arrangement would provide sufficient time to inform all stakeholders and address any concerns.

[238] Aurizon Network, sub. 59: 109.

Actual costs for 2013–14

Aurizon Network accepted our MAR draft decision to adjust the maintenance allowance for a revised volume forecast for UT4, subject to the QCA's approval of actual costs for 2013–14 and the revised maintenance allowance prepared by Aurizon Network for 2014–15 to 2016–17.[239]

Aurizon Network submitted that in 2013–14 the planning and delivery of maintenance activities were undertaken on the basis of the scope and costs submitted as part of its original 2013 DAU, given the absence of our decision on MAR.[240] Aurizon Network submitted that actual maintenance costs should be adopted for 2013–14 as they were incurred in good faith and were only three per cent higher than our MAR draft decision proposed allowance.

Adjustments for revised volumes

For 2014–15 to 2016–17, Aurizon Network proposed the maintenance allowance to be adjusted based on its cost build-up and revised volume forecasts.[241] [242] Aurizon Network said it had not been able to verify the link between our proposed forecast volumes, Jacobs' methodology and our proposed adjustments to maintenance allowance.

It said that our proposed adjustments for revised volumes (based on Jacobs' recommended methodology) might have overstated the variability in its maintenance costs.[243] Specifically:

- the adjustment may be based on a long-run variable cost (i.e. AT1) rather than the short-run variable cost (SRVC) proposed by Aurizon Network for the annual reference tariff variation process in UT4
- even if SRVC is used, the adjustment may not reflect the QCA's MAR draft decision to capitalise re-railing, as the SRVC should reflect the same reclassification of re-railing from maintenance to renewal.

Maintenance performance incentive scheme

Aurizon Network did not consider establishing a maintenance performance incentive scheme would be appropriate to address the issue associated with the systematic under-delivery of maintenance works against forecasts. It proposed to work with stakeholders and the QCA to develop an alternative framework for maintenance funding and reporting.[244]

Aurizon Network said a maintenance performance regime that allowed ex post adjustments to its allowance might lead to inefficient outcomes. Such a regime would create a perverse incentive for it to undertake unnecessary maintenance work if there were penalties when the target scope was not achieved. The implications for end users would be either train throughput losses due to maintenance activities, or end users being required to compensate Aurizon Network for any penalty arising from cancellation or rescheduling of maintenance work to accommodate their scheduling requests.

In the light of stakeholders' concerns, Aurizon Network proposed the following arrangements:

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[239] Aurizon Network, sub. 59: 106–109.
[240] Aurizon Network, sub. 59: 107–108.
[241] Aurizon Network, sub. 59: 107–109.
[242] As outlined in Chapter 20, Aurizon Network did not accept our proposed revised volumes.
[243] Aurizon Network, sub. 59: 107.
[244] Aurizon Network, sub. no. 59: 110–11

- retention of the existing approaches to setting maintenance cost allowance (i.e. pre-approval of maintenance allowance for the regulatory period) and the treatment of asset renewal costs
- from 2016–17, as part of the annual reference tariff variation, adjustments to the maintenance allowance for forecast volumes, based on either its proposed short-run variable cost methodology or otherwise a methodology supported by stakeholders
- from 2015–16
  - a new quarterly maintenance cost report, as well discussions with us regarding each report, including applications for returns to, or recoveries from, users for scope and cost adjustments endorsed by stakeholders
  - a single annual maintenance and asset replacement and renewals cost report to be published by Aurizon Network following discussions with stakeholders.[245]

Aurizon Network said it had held preliminary discussions with the QRC on the alternative framework for the funding and reporting of maintenance. It said that a set of principles had been drafted, and it would be willing to engage with stakeholders and the QCA to develop them into practical arrangements for the 2014 DAU.

Adjustments for non-coal traffic

Aurizon Network said adjustments to its proposed maintenance allowance for non-coal traffic are not required.[246] It considered revenues associated with non-coal traffic on the CQCN immaterial relative to coal traffic. Furthermore, it said its approach to forecasting maintenance costs for the 2014 DAU already partially excluded the effects of non-coal traffic.

23.2.5 Stakeholders' comments on QCA MAR draft decision

Stakeholders' comments on our MAR draft decision on MAR are summarised in Table 54.

Table 54 Stakeholders' comments on the QCA MAR draft decision

Issue	*Comment*
Efficiency vs. reasonableness	Stakeholders considered the assessment of Aurizon Network's maintenance allowance should be based on efficiency rather than reasonableness.[247]
Efficiency of Aurizon Network's proposed costs	The QRC said that while Aurizon Network's proposed costs represented a decline on a unit basis relative to the actual UT3 costs, it was unclear if the UT3 costs were efficient (hence not an appropriate starting point for the assessment), and whether the forecast decline in costs was reasonable considering efficiency improvements over time and the benefits of increasing scale.[248] Vale also questioned the efficiency of Aurizon Network's proposed costs as well as the actual UT3 costs given that the scope targets were not achieved—it was possible that the UT3 maintenance costs had been duplicated in Aurizon Network's proposed costs.[249] Vale also said that the incremental maintenance required for WIRP should be minimal and

[245] Aurizon Network said this might require changes to the certification requirements in the undertaking to provide stakeholders the opportunities to review the report before it is finalised.
[246] Aurizon Network, sub. 59: 117–118.
[247] Vale, sub. 54: 4; QRC, sub. 62: 4–5.
[248] QRC, sub. 62: 13.
[249] Vale, sub. 54: 4.

Issue	Comment
	expected additional efficiency maintenance benefits arising from WIRP. Vale said it was unclear if the assessment of Aurizon Network's proposed maintenance costs had taken into account the significant increase in capital renewals. BMA suggested that Aurizon Network's proposed costs for each type of maintenance activity should be measured against expected performance metrics.[250]
Ongoing transparent process	BMA said that reducing Aurizon Network's maintenance allowance itself would not drive efficiency. Rather, BMA suggested that an ongoing reporting mechanism should be put in place to quantify and track how efficiently Aurizon Network is using the pre-approved maintenance allowance. BMA said this would improve the accuracy of cost forecasts for future periods.[251] Vale said a transparent process would improve stakeholders' understanding of the delivery of maintenance and scope and the associated costs—previous maintenance forums have provided limited useful information.[252] It said a robust approach should be used where alternative options are considered and stakeholders are provided with the ability to influence the maintenance tasks to reflect changing market conditions. The QRC acknowledged that it has had discussions with Aurizon Network on future arrangements for the funding and reporting of maintenance. It would provide further comments in its response to our draft decision on policy and pricing.[253]
Aurizon Network's performance in the UT3 period	The QRC considered the introduction of additional processes for maintenance performance would not directly address the specific issue relating to Aurizon Network's under delivery of maintenance scope in the UT3 period.[254] It said that customers would still be required to pay for maintenance activities which should have been delivered in the UT3 period. To address this issue, the QRC proposed that the QCA either reduce the RAB value to reflect the resulting deterioration in the network condition or require Aurizon Network to deliver the maintenance deficit without further compensation.

23.2.6 QCA analysis and consolidated draft decision

Taking into account all of these considerations, our consolidated draft decision is to refuse to approve Aurizon Network's proposed direct maintenance expenditure (excluding ballast undercutting costs, which are dealt with separately in Chapter 24). Our position is that Aurizon Network's proposed costs would result in an over-recovery by Aurizon Network of its costs relative to an efficient level. We therefore consider it appropriate for Aurizon Network to amend the 2014 DAU to make the following adjustments:

- reallocation of re-railing costs to renewals starting from 2015–16
- allocation to non-coal traffic
- adjustments for updated volume profile.

[250] BMA, sub. 53: 1.
[251] BMA, sub. 53: 1.
[252] Vale, sub. 54: 4.
[253] QRC, sub. 62: 14.
[254] QRC, sub. 62: 13–14.

The table below provides details of our required adjustments to Aurizon Network's original proposal.

Table 55 QCA adjustments to Aurizon Network's direct maintenance costs excluding ballast undercutting costs ($2011–12 million)

	2013–14	*2014–15*	*2015–16*	*2016–17*
Aurizon Network's proposed direct maintenance expenditure	126.7	131.0	135.8	138.7
QCA adjustments to re-railing costs	—	—	(15.7)	(16.1)
QCA adjustments for non-coal traffic	(1.5)	(1.6)	(1.6)	(1.7)
QCA adjustments for revised volumes	3.0	0.5	(4.5)	(3.3)
QCA's direct maintenance expenditure	**128.2**	**130.0**	**114.0**	**117.5**

We also consider it appropriate for Aurizon Network to amend Part 10 of the 2014 DAU (Reporting) to provide more transparency in its maintenance performance.

Maintenance efficiency

Consistent with our MAR draft decision, we generally consider Aurizon Network's proposed direct maintenance expenditure (excluding ballast undercutting costs) reasonable to meet the scope proposed for the 2014 DAU period. For this reason, we have only proposed adjustments to capitalisation of re-railing costs, non-coal traffic, and updated volume profile.

We have arrived at this position on the basis of Jacobs' assessment. We have used a 'reasonableness' test for estimating efficient costs due to the lack of robust and evidence-based benchmarks for assessing efficient costs (as identified in further detail previously, including in Chapter 2 of this consolidated draft decision). We note our earlier comments regarding the manner in which we have sought to estimate efficient costs using a reasonableness standard.

We recognise the maintenance efficiency is strongly dependent on Aurizon Network's actual performance in the 2014 DAU period. Hence, as part of this consolidated draft decision, we have proposed amendments to the reporting regime to provide more transparency and accountability in Aurizon Network's maintenance performance.

Re-railing costs

We propose that Aurizon Network capitalise re-railing costs from 2015–16, rather than from the beginning of the 2014 DAU period as contemplated in our MAR draft decision. We have reinstated Aurizon Network's proposed re-railing costs for the first two years of the 2014 DAU, but have adjusted them for updated volume profile.

Capitalising re-railing costs means that these costs will be subject to prudency review under the 2014 DAU. The prudency review of 2013–14 (completed) and 2014–15 (ongoing) capital expenditure did not include re-railing costs. We consider it impractical to engage experts for the sole purpose of reviewing Aurizon Network's re-railing costs in those two years. Further, we consider it inconsistent with Aurizon Network's legitimate business interests to reopen our decision with respect to the 2013–14 capex.

Our position, however, is not driven by the fact that 'retrospective' implementation of re-railing capitalisation would cause short-term cash flow impacts on Aurizon Network. Given that the first two years of the 2014 DAU period have already passed, any MAR decisions with respect to

these years that did not align Aurizon Network's maintenance allowances with its actual spending would potentially have cash flow implications. Aurizon Network has not provided us with information on how significant the cash flow impacts might be. We do not consider there is sufficient evidence to justify not applying 'retrospectively' our MAR consolidated draft decisions in general.

Importantly, we are referring to the concept of 'retrospectivity' to mean adjustments to historic parameters when these are used as the basis for calculation of reconciliation amounts if and when there is an approved access undertaking to replace UT3. We do not have the statutory power under the QCA Act to approve an access undertaking that has retrospective application. However, we can approve reconciliation payments that will apply once an undertaking is approved, and that are calculated by reference to historic periods. Such reconciliation payments would simulate the effect of backdating UT4. We use 'retrospectivity' in this consolidated draft decision to refer to this concept.

We maintain our view that it is more efficient to capitalise re-railing costs in the long run. Re-railing extends the useful life of the asset. If such activity was classified as maintenance, today's users would effectively subsidise future users by bearing the full costs of an asset that would also be used by the latter.

Non-coal traffic

Our consolidated draft decision is to propose an allocation of maintenance costs to non-coal traffic. We do not consider non-coal traffic immaterial for the purpose of establishing the efficient MAR for Aurizon Network. We found that for some systems non-coal traffic contributes up to four per cent of the total system gtk. We consider it efficient to allocate a portion of the maintenance costs to non-coal traffic as long as the allocation reflects the impacts of such train services on Aurizon Network's maintenance costs.

We understand that Aurizon Network's approach to forecasting maintenance costs for the 2014 DAU period already partially excluded the effects of non-coal traffic. For that reason, we only require Aurizon Network to adjust the portion of maintenance costs where it has not made adjustments for non-coal traffic (i.e. costs that have been categorised as preventative and corrective rather than tonnage-driven in Aurizon Network's cost model).

Our proposed adjustments (see Table 56) are system-specific and based on non-coal proportion of the total system gtk. We have used the 2011–12 and 2012–13 railings data to estimate the contribution of non-coal traffic to the system railings. We consider that gtk is an appropriate approximation for the impacts of non-coal traffic on maintenance costs.

Table 56 Proposed adjustments to Aurizon Network's direct maintenance costs for non-coal traffic by system ($2011–12 million)

Rail system	*Non-coal proportion of system gtk (%)*	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Blackwater	3.7	1.1	1.1	1.2	1.2
Goonyella	0.5	0.2	0.2	0.2	0.2
Moura	3.0	0.1	0.1	0.1	0.1
Newlands	4.1	0.1	0.2	0.1	0.2
GAPE	—	—	—	—	—
Total	—	**1.5**	**1.6**	**1.6**	**1.7**

Actual costs 2013–14

We do not accept Aurizon Network's proposal to use actual costs for 2013–14 as Aurizon Network did not demonstrate that these costs were incurred efficiently. We engaged experts to review Aurizon Network's forecasts costs (based in 2012–13) and accept their view. Further, Aurizon Network has not provided evidence that the QCA forecasts in our MAR draft decision did not reflect efficient costs. Actual costs may include expenditure on items that are outside the efficient cost base. We continue to rely on the costs that have been reviewed.

Adjustments for revised volumes

Our proposed adjustments to maintenance costs for revised volumes in the MAR draft decision were based on the methodology provided by Jacobs. We continue to view that Jacobs' methodology is appropriate for this purpose.

We can confirm that Jacobs' adjustments were not based on AT1. Under its methodology, Jacobs developed a cost elasticity parameter for each relevant cost category (except for rail grinding) based on the elasticity implied by Aurizon Network's submitted costs. These elasticity parameters, which varied across the UT4 period, were used to estimate the change in Aurizon Network's maintenance costs for a given change in the volumes. Jacobs' recommended approach is based on the relationship between maintenance and tonnages described in Aurizon Network's policy documents.

For rail grinding, Jacobs found that under Aurizon Network's proposal the scope (in km) per million tonnes is relatively constant over the UT4 period, which suggested that the scope is directly proportional to volumes under Aurizon Network's cost build-up. Jacobs used this implied relationship to estimate the revised rail grinding scope. The cost adjustments were then calculated on the basis of this revised scope and unit costs implied in Aurizon Network's costs.

We consider Jacobs' methodology to be consistent with SRVC and the variability in Aurizon Network's maintenance costs. The parameters used by Jacobs to estimate the adjustments were based on Aurizon Network's submitted costs, hence the variability was already embedded in Aurizon Network's original proposal.

Aurizon Network was also concerned that the MAR draft decision might not have reflected the reclassification of re-railing from maintenance to renewal. The MAR draft decision did not make an adjustment to re-railing costs due to a change in volume, as we considered that re-railing costs should be capitalised. However, given that in our consolidated draft decision re-railing costs are to be included as maintenance costs in 2013–14 and 2014–15, we have adjusted re-railing costs in these two years to reflect a change in volume.

Table 57 sets out our proposed adjustments to Aurizon Network's direct maintenance costs (excluding ballast undercutting costs) for revised volumes.[255]

[255] Note that we have firstly applied the non-coal traffic adjustments before estimating the adjustments for revised volumes to avoid double counting.

Table 57 QCA adjustments to Aurizon Network's direct maintenance costs for revised volumes ($2011–12 million)

Adjustment	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Rail grinding	0.9	0.2	(1.0)	(1.5)
Resurfacing	0.3	0.0	(2.3)	(0.1)
Track, structures and facilities[1]	1.9	0.3	(1.1)	(1.7)
Total	**3.0**	**0.5**	**(4.5)**	**(3.3)**

Note: (1) Include adjustments to re-railing costs for 2013–14 and 2014–15.

Delivery of maintenance

While we consider, given the information available, there is some evidence indicating Aurizon Network’s UT3 maintenance performance might have been inefficient, we do not consider it appropriate to require any adjustment to (or clawback of) Aurizon Network’s UT3 MAR given the reasons outlined below. Instead, we consider it appropriate for Aurizon Network to strengthen the reporting regime in Part 10 of the 2014 DAU to provide more transparency and accountability regarding its maintenance performance (see Chapter 5). Our reasoning is outlined below.

In the UT3 period, Aurizon Network spent its approved maintenance allowance but generally failed to meet its scope targets (e.g. rail grinding and resurfacing). Nevertheless, the condition-based assessment in 2013 indicated that the CQCN was in good overall condition. Jacobs' assessment also did not indicate that a backlog of maintenance was embedded in Aurizon Network's UT4 maintenance proposal.

In our view, these observations suggest that while the UT3 actual scope was adequate, it is questionable as to whether the actual costs incurred were efficient. Aurizon Network spent significantly more than its UT3 proposal implied in unit cost terms. Further, the reporting regime in UT3 has not lent itself to understanding whether the under-delivery in scope was legitimate or whether it reflected an over scoped target. The factors driving the overall spend, for the scope actually delivered, are also unclear.

This lack of transparency complicates the assessment of Aurizon Network’s UT3 maintenance programme delivery—that is, whether it is efficient or not—and any related cost implications. For example, for such an assessment a sufficiently detailed, commonly understood, set of information is needed, gathered throughout the UT3 period when the relevant events were unfolding. Given this, we do not consider it appropriate to make any adjustment in the 2014 DAU period for possible maintenance delivery performance issues in UT3.

In response to these issues our MAR draft decision sought stakeholders' views on developing a maintenance performance incentive scheme. It was clear from stakeholders' responses that their key concern was the lack of timely relevant information on Aurizon Network's maintenance performance, rather than establishing a maintenance incentive scheme. While Aurizon Network disagreed with establishing an incentive scheme for maintenance, it supported the development of an alternative framework for the funding and reporting of maintenance.

Given stakeholder responses largely centred on information provision, we have focused on improving the maintenance reporting regime through amendments to Part 10 of the 2014 DAU (see Chapter 5). We consider it appropriate that Aurizon Network to:

- provide stakeholders and the QCA with detailed plans of maintenance
- provide stakeholders and the QCA with detailed reports of its maintenance performance.

We have drafted our amendments so that the information would be provided in a timely manner throughout the UT4 period.

We will explore alternative frameworks for the approval of maintenance costs if considerable variation against maintenance forecasts continues in the 2014 DAU period.

Conclusion

For the reasons outlined above, the 2014 DAU maintenance costs proposed by Aurizon Network would result in an over-recovery of direct maintenance costs by Aurizon Network. This outcome would not accurately reflect the legitimate business interests of Aurizon Network and would not be in the public interest or the interests of relevant stakeholders. Over-recovery would also reduce incentives for Aurizon Network to reduce costs or otherwise improve productivity. In addition, such an outcome would not promote the economically efficient operation and use of, and investment in, infrastructure underpinning the service, and may have detrimental effects on competition in upstream and downstream markets.

We have therefore decided to refuse to approve Aurizon Network's proposed direct maintenance costs in the 2014 DAU.

We consider it appropriate for Aurizon Network to amend the 2014 DAU in the manner outlined in Table 55, Table 56, and Table 57. These amendments represent the first step towards improving transparency and accountability in Aurizon Network's maintenance performance, as well as preventing Aurizon Network from over-recovering maintenance costs in the long run. We consider our proposed amendments would appropriately balance Aurizon Network's interests, the public interest, and the interests of relevant stakeholders. In addition, this would promote the objective of Part 5 of the Act and provide incentives for Aurizon Network and relevant stakeholders to reduce costs or otherwise improve productivity.

Consolidated draft decision 23.1

(1) After considering Aurizon Network's proposed direct maintenance costs (excluding ballast undercutting), our consolidated draft decision is to refuse to approve Aurizon Network's original proposal.

(2) We consider it appropriate for Aurizon Network to amend the 2014 DAU to make the following adjustments (as specified in Table 55, Table 56, and Table 57 above):

(a) reallocation of re-railing costs to renewals starting from 2015–16

(b) allocation of maintenance costs to non-coal traffic

(c) adjustments for updated volume profile.

(3) We also consider it appropriate for Aurizon Network to amend Part 10 of the 2014 DAU (Reporting) to provide more transparency in its maintenance performance.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the above reasons.

23.3 Indirect maintenance costs

23.3.1 Aurizon Network's proposal

Under its 2014 DAU, Aurizon Network proposed indirect costs of $28.4 million in 2013–14, increasing to $35.2 million in 2016–17 (in nominal terms). Table 58 presents the breakdown of Aurizon Network's proposed indirect maintenance costs for the 2014 DAU period.

Table 58 Aurizon Network's proposed indirect maintenance costs ($2011–12 million)

	2013–14	*2014–15*	*2015–16*	*2016–17*
Return on assets	8.5	10.4	10.0	9.9
Return on inventory	1.2	1.2	1.2	1.2
Return on working capital	1.1	1.2	1.2	1.2
Corporate costs	12.1	12.1	12.1	12.1
Total indirect costs ($2011–12)	**22.9**	**24.9**	**24.5**	**24.4**
Total indirect costs ($nominal)	**28.4**	**32.4**	**33.7**	**35.2**

Sources: Aurizon Network, 2013 DAU, sub. 4: 13-14; nominal costs based on subsequent information provided by Aurizon Network on detailed costs and proposed escalation rates; QCA analysis.

Aurizon Network proposed applying a gross replacement value (GRV) annuity approach to calculate the return on assets employed in the maintenance function.[256] In the context of maintenance, Aurizon Network stated the GRV approach is preferable to the UT3 historical cost approach, as:

[256] Aurizon Network, 2013 DAU, sub. 4: 113–117.

- the historical cost approach calculates the return on capital on the basis of book values, which yields maintenance costs that would not be expected to prevail in a competitive market
- the GRV approach uses the current replacement cost, hence it ensures the maintenance costs reflect the opportunity cost of providing the service
- it would be more profitable for Aurizon Network to sell the plant or redeploy the capital and outsource the maintenance activities if the GRV approach was not applied.

Aurizon Network also applied a real pre-tax WACC of 6.8 per cent to:

- the value of the maintenance inventory base (constant over the UT4 period) to estimate the return on inventory
- one-twelfth of the total direct maintenance expenditure (e.g. $189.5 million in 2013–14) to estimate the return on working capital.

Corporate overheads

Aurizon Network proposed an annual corporate overhead allowance of $12.09 million (in $2011–12) for costs involved in the delivery of maintenance services but not included in the direct cost component.[257] The proposed costs were based on a combination of a bottom-up cost build-up (based on a hypothetical business providing $200 million maintenance service) and a benchmarking exercise to estimate the corporate overhead cost.

23.3.2 Consultant's assessment

We asked RSMBC to independently assess Aurizon Network's proposed indirect maintenance cost. RSMBC's findings and recommendations are set out in the table below:

Table 59 RSMBC's assessment of Aurizon Network's proposed indirect maintenance costs

Return on assets	RSMBC considered it was reasonable for Aurizon Network to use the GRV approach when calculating its return on assets.[258] However, RSMBC questioned if Aurizon Network had applied the approach appropriately.
Return on inventory and working capital	RSMBC found Aurizon Network's return on inventory calculation reasonable, but recommended the return on working capital calculation be reduced to reflect supplier payment terms. RSMBC initially viewed that a return on inventory and a return on working capital should not be required given the change in modelling framework in UT4. In response to RSMBC's query, Aurizon Network clarified that the 'working capital allowance' applied under UT3 was intended to compensate the volatility inherent in the intra-year cash flows. On this basis, RSMBC considered it reasonable to include a return on inventory and working capital.
Corporate overheads	RSMBC recommended Aurizon Network's corporate overheads be reduced by $2 million per annum in 2011–12 price terms. This total adjustment comprises reduced allocations of some corporate overhead functions to maintenance services, including the Office of CEO and Board and legal services.

[257] Aurizon Network, 2013 DAU, sub. 4: 117–118.
[258] RSMBC 2013 DAU, 2014: 160.

23.3.3 Stakeholders' comments

Stakeholders did not agree with Aurizon Network's proposed use of the GRV approach. Stakeholders said RSMBC had failed to assess Aurizon Network's justification for the use of such an approach and how it should be properly applied.[259]

Further, stakeholders viewed Aurizon Network's proposed corporate costs for maintenance were too high and questioned if costs were double counted due to Aurizon Group's corporate structure.[260]

23.3.4 QCA MAR draft decision

Our MAR draft decision was to refuse to approve Aurizon Network's indirect maintenance cost proposal. Specifically, we stated in our MAR draft decision 5.3:

> *5.3 Our Draft Decision is to refuse to approve Aurizon Network's proposed indirect maintenance costs. We consider it appropriate for Aurizon Network to amend its 2014 DAU to make the following adjustments:*
>
> *(a) calculating the return on assets using our post-tax real WACC (and escalated by CPI) and the historical cost valuation approach*
>
> *(b) removing allocations for the return on inventory and working capital*
>
> *(c) removing allocations for corporate costs.*

Our proposed adjustments to the indirect maintenance cost are set out in Table 60.

Table 60 QCA's proposed adjustments to Aurizon Network's indirect maintenance costs ($2011–12 million)

	2013–14	*2014–15*	*2015–16*	*2016–17*
Aurizon Network's proposed indirect maintenance costs	22.9	24.9	24.5	24.4
QCA adjustments to return on assets[1]	(4.6)	(3.8)	(4.4)	(5.2)
QCA adjustments to return on inventory and working capital	(2.3)	(2.4)	(2.4)	(2.4)
QCA adjustments to corporate costs[2]	(12.1)	(12.1)	(12.1)	(12.1)
QCA's proposed indirect maintenance costs ($2011–12)	**3.9**	**6.6**	**5.6**	**4.7**

Notes: (1) Calculated based on a real post-tax WACC of 4.55% (equivalent to a nominal post-tax WACC of 7.17%). (2) We have dealt with the issue of corporate overheads in the assessment of operating costs.

Our MAR draft decision with respect to Aurizon Network's indirect maintenance costs is summarised below:

[259] BMA, 2013 DAU, sub. 114: 1–2.
[260] BMA, 2013 DAU, sub. 41: 6; Vale, 2013 DAU, sub. 42: 4.

Table 61 Summary of QCA MAR draft decision

Return on assets	We did not accept Aurizon Network's case that there was a need to change the methodology for calculating the return on assets employed for maintenance. Our concerns regarding the proposed approach were: • There would be limited incentive to remove older or redundant assets from the base when they no longer contributed to the provision of maintenance services. • We were unconvinced Aurizon Network had applied the GRV annuity approach correctly. Aurizon Network did not demonstrate that the change to the GRV approach was complemented by an appropriate adjustment to the maintenance allowance for these assets. • We were unconvinced that it would be efficient for Aurizon Network to sell the maintenance assets and outsource the maintenance services if the GRV method was not applied. Our priority is to ensure the maintenance task is cost reflective. The historical cost approach allows Aurizon Network to recover an appropriate return for its initial investment in the maintenance assets.
Return on inventory and working capital	Our MAR draft decision was to refuse to approve Aurizon Network's proposed costs for return on inventory and working capital. We considered that providing Aurizon Network with a return on inventory and working capital would be inconsistent with the application of Aurizon Network's 'end-of-year' assumption. We considered the 'end-of-year' assumption provides Aurizon Network with sufficient revenues to operate its business on an annual basis over the course of the 2014 DAU period, and this included any costs associated with working capital and inventory management.
Corporate overheads	Our MAR draft decision was to not provide a separate allowance for corporate overheads for maintenance costs, but treat these costs as part of the overall corporate overhead estimate for Aurizon Network's operating cost allowance.

Our full analysis and reasoning is contained in section 5.3 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

23.3.5 Aurizon Network's comments on the MAR draft decision

Return on assets

Aurizon Network accepted our proposal to continue to use the historical cost approach to calculating the return on maintenance assets, although it still considered its proposed GRV approach more appropriate, subject to:

- verification of how we had calculated our proposed adjustments to return on assets
- confirmation that this approach would not be changed at the end of the 2014 DAU period
- alignment of the WACC parameters with our consolidated draft decision.[261]

Corporate overheads

Aurizon Network accepted the transfer of corporate overheads to operating costs.[262]

[261] Aurizon Network, sub. 59: 111–114.

23.3.6 Stakeholders' comments on the MAR draft decision

Stakeholders generally supported our MAR draft decision regarding indirect maintenance costs.

The QRC queried if our approach to escalating the return on and return of maintenance assets would yield the same outcome, were these assets part of the RAB.[263]

23.3.7 QCA analysis and consolidated draft decision

Our consolidated draft decision is to refuse to approve Aurizon Network's proposed indirect maintenance expenditure as it would result in an over-recovery of indirect maintenance costs by Aurizon Network. This outcome would not accurately reflect the legitimate business interests of Aurizon Network and would not be in the public interest or the interests of relevant stakeholders. Over-recovery would also reduce incentives for Aurizon Network to reduce costs or otherwise improve productivity. In addition, such an outcome would not promote the economically efficient operation and use of, and investment in, infrastructure underpinning the service, and may have detrimental effects on competition in upstream and downstream markets.

As identified in further detail in Chapter 2 of this consolidated draft decision, we have used a 'reasonableness' test for efficient costs, given the lack of robust and evidence-based benchmarks for assessing efficient costs. We have identified our approach to the measurement of efficient cost in Sections 2.9.2 and 2.18.2 of Chapter 2 (Legislative Framework) of this decision

We consider it appropriate for Aurizon Network to amend the 2014 DAU by making the following adjustments:

- applying the historical cost approach to calculate return on maintenance assets
- removing cost allowances for return on inventory and working capital (refer chapter 29)
- removing allocations for corporate overheads.

Our proposed adjustments to the indirect maintenance costs (in real terms) are as set out in our MAR draft decision (see Table 60) and are the same as in this consolidated draft decision.

Our proposed amendments would prevent Aurizon Network from over-recovering on maintenance costs. This would accurately reflect Aurizon Network's legitimate business interests and would generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service and provide a risk-adjusted return on investment to Aurizon Network.

Our proposed amendments would also appropriately balance Aurizon Network's interests, the public interest, and the interests of relevant stakeholders. In addition, this would promote the objective of Part 5 of the Act and provide incentives for Aurizon Network and relevant stakeholders to reduce costs or otherwise improve productivity.

We note that Aurizon Network generally accepted our MAR draft decision, except for the removal of the return on inventory.

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[262] Aurizon Network, sub. 59: 114.
[263] QRC, sub. 62: 15.

Consolidated draft decision 23.2

(1) After considering Aurizon Network's proposal of indirect maintenance costs, our consolidated draft decision is to refuse to approve Aurizon Network's original proposal.

(2) We consider it appropriate for Aurizon Network to amend the 2014 DAU to make the following adjustments (as specified in Table 60):

(a) applying the historical cost approach to calculate return on maintenance assets

(b) removing cost allowances for return on inventory and working capital

(c) removing allocations for corporate overheads.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons identified above.

23.4 Maintenance cost index

The MCI is a special-purpose index used to escalate some components of Aurizon Network's maintenance costs. It is developed to represent a 'basket' of goods and services that closely align with the cost drivers for maintenance tasks undertaken by Aurizon Network. As part of the annual revenue cap adjustment process, the MCI is updated to account for actual inflation compared to forecast, and any revenue differentials are adjusted in arrears. The MCI weightings and the choice of sub-indices, however, remain fixed over the regulatory period as approved by the QCA.

23.4.1 Aurizon Network's proposal

For the 2014 DAU period, Aurizon Network proposed to apply the MCI to escalate direct maintenance costs excluding depreciation, and the return on working capital.[264] [265] Aurizon Network's submitted UT4 MCI had the same basic framework as the approved UT3 counterpart. However, Aurizon Network modified the cost weightings to reflect the composition of its proposed 2014 DAU maintenance costs, and for some cost categories used different sub-indices.[266]

In December 2013 Aurizon Network resubmitted updated MCI weightings.[267]

Aurizon Network's proposed 2014 DAU MCI structure and the UT3 approved counterpart are set out below in Table 62.

[264] Aurizon Network had not included details of the UT4 MCI in its submissions, but provided them to SKM after an information request.

[265] This was inferred from Aurizon Network's proposed maintenance costs in nominal terms. However, as shown in the Jacobs' MCI report, Aurizon Network did include the return on maintenance assets and corporate overheads when calculating the MCI weightings (see Table 3.2 of SKM, 2013 DAU, 2014(b) MCI Report).

[266] Aurizon Network, 2013 DAU, sub. 4: 120–121.

[267] SKM, 2013 DAU, 2014(f) MCI Report: 2.

Table 62 Aurizon Network's proposed changes to the MCI

Category	*Approved UT3 weighting*	*Approved UT3 sub-index components*	*Aurizon Network UT4 proposed weighting*	*Aurizon Network updated weightings*	*Aurizon Network proposed UT4 sub-index components*
Accommodation	1.5%	ABS average room rate per occupied night (equal weighting for Fitzroy and Mackay)	2.3%	2.3%	No change
CPI (Balance of Costs)	N/A	[Included in consumables]	23.6%	20.7%	ABS CPI Brisbane all groups
Consumables	34.9%	ABS producer price indices: 18% each for construction, metal products, transport equipment, fabricated metal; 28% weighting for Brisbane CPI	29.5%	29.8%	48% weighting for proprietary BIS Shrapnel hire of heavy plant index; ABS producer price indices: 35% for fabricated metal and 20% for transport parts
Labour	44.5%	ABS average weekly earnings: 33% each for Queensland all industries, mining and construction	42.5%	45.1%	Proprietary BIS Shrapnel index for mining Queensland average weekly earnings1
Fuel	3.2%	Australian Automobile Association (AAA): unleaded and diesel retail prices	2.1%	2.1%	Australian Institute of Petroleum and AAA data: unleaded and diesel wholesale and retail prices Gladstone, Emerald and Mackay (equal weighting for each location)
Assets	15.9%	Index largely fixed at 100, except for new purchases which are indexed by Brisbane CPI	N/A	N/A[2]	Not included

Notes: (1) Aurizon Network subsequently changed this to ABS AWOTE series for the Australian mining industry. (2) Aurizon Network UT4 proposed that MCI weighting excluded asset depreciation from its calculation and separately escalated depreciation by the CPI (Brisbane all groups).

Source: Aurizon Network; UT3 sub-indices explained in more detail in QCA, June 2010: 20. UT4 weightings not included in Aurizon Network's submission, but were provided to our consultant after an information request was made.

In its December 2013 submission, Aurizon Network also provided the updated MCI forecasts for the 2014 DAU period:

Table 63 Aurizon Network's updated MCI forecast compared to UT4 submission

Financial year	*UT4 submission*	*Updated MCI forecast*
2013–14	7.8%	8.0%
2014–15	12.2%	12.5%
2015–16	16.6%	17.0%
2016–17	21.4%	21.9%

Note: MCI converts from the 2011–12 financial year as a base year.

Sources: SKM; 2013 DAU; 2014(f) MCI Report: 3.

23.4.2 QCA MAR draft decision

Our MAR draft decision was to refuse to approve Aurizon Network's proposed MCI for the 2014 DAU period. Specifically, we stated in our MAR draft decisions 5.4 and 5.5:

> *5.4 Our Draft Decision is to refuse to approve Aurizon Network's proposed MCI. We consider it is appropriate for Aurizon Network to amend the draft access undertaking to make the following adjustments:*
>
> *(a) limiting its application to the direct maintenance costs less depreciation*
>
> *(b) escalating labour costs based on equal proportions of the WPI for the national mining and construction industries and Queensland all industries*
>
> *(c) escalating fuel costs based the wholesale price of diesel (AIP TGP)*
>
> *(d) escalating hire of heavy plant and equipment costs based on the producer price index for non-residential building construction.*
>
> *5.5 Our Draft Decision is to require Aurizon Network to escalate depreciation by the Brisbane CPI (all groups).*

Table 64 QCA MAR draft decision on MCI structure

Category	*SKM proposed UT4 sub-index components*
Accommodation	ABS average room rate per occupied night: • Mackay (50%) • Central Queensland (50%)
CPI (balance of costs)	ABS CPI all groups Brisbane (100%)
Consumables	ABS producer price indices: • fabricated metal (34.8%) • transport equipment and parts (19.57%) • mining and construction machinery manufacturing (45.6%)
Labour	ABS wage price indices: • national construction (33.3%) • national mining (33.3%)

Category	*SKM proposed UT4 sub-index components*
	• Queensland all industries (33.3%)
Fuel	Australian Institute of Petroleum terminal gate diesel price, Brisbane (100%)

Notes: Due to rounding, the sum of all category weightings may not equal 100%. Source: SKM; 2013 DAU; 2014 (f); MCI Report: 23–24.

In the draft decision, we considered that the MCI forecast recommended by Jacobs (see Table 65) to be appropriate. We noted that we would update these indices with the latest forecasts in our consolidated draft decision.

Table 65 Jacobs' proposed adjusted MCI (system-wide)

Cost driver	*Accommodation*	*CPI*	*Consumables*	*Fuel prices*	*Labour*	*Weighted index*	*MCI estimate*
Weights	2.6%	11.0%	33.5%	2.4%	50.6%	—	—
2011-12	100.0	100.0	100.0	100.0	100.0	100.0	—
2013–14	104.4	106.6	99.7	115.1	109.1	105.8	5.8%
2014–15	101.7	110.1	99.4	118.4	113.9	108.5	8.5%
2015–16	96.5	113.3	99.6	120.3	118.5	111.1	11.1%
2016–17	93.5	116.2	102.6	118.9	123.0	114.6	14.6%

Notes: Due to rounding, the sum of all category weightings may not equal 100%. The weightings have been calculated based on Aurizon Network's proposed maintenance costs.

Sources: SKM; 2013 DAU; 2014(f) MCI Report: 23

Our full analysis and reasoning is contained in Section 5.4 of the MAR draft decision. We adopt that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

23.4.3 Aurizon Network's comments on the MAR draft decision

Aurizon Network accepted our MAR draft decision with respect to MCI subject to:

- verification of our MCI calculations (we have since made our MCI model public)
- alignment of the forecast and actual MCIs—Aurizon Network proposed to address the reconciliation of the difference in actual and forecast MCI for 2013–14 as part of the finalisation of UT4 rather than through the standard annual revenue adjustment process.[268]

23.4.4 Stakeholders' comments on the MAR draft decision

Stakeholders generally supported our MAR draft decision with respect to MCI, viewing that our proposed MCI more closely aligned with market-related factors that would drive Aurizon Network's cost base.

[268] Aurizon Network, sub. 59: 114.

23.4.5 QCA analysis and consolidated draft decision

We note Aurizon Network's and stakeholders' general acceptance of our MAR draft decision with respect to MCI structure. We do not recommend changes from our MAR draft decision, except for accommodation costs. Therefore, our consolidated draft decision is to refuse to approve Aurizon Network's proposed MCI as contained in the 2014 DAU as it would result in an over-recovery of maintenance costs by Aurizon Network. This outcome would not accurately reflect the legitimate business interests of Aurizon Network and would not be in the public interest or the interests of relevant stakeholders. Over-recovery would also reduce incentives for Aurizon Network to reduce costs or otherwise improve productivity. In addition, such outcome would not promote the economically efficient operation and use of, and investment in, infrastructure underpinning the service, and may have detrimental effects on competition in upstream and downstream markets. We have used a 'reasonableness' test for efficient costs, given the lack of robust and evidence-based benchmarks for assessing efficient costs. We have identified our approach to the measurement of efficient cost in Sections 2.9.2 and 2.18.2 of Chapter 2 (Legislative Framework) of this decision.

Since our MAR draft decision, we have become aware that:

- the collection frequency of the Survey of Tourist Accommodation (STA) will change from quarterly to annual; the 2014–15 data is expected to be released in late November 2015
- the ABS has not secured funding for the STA for 2015–16 and 2016–17.

The 2014 DAU requires Aurizon Network to provide us with the annual revenue cap adjustment submission by the end of September each year, and the adjustments include the recovery of revenue for the difference between the actual and forecast MCI value.

We consider that Aurizon Network would not be able to finalise its submission in a timely manner if the STA data was used. Given the circumstances, we consider the best alternative amongst all other publicly available indices is the producer price index for the accommodation industry (PPIAI).[269] The PPIAI tracks the price movement of accommodation services in Australia. We consider that while such an index is not specific to regional Queensland, it should reflect the key drivers that affect accommodation costs incurred by Aurizon Network.

In our consolidated draft decision, we consider it appropriate that Aurizon Network amends the 2014 DAU by applying the following MCI structure:

[269] ABS Catalogue No. 6427.0, Producer Price Indices, Australia, Table 20, Output of the Accommodation and food services industries, group index numbers, Accommodation, Series A4406608F.

Table 66 QCA MCI structure

Category	*UT4 sub-index components*
Accommodation	ABS producer price index for the accommodation industry (100%)
CPI (balance of costs)	ABS CPI all groups Brisbane (100%)
Consumables	ABS producer price indices: • fabricated metal (34.8%) • transport equipment and parts (19.57%) • mining and construction machinery manufacturing (45.6%)
Labour	ABS wage price indices: • national construction (33.3%) • national mining (33.3%) • Queensland all industries (33.3%)
Fuel	Australian Institute of Petroleum terminal gate diesel price, Brisbane (100%)

We have applied the MCI structure above, and updated all the sub-indices with actual data for 2013–14 and 2014–15. For the final two years, we have applied an annual growth rate of 2.5 per cent across all sub-indices, except for the WPI (Queensland all industries) where public forecasts are available. We have not engaged experts to provide us new forecasts of these sub-indices given that there are only two more years remaining for UT4, and the annual revenue adjustment process will adjust for the difference between actual and forecast MCI.

Our adopted MCI is presented in the table below.

Table 67 QCA MCI (system-wide)

Cost driver	*Accommodation*	*CPI*	*Consumables*	*Fuel prices*	*Labour*	*Weighted index*	*MCI estimate*
Weights	2.6%	11.0%	33.4%	2.3%	50.6%	—	—
2011-12	100.0	100.0	100.0	100.0	100.0	100.0	—
2013–14	101.7	105.3	101.2	106.2	106.6	104.5	4.5%
2014–15	96.0	106.9	103.5	91.9	109.0	106.2	6.2%
2015–16	98.4	109.5	106.1	94.2	111.7	108.8	8.8%
2016–17	100.8	112.3	108.8	96.6	114.8	111.7	11.7%

Note: The weights have changed slightly from the MAR draft decision as we have fixed a minor error in the MCI model.

Our proposed amendments would prevent Aurizon Network from over-recovering maintenance costs in the context of the application of the MCI. This would accurately reflect Aurizon Network's legitimate business interests and would generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service and provide a risk-adjusted return on investment to Aurizon Network.

Our proposed amendments would also appropriately balance Aurizon Network's interests, the public interest, and the interests of relevant stakeholders. In addition, this would promote the objective of Part 5 of the Act and provide incentives for Aurizon Network and relevant stakeholders to reduce costs or otherwise improve productively.

Consolidated draft decision 23.3

(1) After considering Aurizon Network's proposed MCI, our consolidated draft decision is to refuse to approve Aurizon Network's original proposal.

(2) We consider it appropriate for Aurizon Network to amend the 2014 DAU to make the following adjustments:

(a) Limit the application of MCI to the direct maintenance costs less depreciation.

(b) Apply the MCI structure specified in Table 66.

(c) Escalate depreciation by the CPI all groups Brisbane.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the above reasons.

23.5 Summary

Taking into account Aurizon Network's proposed maintenance costs (excluding ballast undercutting costs) for the 2014 DAU period, our consolidated draft decision is to refuse to approve the 2014 DAU for the reasons outlined above and to require Aurizon Network to amend the 2014 DAU in accordance with the maintenance costs set out in Table 68.

Table 68 QCA maintenance costs excluding ballast undercutting costs ($2011–12 million)

	2013–14	***2014–15***	***2015–16***	***2016–17***
Aurizon Network's proposed maintenance expenditure (Dec 2013)	149.5	155.9	160.3	163.1
QCA MAR draft decision (Sep 2014)	117.0	120.0	119.1	123.7
QCA direct maintenance expenditure	128.2	130.0	114.0	117.6
QCA indirect maintenance expenditure	3.9	6.6	5.6	4.7
QCA maintenance expenditure ($2011–12)	**132.0**	**136.5**	**119.7**	**122.2**
QCA maintenance expenditure ($nominal)	**138.1**	**145.1**	**130.3**	**136.6**

24 BALLAST UNDERCUTTING COSTS

Ballast undercutting costs represent approximately 35 per cent of Aurizon Network's original proposed direct maintenance costs for the 2014 DAU period. In our MAR draft decision, we refused to approve Aurizon Network's proposed scope of ballast undercutting, and as a result proposed to remove one-third of its proposed costs. We also proposed not to continue the annual ballast impairment charge (a UT3 decision) associated with the 2014 DAU period.

In response to our MAR draft decision, Aurizon Network submitted a revised ballast undercutting scope and costs proposal for the 2014 DAU period. According to Aurizon Network, the revised scope took into account the latest assessment of the ballast condition in the CQCN, and the revised cost build-up included additional cost savings that were not in its original proposal. Aurizon Network accepted our proposal for the treatment of the ballast impairment charge.

Our consolidated draft decision is to refuse to approve Aurizon Network's originally proposed ballast undercutting costs for the 2014 DAU. We also consider that Aurizon Network's revised proposed ballast undercutting costs are unlikely to reflect efficient costs. Overall, our consolidated draft decision proposes a total allowance of $250 million for ballast undercutting for the 2014 DAU period.

24.1 Overview

24.1.1 Background

Ballast is the rock material that is laid on the rail bed under the sleepers, providing stability and drainage to the track structure. It is an essential structural component of the track because it transfers the load of the train through the sub-ballast and formation.

Over time, ballast deteriorates by fracturing into smaller pieces, losing its sharp edges, and becoming contaminated with dirt and mud rising from below the ballast. Ballast fouling is the accumulation of material (including coal fines) within the ballast layer. In the CQCN, coal product spilt or blown from wagons further contributes to ballast fouling. Ballast undercutting (cleaning) is necessary to deal with ballast fouling.

One of the key factors that determine the scope of ballast undercutting required is the ballast condition in the CQCN. The level of ballast fouling can be measured in terms of the 'percent void contamination' (PVC) level.[270] An increase in the PVC level of a segment of the rail track indicates worsening of the ballast condition in that segment.

Historically, Aurizon Network assessed the ballast condition using a sampling method. Aurizon Network said this method was time consuming, costly, and provided limited information due to the infrequent sampling process. More recently, Aurizon Network has adopted a ground penetrating radar (GPR) technology. The GPR machine (which can be attached to a train) can undertake a continuous measurement of ballast fouling. Aurizon Network said it has completed four GPR runs through the CQCN since 2010. Each GPR run provides a snapshot of the ballast condition in the CQCN (for the track that was covered).

[270] The PVC is calculated by dividing the volume of contaminates by the volume of voids within the ballast profile.

24.1.2 Legislative framework

In forming a view on Aurizon Network's proposed ballast undercutting costs for the 2014 DAU, we must have regard to all of the criteria in section 138(2) of the QCA Act.

In the context of assessing Aurizon Network's ballast undercutting proposal, we must have regard to the factors listed in section 138(2) and give them an appropriate level of weighting, as identified in section 2.1.2 of the MAR draft decision. We consider:

- section 138(2)(a), (b), (d), (e), (f), (g) and (h) should be given more weight, as identified below
- section 138(2)(c) should be given less weight as it is not practically relevant to our assessment of the ballast undercutting proposal
- section 138(2)(g) refers to the pricing principles mentioned in section 168A, of which we consider section 168A(a), (c) and (d) should be given more weight, as identified below
- section 168A(b), relating to multi-part pricing and price discrimination when it aids efficiency, can be accorded less weight as it is not practically relevant to our assessment of the ballast undercutting proposal.

Efficient operating and use of infrastructure

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. Ballast undercutting costs should reflect the efficient cost and scope associated with the requisite level of maintenance required for the 2014 DAU period.

In broad terms, we consider, pursuant to section 138(2)(b) of the QCA Act, that the legitimate business interests of Aurizon Network for ballast undercutting will be met if it is permitted to recover at least the efficient costs of maintaining and managing the ballast asset.

Conversely, section 138(2)(e) and (d) require us to have regard to the interests of access seekers and the public interest. We consider that the rights of existing access holders are relevant under section 138(2)(h), to the extent they are not already 'access seekers' under section 138(2)(e). As identified earlier, consideration of all of these interests leads to a conclusion that Aurizon Network should also be permitted to recover the efficient costs and return on investment. In this manner, effective competition in markets upstream and downstream of the CQCN will be promoted as contemplated by the objective of Part 5 specified in section 69E of the QCA Act.

Moreover, if Aurizon Network is permitted to recover the efficient costs and return on investment, it will have incentives to incur costs efficiently for the purposes of section 168A(d) and will have less scope to discriminate in favour of its downstream operations which could otherwise raise concerns under section 168A(c).

In the context of section 138(2)(e), (d) and (h), as well as section 168A(c), we consider that access seekers should not be required to contribute to the cost of ballast cleaning in the 2014 DAU to the extent that costs have already been pre-recovered by Aurizon Network in previous undertaking periods for ballast cleaning that has not taken place. Aurizon Network's proposal to

recover those costs again would, in practical effect, lead to access seekers paying twice for the same service. We consider it inconsistent with the interests of access seekers and the public interest, for access seekers to contribute more than once to the relevant costs.

Specifically for ballast cleaning, we must also consider section 138(2)(f) in the context of the existing ballast asset impairment charge. Section 138(2)(f) relates to the effect of excluding assets for pricing purposes.

Allocation of costs

When considering cost allocation, in addition to section 138(2) of the QCA Act we have also had regard to section 137(1A)(b) as well as section 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, via the access price, costs that are not reasonably attributable to the provision of the service.

24.2 Ballast undercutting scope

Ballast undercutting involves mechanical excavation of deteriorated or fouled ballast from beneath the sleepers, after which new/cleaned ballast is added to the formation and tempered to restore the track to correct track geometry and ballast depth.

In the CQCN, the mainline ballast undercutting is largely undertaken 'on track' with the RM900 ballast undercutter. Off-track solutions (manual excavation) and minor works by Aurizon Network's Asset Maintenance teams are used for sites where the RM900 machine is not suitable, such as near-turnouts, turnouts and cross-overs.

In its submission, Aurizon Network has categorised the scope of ballast undercutting into mainline and turnouts:

- The scope of mainline ballast undercutting is defined either in linear distance of rail track (in km) or volume of ballast cleaned (in m^3).
- The scope of turnout ballast undercutting is defined as the unit of turnouts cleaned.

Critical elements in identifying an efficient scope of ballast undercutting include having a clear understanding of what the appropriate intervention rate is and how this is then applied to estimate the scope. Aurizon Network has expressed its intervention rate for ballast undercutting in two ways:

- Contamination level—measured by the PVC level. Aurizon Network said it has a PVC intervention rate of 30 per cent for the whole CQCN, which means it generally aims to undertake ballast undercutting for a particular segment once that segment reaches the 30 per cent PVC level.[271] Aurizon Network said this intervention rate is supported by empirical research in the CQCN and international experience.
- Usage level—measured by the amount of coal that has travelled over a segment of rail infrastructure. Aurizon Network said it has a usage-based intervention rate of 600MNT, which means, on average, ballast cleaning is required for a particular segment once 600MNT

[271] Aurizon Network 2014i: 21.

of coal has travelled over that segment.[272] Aurizon Network said this is consistent with its PVC intervention rate of 30 per cent.

24.2.1 QCA MAR draft decision

Aurizon Network's original proposed scope of ballast undercutting for the 2014 DAU is presented below.[273]

Table 69 Aurizon Network's proposed scope of ballast undercutting

	2013–14	*2014–15*	*2015–16*	*2016–17*	*Total*
Mainline undercutting—linear distance (km)[a]	122	155	162	171	**610**
Mainline undercutting—volume (m^3)	358,203	387,372	406,302	426,430	**1,578,307**
Turnouts (unit)	60	80	86	88	**314**

a Assuming a standard ballast depth of 300 mm. Sources: Aurizon Network, 2013 DAU, sub. 4, 123; RFI.

In our MAR draft decision on MAR, we refused to approve Aurizon Network's proposed ballast undercutting scope for the 2014 DAU period. Our views were:

- It was difficult for us to determine exactly how the scope of ballast undercutting for the 2014 DAU period had been determined, and more importantly, whether the scope proposed by Aurizon Network was efficient for the period.[274]
- While Aurizon Network claimed that it used an intervention rate (i.e. 600MNT) based on the GPR data, the possibility appeared strong that Aurizon Network's 2014 DAU proposal for ballast undercutting was based on the pre-GPR intervention rate (i.e. 400MNT).
- Based on our understanding, the GPR-derived intervention rate (i.e. 600MNT) should be used in assessing the efficient ballast undercutting scope, rather than the pre-GPR intervention rate (i.e. 400MNT). We understood that the latter rate included an element of corrective ballast undercutting.[275]
- There was inconclusive evidence of a substantive need for corrective ballast undercutting in the 2014 DAU period. Notwithstanding this, the costs of any corrective ballast undercutting required in the 2014 DAU period that pertained to previous undertaking periods should be borne by Aurizon Network instead of requiring its customer base to provide further funding (and hence, paying twice).[276]

Our MAR draft decision proposed an adjustment to the scope of ballast undercutting, effectively reducing costs by one-third, on the basis that the scope should reflect the intervention rate consistent with GPR findings rather than pre-GPR (the issue of efficient costs is addressed in the next section). We then made further adjustments to the cost allowance to take account of changes in forecast volumes which were expected to be correlated to ballast undercutting costs.

[272] Aurizon Network, sub. 59: 123.
[273] The information on the 2014 DAU ballast undercutting scope was deemed to be confidential by Aurizon Network when we released our draft decision on MAR.
[274] QCA 2014h: 140.
[275] QCA 2014h: 141.
[276] QCA 2014h: 141–42.

We clarified that if Aurizon Network is able to provide better information on how it has built up its 2014 DAU scope and costs, we would review this information for our consolidated draft decision.[277] We also viewed that the ballast undercutting information should not be kept confidential, as to encourage informed debate and improve transparency.

Our full analysis and reasoning is contained in section 6.2.4 of the MAR draft decision. We adopt that analysis and reasoning for the purposes of this consolidated draft decision, subject to comments below.

24.2.2 Aurizon Network's response

While we are required to make our consolidated draft decision on the basis of the ballast undercutting costs originally submitted by Aurizon Network in the 2014 DAU, we have taken Aurizon Network's revised proposed into account in our analysis (and that revised proposal is relevant to the manner in which we consider the 2014 DAU should be amended).

In response to our MAR draft decision, Aurizon Network revised its proposed ballast undercutting scope and costs for the 2014 DAU period (Table 70).

Table 70 Aurizon Network's revised ballast undercutting scope

	2013–14[a]	***2014–15***	***2015–16***	***2016–17***	***Total***
Mainline undercutting—linear distance (km)[b]	118	140	140	140	**538**
Mainline undercutting—volume (m^3)	354,011	350,000	350,000	350,000	**1,404,011**
Turnouts (unit)	68	54	57	58	**237**

a *Aurizon Network has already completed the scope for 2013–14.* ***b*** *Assuming a standard ballast depth of 300mm. Source: Aurizon Network, sub. 59: 131–32.*

Aurizon Network also provided additional information to justify its revised scope and costs. This information sets out the scope development process, which is substantially more detailed than was available to us at the time of the MAR draft decision. This new information is relevant both to our consideration of the original proposal and the revised proposal.

Original 2014 DAU proposal

Aurizon Network confirmed that the ballast undercutting scope and costs in its original 2014 DAU proposal were based on a usage-based intervention rate of 600MNT, not 400MNT. Aurizon Network said the latter rate, which appeared in an Evans and Peck report that it commissioned (which was made available to us), was only relevant and appropriate at the time when the report was requested, but was not used for developing the 2014 DAU scope.[278]

Conversely, the intervention rate of 600MNT, as referred to in its 2014 DAU proposal, was developed through interrogation of successive GPR data points. According to Aurizon Network, the GPR data (derived from the GPR runs up to 2012) indicated that, on average across the CQCN, the PVC level of track would increase by five percentage points per 100MNT of coal railed over it. Based on this result, a PVC intervention rate of 30 per cent would be equivalent to a usage-based intervention rate of 600MNT.[279]

[277] QCA 2014h: 144.
[278] Aurizon Network, sub. 59: 123.
[279] Aurizon Network, sub. 59: 124.

Accordingly, for the 2014 DAU proposal, Aurizon Network said it used both the forecast tonnage throughput and the usage-based intervention rate of 600MNT to develop the strategic scope for the 2014 DAU period.

Revised scope

Mainline

Aurizon Network said that its revised scope of mainline ballast undercutting took into account the latest GPR run, which was completed in July 2014 (14 months after the original 2014 DAU proposal) and covered approximately 2,024 km of the CQCN. The remaining 600 km of the CQCN that were not covered consisted of areas with very low tonnages, low line speed and the Northern Link.[280]

The 2014 GPR run provided the following results:

Table 71 Levels and kilometres of fouling on the CQCN

Level of fouling	*Kilometres*
>30% PVC	373
20–30% PVC	418
<20% PVC	1241

Source: Aurizon Network, sub. 59: 131.

The latest GPR run indicated that 373 km of track had a ballast fouling level greater than the critical 30 per cent PVC level, as of July 2014 (the end of the first year of the 2014 DAU period). Aurizon Network said the GPR data also indicated that another 185 km of track would move into this bracket of 30 per cent PVC level or above over the final three years of the 2014 DAU period.[281]

Aurizon Network concluded that the CQCN network would require a total of 501 km of mainline ballast undercutting over the final three years of the 2014 DAU period.[282] However, Aurizon Network said its current capabilities based on available resources could only deliver up to 140 km of 'standardised' mainline ballast cleaning (that is, assuming a standard ballast depth of 300 mm) per year, meaning that it would be impossible to deliver a total scope of 558 km (note that 118 km of mainline ballast undercutting had already been delivered in 2013–14 when the revised proposal was submitted).

In light of operational constraints, Aurizon Network proposed the revised scope of mainline ballast undercutting, which it said was 20 km less than the requirement as suggested by the GPR data.

Aurizon Network said that to support the delivery of its revised scope, it would undertake the following operational activities:

- identification and planning based on GPR data

[280] Aurizon Network, sub. 59: 131.
[281] Aurizon Network, sub. 59: 132.
[282] Note that, based on Aurizon Network's interpretation of the GPR data, it would logically suggest that 558 km of mainline ballast undercutting would be required over the final three years of the 2014 DAU period, rather than over the whole term as concluded by Aurizon Network in its submission.

- procurement of 24 spoil wagons
- leasing of additional undercutting machinery.

Aurizon Network also said that the actual delivery of scope would depend on the level of track possession foregone at the request of train operators or access holders, or from inclement weather.[283] Historical evidence has shown that lost track possession due to the two factors is largely irrecoverable.

Aurizon Network said that one should not expect a completely 'clean' network (where none of the track had a ballast fouling level greater than the critical rate of 30 per cent PVC level) at the end of the regulatory period.[284] This is because there is a non-linear relationship between the scope and its execution, as it is simply inefficient to target only those areas that had 30 per cent PVC level or above.[285] According to Aurizon Network, the RM900 machine requires at least 300 m of undercutting to make a single production shift efficient. As part of any shift, the RM900 machine will inevitably undercut ballast with fouling of both greater and lower than 30 per cent PVC level.

With respect to the 600 km of track that was not covered in the 2014 GPR run, Aurizon Network said they have not been included in its proposed scope of mainline ballast undercutting, and it will undertake additional ballast undercutting through its normal maintenance process if required.[286]

Turnout

Aurizon Network did not document the methodology used to estimate the scope for turnouts in its submission. Aurizon Network did note that it has reduced its proposed scope of turnout undercutting based on revised volumes from 314 to 210 turnouts over the 2014 DAU period. Note that 41 turnouts were undercut in 2013–14, compared to 60 that had been originally proposed under Aurizon Network's 2014 DAU proposal.

In that process of updating the turnout scope, Aurizon Network said it discovered an error in the original model that led to an overstatement of tonnages used to create the turnout undercutting scope for the Goonyella system in its original proposal. It has since rectified this error and confirmed that no similar error was found for other systems.

24.2.3 Stakeholders' comments on the MAR draft decision

Stakeholders made a range of submissions on Aurizon Network's original proposal. We have summarised those submissions in section 6.2.3 of the MAR draft decision and have continued to take them into account.

In the context of the MAR draft decision, a number of stakeholders maintained that it was difficult to comment effectively on the issue of ballast undercutting given Aurizon Network's confidentiality claims and conflicting information. The QRC and Vale both expressed disappointment that the appropriate scope of ballast undercutting had been discussed over successive access undertakings, yet transparency and clarity were still lacking.[287] Both stakeholders highlighted the following:

[283] Aurizon Network, sub. 59: 132.
[284] Aurizon Network, sub. 59: 132.
[285] Aurizon Network, sub. 59: 125.
[286] Aurizon Network, sub. 59: 132.
[287] Vale, sub. 54: 5; QRC, sub. 62: 17.

- The 2013 condition-based assessment did not conclusively suggest that significant remedial work was needed.[288]
- Aurizon Network justified its proposed increase in ballast undercutting scope and costs on the basis that there were high levels of coal contamination.
- SKM also stated that the increase in costs would not be reasonable without the presence of existing fouling.

Stakeholders emphasised that the package of our consolidated draft decisions on the ballast undercutting issue, including the treatment of the UT3 ballast impairment charge, should reflect a consistent view of the ballast condition in the CQCN.

Vale said it was disappointing to see Aurizon Network proposing an increase in ballast undercutting allowance despite the implementation of veneering of coal wagons.

24.2.4 QCA analysis and consolidated draft decision

After having regard to the section 138(2) factors and stakeholder submissions, our consolidated draft decision is to refuse to approve Aurizon Network's proposed scope for ballast undercutting under the 2014 DAU period. Our position is that Aurizon Network's proposed scope under the 2014 DAU would result in an overstatement of efficient scope and hence lead to an over-recovery by Aurizon Network of costs beyond an efficient level.

While we are required to make our consolidated draft decision on the basis of the ballast undercutting proposal originally submitted by Aurizon Network in the 2014 DAU, we have taken Aurizon Network's revised proposal into account in our analysis (and that revised proposal is relevant to the manner in which we consider the 2014 DAU should be amended).

We engaged CMT Solutions (CMT) to review Aurizon Network's revised proposal for ballast undercutting. The scope of consultancy comprised the assessment of:

- efficient scope[289]
  - reviewing the robustness of Aurizon Network's revised approach to scope development, including its use of the GPR data
  - identifying Aurizon Network's deliverable scope taking into account its capabilities
- efficient costs that reflect the efficient scope.

We have taken into account CMT's findings for the purposes of our analysis.

Overall scope

It was found that the ballast undercutting scope on which Aurizon Network had developed its revised costs did not match with its submission (see Table 70). The scope in Aurizon Network's cost model is as follows:

[288] Vale, sub. 54: 4.

[289] This excludes the scope proposed by Aurizon Network for 2013–14 as it was based on actual scope.

Table 72 Aurizon Network's revised ballast undercutting scope based on its cost model

	2013–14[a]	*2014–15*	*2015–16*	*2016–17*	*Total*
Mainline undercutting—linear distance (km)[b]	118	129	133	140	**520**
Turnouts (unit)	41	54	57	58	**210**

a *Aurizon Network has already completed the scope for 2013–14.* ***b*** *Assuming a standard ballast depth of 300mm. Source: Aurizon Network ballast cost model.*

Aurizon Network later clarified that it undercut 41 turnouts (rather than 68) in 2013–14. It also confirmed that, while its commitment is to undertake 140 km of mainline undercutting in the final three years of the 2014 DAU, its revised costs had been developed on the basis of the scope identified in Table 72.

Aurizon Network did not provide further clarification regarding the disparity in scope, but noted:[290]

> *If Aurizon Network was/is to deliver the 140 kms in both FY15 and FY16, it would do this by increasing the Off Track Solution method due to the RM900 undercutting machine operating at full capacity. This requires an increase in Aurizon Network's ballast undercutting allowance for the additional scope of 11 Kms in FY15 and 7Kms in FY16. Based on Aurizon Network's unit rates for this activity, this would lead to an additional cost of $9.6M in UT4, split $5.5M in FY15 and $4.1M in FY16.*

Mainline

With respect to the GPR data, CMT replicated the procedure used by Aurizon Network and estimated that only 275 km of track had a PVC level higher than 30 per cent, as of July 2014 (compared with 373 km claimed by Aurizon Network).[291] Additionally, 145 km of track would move into this category (above 30 per cent PVC) over the final three years of the 2014 DAU period (compared with 185 km estimated by Aurizon Network).[292] This process reduced the GPR-derived mainline undercutting scope from 500.9 km to 420.1 km for the last three years of the UT4 period.

CMT also noted that Aurizon Network's current capabilities would allow them to deliver up to 140 km of standardised mainline ballast undercutting, but only after the implementation of all the operational activities Aurizon Network proposed for the 2014 DAU period, including the delivery of all 24 spoil wagons, which was expected in late 2014–15.[293]

Based on best available information, we consider Aurizon Network's mainline undercutting capabilities for the final three years of the 2014 DAU are as identified in Table 72, which are lower than 140 km of standardised undercutting for 2014–15 and 2015–16. Accordingly, the required scope derived from CMT's interpretation of the GPR data is effectively beyond Aurizon Network's capacity.

Therefore, we consider Aurizon Network's revised scope as identified in its cost model for the final three years of the 2014 DAU to be efficient.

[290] Aurizon Network RFI.
[291] CMT 2015: 19.
[292] CMT 2015: 19.
[293] CMT 2015: 30.

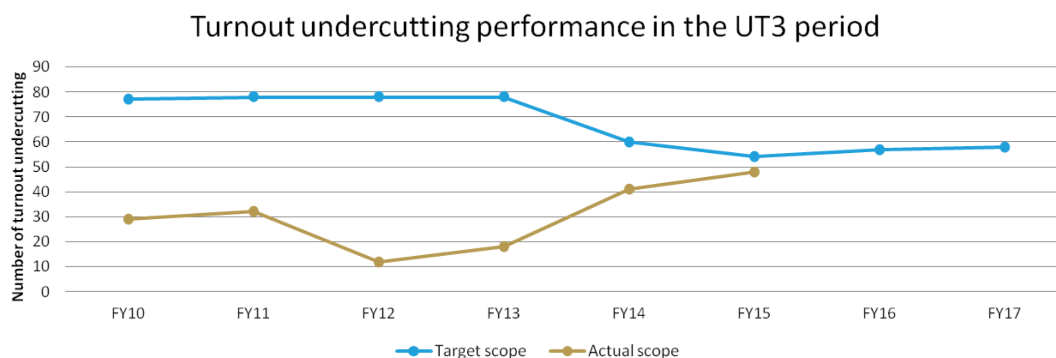
Turnouts

It is understood that, at a strategic level, Aurizon Network determined its required turnout scope using the National Strategic Asset Plan (NSAP) model.[294] This model employs tonnage usage wear rates and design life of the asset to determine a strategic turnout undercutting scope.

Due to the complexity of the NSAP model, CMT was not able to assess the process which Aurizon Network had used to establish its revised scope for turnout undercutting. Nevertheless, CMT found that the GPR data suggested that only 121 turnouts (compared with 169 proposed by Aurizon Network) would need to be cleaned over the final three years of the 2014 DAU period.[295]

CMT also noted that Aurizon Network significantly under-delivered its UT3 scope for turnout undercutting (see Figure 13). For 2013–14 (the first year of the 2014 DAU period), in which the turnout undercutting scope was determined using the NSAP model, Aurizon Network under-delivered the scope by approximately 40 per cent.

Figure 13 Turnout undercutting performance in across UT3 and 2014 DAU period



After taking CMT's assessment into account, we do not consider Aurizon Network's revised turnout scope is efficient. We consider it efficient to estimate the turnout scope based on the GPR data, as such methodology takes into account the actual ballast condition. We consider that the historical underperformance, as noted by CMT, could either indicate that Aurizon Network's scope model was inaccurate (and inefficient) or there is an accumulation of backlog of turnout undercutting (where users should not pay twice for the same service). We consider neither outcome would likely to be consistent with the object of Part 5 of the QCA Act, as well as the interests of access seekers, access holders and public interest.

On this basis, for the purpose of setting efficient costs, we consider it appropriate to amend the turnout scope to only undercut 121 turnouts over the final three years of the 2014 DAU period. Based on available information, we consider our proposed turnout undercutting scope reflects the efficient scope.

Further, we propose to accept Aurizon Network's actual scope (for mainline and turnouts) for 2013–14 as it represents the best estimate of efficient scope for that year on the basis of the information available to us. As seen below, we have assessed the efficiency of its 2013–14 actual costs as part of this consolidated draft decision.

[294] Aurizon Network RFI.
[295] CMT 2015: 13.

Overall, we consider it appropriate for Aurizon Network to amend its ballast undercutting scope for the 2014 DAU to as follows:

Table 73 QCA ballast undercutting scope for the 2014 DAU period

	2013–14[a]	*2014–15*	*2015–16*	*2016–17*	*Total*
Mainline undercutting—linear distance (km)[b]	118	129	133	140	**538**
Turnouts (unit)	41	40	40	41	**162**

a Aurizon Network has already completed the scope for 2013–14. b Assuming a standard ballast depth of 300mm.

As part of this consolidated draft decision, we have also required Aurizon Network to strengthen the reporting regime in Part 10 of the 2014 DAU to improve transparency and accountability in its maintenance performance (see Chapters 6 and 23).

Conclusion

For the reasons outlined above, the 2014 DAU ballast undercutting scope proposed by Aurizon Network would result in an overstatement of efficient scope and hence lead to an over-recovery by Aurizon Network of its costs relative to an efficient level. It was clear that the scope originally proposed by Aurizon Network would not be deliverable given Aurizon Network's current capabilities. This outcome would not accurately reflect the legitimate business interests of Aurizon Network and would not be in the public interest or the interests of relevant stakeholders. Over-recovery would also reduce incentives for Aurizon Network to reduce costs or otherwise improve productivity. In addition, such an outcome would not promote the economically efficient operation and use of, and investment in, infrastructure underpinning the service, and may have detrimental effects on competition in upstream and downstream markets.

We have therefore decided to refuse to approve Aurizon Network's proposed ballast undercutting scope in the 2014 DAU.

We consider it appropriate for Aurizon Network to amend the 2014 DAU in the manner outlined in Table 73. Our proposed amendments would prevent Aurizon Network from over-recovering on ballast undercutting costs. This would accurately reflect Aurizon Network's legitimate business interests and would generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service and provide a risk-adjusted return on investment to Aurizon Network.

Our proposed amendments would also appropriately balance Aurizon Network's interests, the public interest, and the interests of relevant stakeholders. This, in turn, would promote the objective of Part 5 of the Act and provide incentives for Aurizon Network and relevant stakeholders to reduce costs or otherwise improve productively.

24.3 Ballast undercutting costs

Direct ballast undercutting costs consist of internal and external resources (e.g. labour, professional services, freight, fuel, ballast materials) used in undertaking ballast undercutting activities. Aurizon Network also classifies the return of capital associated with maintenance assets (such as the RM900 machine) as direct costs, but not the return on capital which is included as indirect costs (addressed in the previous chapter of this consolidated draft decision).

Under the 2014 DAU proposal, Aurizon Network proposed a total of $326.62 million (in nominal terms) for direct ballast undercutting over the 2014 DAU period. Aurizon Network's proposed costs were approximately 90 per cent higher, in real terms, than its actual ballast undercutting costs in the UT3 period.

24.3.1 QCA MAR draft decision

Our MAR draft decision proposed to reduce Aurizon Network's proposed ballast undercutting costs by one-third. We then made further adjustments to the cost allowance to take account of changes in forecast volumes which were expected to be correlated to ballast undercutting costs.

Our full analysis and reasoning is contained in section 6 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

Our MAR draft decision was as follows:

> *6.1 We refuse to approve Aurizon Network's proposed ballast cleaning costs for the 2014 DAU. We consider we would accept a ballast cleaning allowance for the 2014 DAU, consistent with Table 63.*

Our proposed adjustments to Aurizon Network's ballast undercutting cost allowance identified in our MAR draft decision are presented in Table 74.

Table 74 QCA MAR draft decision proposed adjustments to Aurizon Network's ballast undercutting costs ($2011–12 million)

	2013–14	***2014–15***	***2015–16***	***2016–17***
Aurizon Network proposed costs	62.8	73.2	74.6	75.3
QCA proposed adjustments for scope	(20.9)	(24.4)	(24.9)	(25.1)
QCA adjustments for volumes	6.1	(4.4)	0.3	(1.6)
QCA proposed costs ($2011–12)	**48.0**	**44.4**	**50.0**	**48.6**
QCA proposed costs (nominal)	**50.7**	**48.1**	**55.5**	**55.6**

Sources: QCA 2014h: 143.

24.3.2 Aurizon Network's response

While we are required to make our consolidated draft decision on the basis of the maintenance costs originally submitted by Aurizon Network in the 2014 DAU, we have taken Aurizon Network's revised proposal into account in our analysis (and that revised proposal is relevant to the manner in which we consider the 2014 DAU should be amended).

In response to our MAR draft decision, Aurizon Network amended its proposed scope and costs for ballast undercutting. Overall, Aurizon Network has reduced its proposed costs by $36 million (in $2011–12 terms) over the 2014 DAU period relative to its original proposal, but the revised total remains approximately $59 million higher than our draft allowance.

Table 75 Aurizon Network's revised ballast undercutting costs for the 2014 DAU period ($2011–12 million)

	2013–14[a]	*2014–15*	*2015–16*	*2016–17*	*Total*
Mechanised (mainline) ballast undercutting	41.1	49.8	57.3	58.2	**206.4**
Other ballast undercutting	4.4	4.4	4.4	4.5	**17.7**
Turnouts	5.1	5.6	5.6	5.8	**22.1**
GPR measurement	1.1	1.1	1.1	1.1	**4.4**
Total costs ($2011–12)	**51.6**	**60.9**	**68.4**	**69.6**	**250.5**
Total costs (nominal)	**54.6**	**66.3**	**76.2**	**80.4**	**277.5**

a *Aurizon Network already completed the scope for 2013–14. Source: Aurizon Network ballast cost model.*

With respect to our MAR draft decision, Aurizon Network said that our proposed cost allowance for ballast undercutting would only allow completion of 209 km of mainline undercutting out of the revised scope of 538 km, with no turnout undercutting at all. Aurizon Network said this is inconsistent with its legitimate business interests to maintain a safe, efficient and operational network, with minimal disruption to the supply chain arising from infrastructure failure or unplanned maintenance.[296]

Aurizon Network said that our proposed cost adjustments erroneously assumed 100 per cent of the ballast undercutting costs were variable—but the variable component was only approximately 56 per cent of the total costs for the 2014 DAU period.[297] Aurizon Network said that it incurs fixed costs even when the ballast undercutting machine is not in operation.

Aurizon Network said that its revised costs have been built on the basis of its revised scope, and additional cost savings have been included.[298] Cost savings were identified in hiring rather than purchase of specific machinery, freight cost savings due to more targeted deployment of spoil wagons, and higher ballast return rates in 2013–14.

With respect to procurement of the 24 spoil wagons, Aurizon Network said:[299]

> *... neither its original 2013DAU nor its revised 2014DAU allowance for Ballast Undercutting includes any capital funding for the spoil wagons. Aurizon Network reiterates that these wagons have been procured and are expected to be delivered during the 2nd half of FY15.*

Aurizon Network said that it decided not to procure the additional 44 spoil wagons in the UT3 period, and instead prudently redirected the 'wagon allowance' to other ballast undercutting capital projects.[300] It noted that the UT3 approved 'wagon allowance' amounted to $53 million (in nominal terms).

[296] Aurizon Network, sub. 59: 139.
[297] Aurizon Network said it accounts for labour as fixed costs due to it being treated under Enterprise Agreement arrangements (Aurizon Network, sub. 59: 138).
[298] Aurizon Network, sub. 59: 139–40.
[299] Aurizon Network, sub. 59: 129.
[300] Aurizon Network, sub. 59: 128–29.

In addition, Aurizon Network has also included cost allowance for additional GPR runs over the 2014 DAU period.[301] It said that more GPR data is required in the short run for the development of a better ballast management plan; the number of GRP runs required is expect to fall over time.

24.3.3 Stakeholders' comments on the MAR draft decision

Stakeholders supported our MAR draft decision to reduce Aurizon Network's cost allowance for ballast undercutting. Asciano, however, cautioned that any further reduction in maintenance costs generally might impact Aurizon Network's ability to maintain the track quality and hence lead to supply chain issues.[302]

24.3.4 QCA analysis and consolidated draft decision

After having regard to the section 138(2) factors and stakeholder submissions, our consolidated draft decision is to refuse to approve Aurizon Network's proposed ballast undercutting costs under the 2014 DAU. Our position is that Aurizon Network's proposed costs under the 2014 DAU would result in an over-recovery by Aurizon Network of its costs relative to an efficient level.

While we are required to make our consolidated draft decision on the basis of the maintenance costs originally submitted by Aurizon Network in the 2014 DAU, we have taken Aurizon Network's revised proposed into account in our analysis (and that revised proposal is relevant to the manner in which we consider the 2014 DAU should be amended).

Mainline

We consider Aurizon Network's revised costs for mainline undercutting are unlikely to represent efficient costs. In coming to this view, we have considered the following:

- trend analysis
    - (i) unit costs within the 2014 DAU period
    - (ii) historical costs in the UT3 period
- individual cost components
- independent cost estimate.

Trend analysis

The actual unit cost for 2013–14 was approximately $348,462 in real terms.[303] Under Aurizon Network's revised proposal, the unit cost would increase by more than 10 per cent in real terms consecutively for 2014–15 and 2015–16.

The unit costs (in real terms) for the 2014 DAU period are also relatively high when compared with UT3 actual costs, except for 2012–13 where Aurizon Network acknowledged that the ballast return rate was only 10 per cent (against a normal rate of higher than 50 per cent) as a result of significant wet weather.[304]

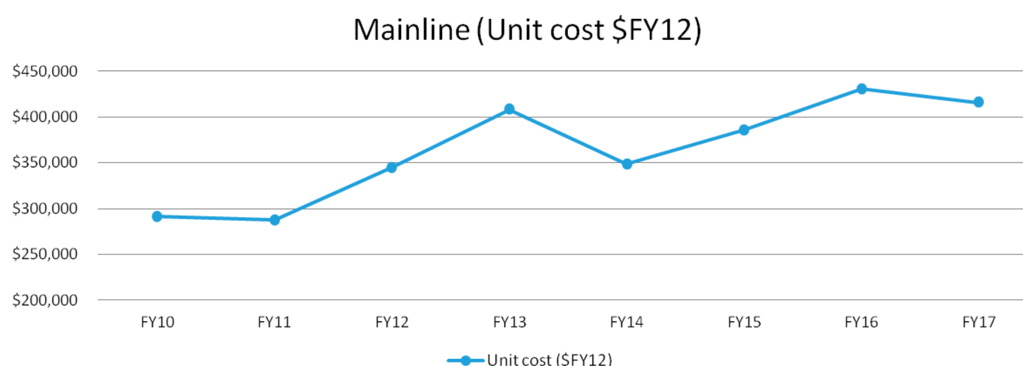
The significant year-on-year increase in unit cost does not appear to factor in any economies of scale, as well as the fact that the new spoil wagons should improve the productivity of the

[301] Aurizon Network, sub. 59: 140.
[302] Asciano, sub. 52: 7.
[303] Denoted in 2011–12 dollar terms.
[304] Aurizon Network 2013: 13.

RM900 operation and hence reduce the need for less efficient undercutting methods (Aurizon Network in its original 2014 DAU submission had noted such productivity gain).

We consider that these observations provide some indication that Aurizon Network's revised costs might not reflect efficient costs.

Figure 2 Unit cost of mainline undercutting across UT3 and 2014 DAU periods ($2011–12)



Individual cost component

CMT found that many individual cost components (under the revised proposal) would increase significantly in the 2014 DAU period, including labour, ballast raw material, trade service, etc.[305] Many of these increases do not appear to represent efficient costs based on information available to us.

Table 76 highlights some (but not all) of the individual components where significant increases have been proposed by Aurizon Network (note that we have actual costs for 2013–14).

Table 76 Analysis of Aurizon Network's cost components for mainline ballast undercutting

Cost component	***Cost for 2016–17***	***QCA analysis***
Ballast raw material	$11.6 million	Ballast raw material costs would increase by 55 per cent in nominal terms from 2013–14 (actual costs) to 2016–17. One of key drivers is Aurizon Network's proposal (in accordance to its cost model) to shift to on-site sourcing rather than from quarries. Aurizon Network said on-site sourcing is used on occasions where the ballast train cannot supply sufficient ballast to a work site, and would be necessary for the planned scope to be delivered. It also acknowledged that on-site sourcing is a less efficient method. Under its cost model, Aurizon Network proposed to source more than 50 per cent of ballast through on-site sourcing starting from 2015–16, relative to 19 per cent for 2014–15, for RM900 operation (i.e. C01). The year-on-year increase in C01 scope between the two years is approximately 7 per cent. CMT estimated that this shift would cause the costs to increase by approximately $1 million per year. CMT also found that the shift to on-site sourcing has not led to a corresponding decrease in freight costs under Aurizon Network's cost model.[306]

[305] CMT 2015: 35–36.
[306] CMT 2015: 37.

Cost component	*Cost for 2016–17*	*QCA analysis*
		Moreover, Aurizon Network's public submission noted that it had applied a ballast return rate assumption of 70 per cent in its cost build-up.[307] It said that the actual ballast return rate for 2013–14 were 74 per cent. Nevertheless, as found by CMT, Aurizon Network's cost model assumed a screenability rate closer to 30 per cent. CMT also found that Aurizon Network forecasted many sites requiring a total excavation where all ballasts would be replaced. Based on available information, we consider Aurizon Network's proposed costs for ballast raw materials are unlikely to reflect efficient costs. We do not consider that the increase in C01 scope would justify such a significant shift to on-site sourcing, which is the less efficient method as acknowledged by Aurizon Network. It is unclear how Aurizon Network had incorporated the ballast return rate assumption (i.e. 70 per cent) in its model.
Trade service and hire charge	$17.5 million	The actual trade service costs for 2013–14 were approximately $800,000, and would increase to approximately $2.5 million in the remaining years of the 2014 DAU period. This represents an increase above 200 per cent. Similarly, the hire charge costs would increase by 52 per cent in nominal terms from 2013–14 (actual costs) to 2016–17. Aurizon Network said the cost increases reflect the use of labour hire and contractors to make up for the reduction in permanent FTE of 10, as well as meeting the increased scope over the years that would be met by C14 off-track scope which is contracted out.[308] We consider the proposed cost increase is unlikely to reflect efficient costs. The labour and overtime costs would increase significantly under Aurizon Network's proposal (16 per cent from 2013–14 to 2016–17). This appears to contradict Aurizon Network's assertion that the increase in external costs is driven by the permanent reduction in FTE. Besides that, while the forecast C14 scope would decrease by 13 per cent from 2014–15 to 2015–16, this is not followed by a corresponding decrease in trade service and hire charge costs. This again contradicts Aurizon Network's justification for the proposed cost increase.
On-track vehicle maintenance	$8.6 million	On-track vehicle maintenance costs would increase by 126 per cent in nominal terms from 2013–14 (actual costs) to 2016–17. One key driver is Aurizon Network's assumption that, on a year-on-year basis, the cost to maintain the majority of the ballast undercutting assets would increase by 30 per cent or above. For the new 24 wagons, the year-on-year increase in cost to maintain them would be 20 per cent under Aurizon Network's proposal. We consider the proposed cost increase is unlikely to reflect efficient costs. While we acknowledge that some of the maintenance assets are aging, we do not consider this justifies such significant nominal year-on-year increases as proposed by Aurizon Network. Further, as noted above, the proposed cost increase also includes the cost to maintain new assets such as the 24 spoil wagons.

We also note that the intercompany charges and professional services would increase by approximately 1200 per cent and 173 per cent respectively from 2013–14 (actual costs) to 2016–17, nevertheless, these components are relatively immaterial relative to others identified in Table 76.

[307] Aurizon Network, sub. 59: 140.
[308] Aurizon Network RFI.

Independent cost estimate

As part of its assessment, CMT developed its first principles cost estimates based upon capital costs and market prices that were sourced from recent projects.[309] CMT found the expected industry range for mainline undercutting would be $280,000–$340,000, which indicated that Aurizon Network's forecast unit rates (under its revised proposal) were particularly high.

CMT said that high levels of fouling and inefficiencies in planning can cause significant increases in unit rate costs.[310] In CMT's view, the assumptions underlying Aurizon Network's revised costs appear to be inconsistent with the fact that Aurizon Network claims to have implemented significant cost cutting initiatives and its intervention rate.[311] That is, if ballast undercutting has been and will indeed be undertaken, on average, when a segment reaches 30 per cent PVC level, Aurizon Network's unit cost should be materially lower.

Based on information available, CMT considered a unit cost of $400,000 (in $2014–15) for mainline undercutting to more appropriately reflect efficient costs, and this rate allows a contingency for climatic conditions and market factors that affect rail access.[312]

Consolidated draft decision

After considering all the information above, our consolidated draft decision is that Aurizon Network's revised costs for mainline undercutting are unlikely to represent efficient costs. We consider it appropriate to adopt the CMT's recommended unit rate of $400,000 (in $2014–15, escalated at our proposed MCI) for mainline undercutting, for 2014–15 to 2016–17.

We consider this unit cost reflects efficient costs. We consider that empirical evidence supports this unit rate of $400,000 (in $2014–15) reflects efficient costs. In real terms it is higher than actual costs in all previous years, except for 2013–14 where the ballast return rate was only 10 per cent as a result of significant wet weather.

Accordingly, we apply this unit rate to the mainline undercutting scope as set out in Table 73. For 2013–14, we accept Aurizon Network's actual mainline undercutting costs as they appear to be efficient based on the information available to us. Our proposed allowance for mainline undercutting is presented in Table 77.

Turnout

We consider Aurizon Network's revised costs for turnout undercutting are unlikely to represent efficient costs. Our analysis is set out below.

The actual unit cost of turnout undercutting for 2013–14 was $123,735 in real terms ($2011–12), and would fall to approximately $100,000 for the next three years of the 2014 DAU period under Aurizon Network's revised costs. CMT, however, noted for 2013–14 there were more common costs allocated to turnout undercutting relative to the remaining years of the 2014 DAU.[313] Once this is accounted for, the unit costs of turnout undercutting are largely stable over the 2014 DAU period under Aurizon Network's revised proposal.

The proposed unit costs for the 2014 DAU period appear to be at the high range when compared with the UT3 actual costs.

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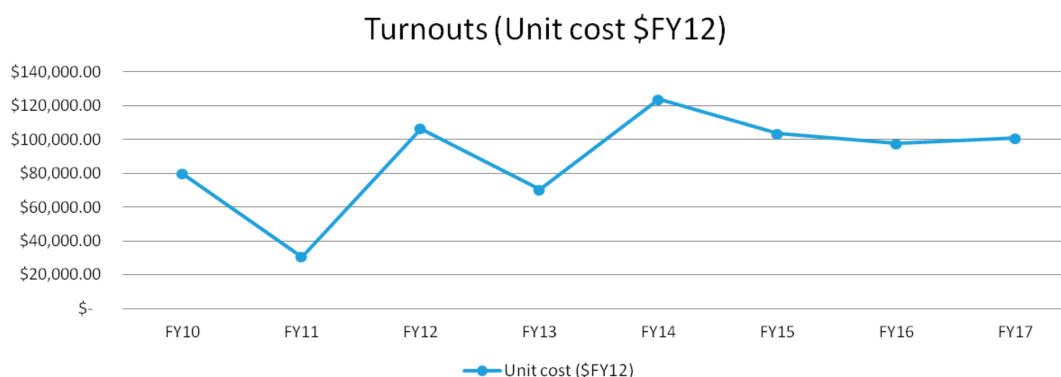
[309] CMT 2015: 45–47. The adopted assumptions were developed from CMT's professional experience and previous benchmark exercises.
[310] CMT 2015: 46.
[311] CMT 2015: 45–47.
[312] CMT 2015: 47.
[313] CMT 2015: 39.

Figure 14 Unit cost of turnout undercutting across UT3 and 2014 DAU periods ($2011–12)



Based on available information, we consider Aurizon Network's unit cost of turnout undercutting is efficient. Given that we consider the efficient scope for turnout undercutting should be lower than Aurizon Network's revised scope, we propose deductions to Aurizon Network's revised costs for turnouts based on a fixed/variable split of 45/55. Our proposed deductions are as set out in Table 77.

GPR costs

CMT found that no GPR measurement was undertaken in 2014–15 even though Aurizon Network had proposed a GPR allowance for each year of the 2014 DAU period.[314] Aurizon Network indicated to CMT that no further GPR run is planned until new analytical software has been procured—expected in 2016–17.

Given the uncertainty regarding further GPR runs in the 2014 DAU, we propose to remove all GPR allowances, except for 2013–14 which was already delivered (the 2014 GPR run used in the revised scope). We propose to amend the revenue cap provision under the 2014 DAU to allow Aurizon Network to recoup the efficient costs associated with further GPR runs should they be undertaken in the 2014 DAU period.[315] Our proposed adjustments include a small adjustment to the 2013–14 GPR allowance to reflect actual costs.

We consider our proposed arrangement promotes efficient costs for GPR, and appropriate balances the interests of all parties, including Aurizon Network's legitimate business interests.

Funding of spoil wagons

We identified that Aurizon Network's cost model included depreciation costs for 24 new spoil wagons, and the associated return on capital was included in its proposed indirect maintenance costs. We sought clarification from Aurizon Network as this seemed inconsistent with its written submission. Aurizon Network later clarified that their intention is to recover the capital costs associated with the 24 new ballast wagons, over the asset life, through the return on and return of (depreciation) capital included in the maintenance costs.[316]

In the UT3 decision, we approved a 'wagons and related costs' allowance for the procurement of 44 ballast spoil wagons.[317] This allowance, embedded in the UT3 ballast undercutting allowance, is equivalent to $61 million in NPV terms (as of the beginning of UT4), of which $43

[314] CMT 2015: 49.
[315] See Schedule F, clause 4.3(c)(v) in our CDD amended 2014 DAU.
[316] Aurizon Network RFI.
[317] QCA 2010b, 78–79.

million was related to the return on and of capital (not the full upfront capital cost) of the wagons. Unlike for capex (which would be subject to an ex post review), there was no clawback provision for maintenance costs (opex) under the 2010 AU. The return on and return of (depreciation) capital of all maintenance-related capex were included in the MAR as if it were opex.

Based on the information available to us, we consider it appropriate to approve the capital costs (in the form of return on and return of capital) associated with the new spoil wagons to be included in the maintenance cost allowance. Our reasoning is as follows:

- Aurizon Network's actual mainline undercutting scope during UT3 was adequate—the 2013 condition-based assessment indicated that the CQCN was in good overall condition—and it was undertaken without needing to purchase the wagons. There is limited justification to 'penalise' Aurizon Network for not performing the required cleaning.
- To provide incentives for Aurizon Network to reduce costs, we do not typically adjust future opex for an underspend of historical approved opex. If a regulated entity is able to spend less than the allowance, but still undertake sufficient (and efficient) activity, then we allow it to retain the underspend. To adjust future costs for a previous underspend would remove the incentive for Aurizon Network to seek future efficiencies which would likely lead to higher costs over the long term.

We consider our position with respect to the treatment of the new wagons reflects efficient costs and appropriately balances the interests of all parties, including Aurizon Network's legitimate business interests. We also consider it aligns with the pricing principles identified in section 168A, by providing incentives for Aurizon Network to reduce costs over time.

Conclusion

Overall, we consider that an allowance of $250 million for UT4 is appropriate. This is $27 million less than Aurizon Network's revised proposal. We consider it appropriate for Aurizon Network to amend the ballast undercutting costs to as follows:

Table 77 QCA adjustments to Aurizon Network's ballast undercutting costs ($ million, nominal)

	2013–14	*2014–15*	*2015–16*	*2016–17*
Aurizon Network original proposal ($2011–12)	62.8	73.2	74.6	75.3
QCA MAR draft decision ($2011–12)	48.0	44.4	50.0	48.6
Aurizon Network revised proposal ($2011–12)	51.6	60.9	68.4	69.6
Aurizon Network revised proposal (nominal)	54.6	66.2	76.2	80.4
QCA adjustments against revised proposal (nominal)				
• Mainline undercutting	—	(2.6)	(9.4)	(8.5)
• Turnout	—	(1.0)	(1.0)	(1.1)
• GPR measurement	0.0	(1.2)	(1.2)	(1.2)
QCA consolidated draft decision (nominal)	**54.6**	**61.5**	**64.6**	**69.7**
QCA consolidated draft decision ($2011–12)	**52.2**	**57.9**	**59.4**	**62.4**

Our proposed amendments would prevent Aurizon Network from over-recovering on ballast undercutting costs. This would accurately reflect Aurizon Network's legitimate business interests and would generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service and provide a risk-adjusted return on investment to Aurizon Network.

Our proposed amendments would also appropriately balance Aurizon Network's interests, the public interest, and the interests of relevant stakeholders. In addition, this would promote the objective of Part 5 of the Act and provide incentives for Aurizon Network and relevant stakeholders to reduce costs or otherwise improve productivity.

Consolidated draft decision 24.1

(1) **After considering Aurizon Network's proposal of ballast undercutting costs our consolidated draft decision is to refuse to approve Aurizon Network's original proposal.**

(2) **We consider it appropriate for Aurizon Network to amend the 2014 DAU to make the adjustments as specified in Table 77.**

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the above reasons.

24.4 UT3 ballast impairment charge

As part of the UT3 consolidated draft decision, we imposed an annual ballast impairment charge on Aurizon Network to address a backlog of ballast undercutting that was required over the UT3

and UT4 periods. The impairment charge, applicable in the period from 2010–11 to 2016–17, had an NPV value of –$107 million (in $2009–10 terms).

At that time, we said we would consider reversing the decision if Aurizon Network could demonstrate its past approaches to ballast fouling had been cost effective and it had adopted an efficient approach to maintaining ballast (whether through ballast cleaning and/or fouling prevention).

Aurizon Network's 2014 DAU proposed to reverse the ballast impairment charge associated with the 2014 DAU period, as well as to recover the revenue loss associated with the UT3 period (in which it already incurred) resulted from the charge. Aurizon Network considered the impairment charge unreasonable because:

- It did not have direct control over the factors that lead to coal spillage which is not necessarily its primary responsibility.
- The UT3 decision did not take into account the information and standards available to its management at that time.
- It would not have reasonably foreseen that the RAB would be reduced for its management's failure to observe the relevant standards in relation to coal fouling
- The application of the HVCN as a comparator for the purposes of assessing the efficiency of ballast cleaning was inappropriate.

QCA MAR draft decision

In our MAR draft decision we proposed to reverse the ballast impairment charge associated with the 2014 DAU period, but not the UT3 period.

Our full analysis and reasoning is contained in chapter 6 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

Our MAR draft decision was as follows:

> *6.2 Our Draft Decision is to refuse to approve Aurizon Network's proposal that we reverse the ballast impairment charge attributable to the UT3 period. We consider that the 2014 DAU should remove this proposal.*
>
> *6.3 We propose to approve Aurizon Network's proposal that the ballast impairment charge associated with the 2014 DAU period (but not other) be reversed.*

Overall, we did not consider Aurizon Network had provided sufficient evidence to convince us that our UT3 decision to reduce the RAB should be reversed. Specifically, we did not consider Aurizon Network had provided sufficient evidence to show its ballast maintenance approach prior to UT3 was cost effective or efficient. For this reason, we did not propose to accept Aurizon Network's proposal to revise the UT3 ballast impairment charge associated with the UT3 period.

On the other hand, while we considered there might be a case to continue the ballast impairment charge associated with the 2014 DAU period, our preferred approach to dealing with efficient ballast undercutting costs in the 2014 DAU was through a direct adjustment to the ballast undercutting cost allowance. Hence, we proposed to reverse the ballast impairment charge associated with the 2014 DAU period. We emphasised that this was considered as an overall package of measures for ballast undercutting for the 2014 DAU.

24.4.1 Aurizon Network response

Aurizon Network accepted our proposal for the treatment of the ballast impairment charge. It acknowledged that the revenue loss (arising from the charge) that it incurred in the UT3 period reflected the cost associated with the ballast undercutting underperformance in regulatory periods prior to UT3. Likewise, it said the condition-based assessment results and the improvements to its ballast management practices, justified our decision not to extend the impairment charge into the 2014 DAU period.[318]

Aurizon Network also said that any further consideration to future impairment charges must be based on a detailed cost-benefit analysis.

24.4.2 Stakeholders' comments on the MAR draft decision

The QRC said it was not aware that Aurizon Network had attempted to study the efficient approach to ballast fouling. It did not understand why this was the case, given the level of contention around this issue and Aurizon Network is best placed to undertake such a study. Therefore, it considered that the impairment charge associated with the UT3 period should not be reversed and suggested us to require Aurizon Network to conduct a full cost-benefit analysis of approaches to the management of ballast fouling.[319]

Asciano said that it might be problematic to re-open an assessment of costs incurred prior to 2010, and this would distort the incentives for Aurizon Network to reduce costs[320].

Stakeholders emphasised that the package of our consolidated draft decisions on the ballast undercutting issue, including the treatment of the UT3 ballast impairment charge, should reflect a consistent view of the ballast condition in the CQCN.

24.4.3 QCA analysis and consolidated draft decision

We have considered all submissions. Aurizon Network accepted our MAR draft decision and stakeholders did not object to our MAR draft decision. We therefore consider there is no reason to change our view expressed in chapter 6 of our MAR Draft Decision based on the reasoning and analysis set out in that chapter insofar as it related to this issue.

We therefore refuse to approve any reversal of the ballast impairment charge for the UT3 period (or simulating such an effect by reconciliation payments), but we approve the removal of the ballast impairment charge associated with the 2014 DAU period, but not the UT3 period.

We consider our consolidated draft decision would accurately reflect Aurizon Network's legitimate business interests and would generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service and provide a risk-adjusted return on investment to Aurizon Network.

Our proposed amendments would also appropriately balance Aurizon Network's interests, the public interest, and the interests of relevant stakeholders. In addition, this would promote the objective of Part 5 of the Act and provide incentives for Aurizon Network and relevant stakeholders to reduce costs or otherwise improve productivity.

[318] Aurizon Network, sub. no. 59: 122.
[319] QRC, sub. no. 62: 17.
[320] Asciano, sub. no. 52: 7.

Consolidated draft decision 24.2

(1) **After considering Aurizon Network's proposal of the ballast impairment charge, our consolidated draft decision is to refuse to approve any reversal of the ballast impairment charge for the UT3 period (or simulating such an effect by reconciliation payments), but we approve the removal the ballast impairment charge associated with the 2014 DAU period.**

(2) **We consider it appropriate for Aurizon Network to amend the 2014 DAU as per Aurizon Network's December 2014 submission. The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to remove the proposal to reverse the ballast impairment charge attributable to the UT3 period.**

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the above reasons.

25 OPENING ASSET VALUE

The opening regulatory asset base (RAB) for UT4 is derived via the roll-forward process in accordance with section 1.2 of Schedule A of the 2010 Undertaking (UT3). The roll-forward process reflects:

- *indexation for inflation using the CPI (All groups Brisbane)*
- *depreciation, applying the asset lives and depreciation profile approved by the QCA*
- *adjustments for disposals and transfers of assets in the RAB*
- *the inclusion of UT3 capital expenditure that has been approved by the QCA, based on the final balance of the capital expenditure carryover account.*

25.1 Opening asset base (RAB roll-forward)

25.1.1 Aurizon Network's proposal

Aurizon Network's RAB for the 2014 DAU is to be rolled forward as per the proposed 2014 DAU Schedule E, clause 1.1, for which the opening balances are rolled forward consistent with clause 1.2, Schedule A of the 2010 AU.

Aurizon Network's 2013 DAU proposed an opening asset value of $4.90 billion as at 1 July 2013. This was subsequently revised to $4.86 billion following approval of Aurizon Network's 2011–12 capital expenditure (October 2013), RAB roll-forward (December 2013) and 2012–13 capital expenditure (May 2014).

We explained our approach in chapter 7 of the MAR draft decision. We have adopted that analysis for the purposes of this consolidated draft decision, subject to the comments below.

25.1.2 Legislative framework

We are required to assess the appropriateness of Aurizon Network's proposal having regard to all of the criteria in section 138(2) of the QCA Act. In the context of assessing Aurizon Network's proposal, we must have regard to the factors listed in section 138(2) and weight them appropriately, as discussed in Chapter Two of this consolidated draft decision.

In this case, Aurizon Network's proposal relates to the opening asset base for the RAB roll-forward from UT3 into the draft access undertaking.

Against this background we consider:

- section 138(2)(a), (b), (d), (e), (g) and (h) should be given more weight, as identified below
- section 138(2)(g) refers to the pricing principles mentioned in section 168A, of which we consider sections 168A(a), (c) and (d) should be given more weight, as identified below
- sections 138(2)(c), 138(2)(f) and 168A(b) should be given less weight as they are less practically relevant to our assessment of the opening asset value.

Prudent and efficiently incurred infrastructure investment

Section 138(2)(a) of the QCA Act requires that we have regard to the object of Part 5 of the QCA Act as set out in section 69E, namely to promote the economically efficient operation, use of and investment in the CQCN, as the significant infrastructure by which services are provided, with the effect of promoting effective competition in upstream and downstream markets.

Sections 138(2)(g) and 168A 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.

To meet these objectives, the return on and of capital must reflect prudent and efficiently incurred infrastructure investment in the CQCN. In broad terms, we consider, pursuant to section 138(2)(b) of the QCA Act, that the legitimate business interests of Aurizon Network will be met if it is permitted to recover a regulated return on capital and the depreciation allowance associated with prudently and efficiently incurred infrastructure investment in the CQCN.

Conversely, sections 138(2)(e) and (d) require us to have regard to the interests of access seekers and the public interest. We also consider that the rights of existing access holders are relevant under section 138(2)(h), to the extent they are not already 'access seekers' under section 138(2)(e). As identified earlier, consideration of all of these interests leads to a conclusion that Aurizon Network should be permitted to recover expected revenue for the service that is at least enough to meet the efficient costs of providing access service and including a return on investment commensurate with the regulatory and commercial risks involved, as identified in section 168A(a). However, consideration of all those interests also leads to the conclusion that Aurizon Network should be permitted to recover expected revenue that is no more than enough to meet such efficient costs and including that risk-adjusted return on investment. In this manner, effective competition in markets upstream and downstream of the CQCN will be promoted as contemplated by the objective of Part 5 specified in section 69E of the QCA Act.

Moreover, if Aurizon Network is permitted to recover only its efficient costs and risk-adjusted return on investment (i.e. at least enough and no more than enough), it will have incentives to reduce costs and otherwise improve productivity for the purposes of section 168A(d) and will have less scope to discriminate in favour of its downstream operations—which could otherwise raise concerns under section 168A(c). The need for costs to be minimised is also particularly important.

An additional consideration relevant to our assessment of Aurizon Network's existing RAB is that the approach, where possible, should provide for regulatory certainty. We have had regard to this factor pursuant to section 138(2)(h) of the QCA Act. We support a stable and predictable regulatory environment for Aurizon Network. This implies an environment in which changes to methodology are made only where the case for such changes is clear.

25.1.3 QCA MAR draft decision

Our MAR draft decision was to approve Aurizon Network's opening asset value model taking into account:

- the 2011–12 RAB roll-forward approved in December 2013
- the capital expenditure of $226.4 million (nominal) in 2012–13, based on the claim submitted by Aurizon Network in December 2013 and approved by the QCA in May 2014[321]
- calculations consistent with the requirements in the 2010 undertaking (UT3) for:

(a) actual indexation at CPI (All groups Brisbane)

(b) depreciation and approved asset lives.

The resulting 2013–14 opening RAB of $4.86 billion reflected the approved 2012–13 capital expenditure and the roll-forward process in UT3.

We stated in our MAR draft decision (at MAR draft decision 7.1):

> *We propose to approve Aurizon Network's opening asset base as set out in Table 67 for the 2014 DAU, based on the 2012–13 RAB roll-forward.*

Our full analysis and reasoning is contained in section 7.1 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

25.1.4 Aurizon Network's comments on the MAR draft decision

In its submissions on our MAR draft decision, Aurizon Network indicated its willingness to accept some of the ways in which we considered it appropriate to amend the 2014 DAU. Aurizon Network also made submissions which suggested further amendments. For the purposes of this consolidated draft decision, we are obliged to consider the appropriateness of the 2014 DAU as originally proposed by Aurizon Network and have therefore considered Aurizon Network's subsequent submissions in that context. However, when determining the ways in which we consider that the 2014 DAU should be amended, we have also taken Aurizon Network's submissions into account.

Aurizon Network accepted our approach in the MAR draft decision, of updating the opening asset value from the 2013 DAU with the approved values of capital expenditure for 2011–12 and 2012–13.[322]

However, Aurizon Network submitted that it had inadvertently excluded some capital expenditure associated with the GAPE RAB in 2011–12 and 2012–13. Aurizon Network stated that its capital expenditure submission for 2008–09 included a claim of $34.9 million for early works associated with the GAPE project, which the QCA approved on the basis that its inclusion in the RAB would be deferred until arrangements associated with the pricing of the GAPE project had been approved.[323]

[321] On 21 May 2014, the QCA approved Aurizon Network's revised claim of $226.4 million for 2012–13.
[322] Aurizon Network, 2014 DAU, sub. 59: 146
[323] Aurizon Network, 2014 DAU, sub. 59: 147.

25.1.5 QCA analysis and consolidated draft decision

Our consolidated draft decision on Aurizon Network's capital expenditure for 2008–09 approved $34.9 million of GAPE early works to be rolled forward until Aurizon Network commissioned the GAPE project.[324]

The GAPE project was commissioned during 2011–12 and it is therefore appropriate to roll forward the $34.9 million of GAPE early works to 2011–12 and include it in the RAB from 2011–12.

We have confirmed that Aurizon Network's initial submission that formed the basis of our MAR draft decision on the MAR excluded GAPE early-works capital expenditure. We have further confirmed that rolling forward the $34.9 million of GAPE early-works capital expenditure to 2011–12 results in a value of $44.4 million in 2011–12 and $45.2 million in 2012–13. We have updated the UT3 roll-forward on that basis.

Consistent with our consolidated draft decision on pricing, we have also reallocated $30.3 million of capital expenditure, previously allocated to the Newlands system, to NAPE and GAPE Deed customers, according to their contract tonnages. As the return of capital on the NAPE portion of this expenditure has been deferred until the commencement of railing, the opening asset value for UT4 is higher, at $4.91 billion, than proposed by Aurizon Network in response to our MAR draft decision ($4.90 billion).

Table 78 Aurizon Network's opening asset value for the 2014 DAU ($'000, nominal)

Non-electric assets	***UT3 roll-forward—closing value***				***Opening value 2014 DAU***
	2009–10	**2010–11**	**2011–12**	**2012–13**	**2013–14**
Blackwater	1,078,565	1,083,466	1,082,823	1,103,347	1,103,347
Rolleston	238,756	235,676	225,503	225,339	225,339
Minerva	74,338	74,021	71,507	69,669	69,669
Goonyella	1,234,720	1,313,591	1,300,032	1,315,228	1,315,228
Vermont	48,132	47,627	45,320	43,421	43,421
GAPE			971,981	1,058,906	1,058,906
Moura	255,442	256,684	251,472	251,089	251,089
Newlands	164,203	164,645	286,398	316,598	316,598
Total non-electric assets	**3,094,156**	**3,175,710**	**4,235,036**	**4,383,597**	**4,383,597**

[324] QCA 2010, QR Network's 2008–09 Capital expenditure, final decision, p. 11.

Electric assets	*UT3 roll-forward—closing value*				*Opening value 2014 DAU*
	2009–10	**2010–11**	**2011–12**	**2012–13**	**2013–14**
Blackwater	140,732	129,351	291,605	284,040	284,040
Goonyella	236,527	246,554	233,754	227,084	227,084
Vermont	8,803	8,646	8,228	7,883	7,883
GAPE electric	—	—	—	4,421	4,421
Total electric assets	**386,061**	**384,552**	**533,587**	**523,428**	**523,428**
Total assets	**3,480,217**	**3,560,262**	**4,768,623**	**4,907,025**	**4,907,025**

Notes: Numbers may not sum due to rounding. Newlands closing values include closing values for NAPE and Byerwen NAPE which, for pricing purposes, will be deferred until the commencement of railing. $30.3 million previously allocated to NAPE Deed customers has been allocated to NAPE and GAPE Deed customers according to their contract tonnages.

Consolidated draft decision 25.1

(1) After considering Aurizon Network's proposed opening RAB, our consolidated draft decision is to refuse to approve Aurizon Network's original proposal.

(2) We consider that the opening RAB proposed in Aurizon Network's December submission is appropriate subject to the reallocation of capital expenditure as discussed in Section 6.1.5. Therefore, the way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to set the opening RAB as specified in Section 6.1.5.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

25.2 Equity-raising costs

Financing costs are incurred by owners in accessing capital for developing an asset. These costs typically include two principle elements:

- interest during construction (IDC)
- up-front financing costs.

IDC (which is relatively greater magnitude) is discussed in Chapter 8. Up-front financing costs which are the costs paid to raise the debt and/or equity capital required to finance the project are discussed below.

25.2.1 Aurizon Network's proposal

Aurizon Network proposed that we approve:

- $5.77 million ($2012–13) in equity-raising costs in the RAB as at 30 June 2013 in respect of equity raising for UT3
- future equity-raising costs, as proposed in the 2014 DAU, Schedule E, with these costs to be included in the RAB at the conclusion of a regulatory period.

Aurizon Network said the approved allowable revenues for the UT3 period did not include provision for up-front debt or equity-raising costs, because the regulatory cash flows generated sufficient retained earnings to finance the capital expenditure assumed in the capital indicator.

Aurizon Network considers it reasonable and prudent that an ex post assessment is performed following approval of the 2012–13 capital expenditure amounts to determine an amount for equity raising in the RAB.

We explained our approach in section 7.2 of the MAR draft decision, including a summary of Aurizon Network's proposal. We adopt that analysis for the purposes of this consolidated draft decision.

25.2.2 QCA MAR draft decision

Our MAR draft decision was to refuse to approve an ex post adjustment to the RAB roll-over for UT3 for equity-raising costs as this would constitute a retrospective review of capital expenditure approved for UT3. In particular, we noted that:

- Aurizon Network (then QR National) did not include a proposal for equity raising costs in its UT3 submission
- access holders have made commercial decisions, including in respect of projects such as GAPE, without anticipating additional equity-raising costs.

We stated in our MAR draft decision (at MAR draft decision 7.2):

> *We refuse to approve inclusion of $5.77 million in equity-raising costs in respect of UT3 in the regulatory asset base as at 30 June 2013.*

Our full analysis and reasoning is contained in section 7.2 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

We considered that such a retrospective review of the capital expenditure approved for UT3 would not achieve an appropriate balancing of the factors set out in section 138(2) of the QCA Act as it would be biased in favour of the interests of Aurizon Network to the detriment of access seekers and the public interest.

We noted, however, that we would give consideration to the merits of allowing for equity-raising costs for capital expenditure in the 2014 DAU period, and the circumstances in which this may be appropriate.

25.2.3 Aurizon Network's response

Inclusion of equity-raising costs in UT3

Aurizon Network updated its estimate of equity-raising costs to $8.27 million reflecting total approved capital expenditure for 2011–12 and 2012–13 and a revision to its assumed the dividend reinvestment rate from 0 to 30 per cent.

Aurizon Network stated that it excluded capital expenditure associated with GAPE from UT3 because it was directed by the QCA to do so. If GAPE capital expenditure had been included in

the UT3 capital indicator, Aurizon Network stated that it 'would have proposed an allowance for equity raising costs. Consequently, it is not logically reasonable nor is it fair for QCA to reject the inclusion of UT3 equity raising costs in OAV, based on the moot point that Aurizon Network did not propose such costs in its UT3 submission.[325]

Aurizon Network also noted that its 2012 GAPE DAAU (which it subsequently withdrew) included a claim for equity-raising costs and that it left out the claim in the 2013 GAPE DAAU because it became apparent to it that inclusion of the claim would delay the approval of a GAPE reference tariff. Aurizon Network noted that its intention to include the claim as part of its UT4 submission was made clear in the 2013 GAPE DAAU.[326]

Aurizon Network is only seeking to recover the portion of equity-raising costs that relate to GAPE.

With regard to the implication of a retrospective review of capital expenditure for access seekers, Aurizon Network expressed the view that these access seekers were party to the consultation process for UT3 where it was made clear that GAPE capital expenditure would eventually be included in the capital indicator and so should have reasonably expected that equity-raising costs associated with this capital expenditure would eventually be recovered.

Aurizon Network also submitted that an ex post assessment of its claims for equity-raising costs (i.e. after the approval of its proposed capital expenditure) is prudent as it removes the incentive for Aurizon Network to exaggerate the capital expenditure claim to increase the amount of external funding—and consequently their equity-raising costs.

Inclusion of equity-raising costs in UT4

Aurizon Network stated that it is common for Australian regulators to provide an allowance for equity-raising costs associated with capital expenditure:

- The AER Powerlink decision recognised that the efficient benchmark firm may incur additional transaction costs if it needed to raise new equity to fund projects. These costs are not reflected in the allowed return.
- The QCA has previously accepted capitalising equity-raising costs into a RAB. For example, the QCA accepted upfront equity-raising costs into the RAB for the phase 2/3 expansion of the Dalrymple Bay Coal Terminal (DBCT).

For the UT4 period, Aurizon Network submitted that it has adopted the AER's 'pecking order' approach which assumes that there is a hierarchy of three methods for raising equity (retained earnings, dividend reinvestment plans and seasoned equity offerings) with differing availability and transaction costs for each.

For UT4, Aurizon Network proposes to include efficient benchmark equity-raising costs in the RAB based on the following parameters:

- dividend reinvestment of 30 per cent
- dividend reinvestment plan cost of 1 per cent of the total dividends reinvested
- dividend imputation payout ratio of 70 per cent
- seasoned equity offering (SEO) costs of 3 per cent of total external equity requirement.

[325] Aurizon Network, 2014 DAU, sub. 59: 152–153.
[326] Aurizon Network, 2014 DAU, sub. 59: 153.

25.2.4 Stakeholders' comments on the MAR draft decision

The QRC supported our MAR draft decision of refusing to approve equity raising costs relating to the UT3 period noting that:

> *... an approach in which retrospective adjustments are allowed where risks allocated to Aurizon Network vary in an adverse direction is not symmetrical given that there is no mechanism in place to ensure that variations in the other direction are passed back to Access Holders.*[327]

25.2.5 QCA analysis and consolidated draft decision

Inclusion of equity-raising costs in UT3

In 2008, Aurizon Network originally claimed capital expenditure associated with GAPE early works.[328] This claim did not include equity-raising costs. As such, no assessment of the prudency and efficiency of equity-raising costs was made at that time.

In 2008, we excluded GAPE capital expenditure from the RAB in UT3 because GAPE had yet to be commissioned at the time and no asset base existed for the project.[329] Our decision identified $39.4 million in design works that would be included in the RAB. It did not include equity-raising costs.

In 2012, Aurizon Network first made a claim for equity-raising costs in its GAPE DAAU, where it stated that:[330]

> *The inclusion of financing costs associated with seasoned equity offers is a known and well understood principle. The QCA has also accepted these costs to be legitimate costs to be capitalised into the RAB. For example, the QCA accepted upfront equity raising costs into the RAB for the phase 2/3 expansion of the Dalrymple Bay Coal Terminal 3.*
>
> *The approved allowable revenues for the UT3 period based on the quantum of the capital indicator did not include provision for upfront debt or equity raising costs. This is because the regulatory cash flows generated sufficient retained earnings to finance the capital expenditure assumed in the capital expenditure forecasts. However, these cash flows and the capital indicator excluded*[331] *the GAPE project costs.*
>
> *[Aurizon Network] therefore considers it reasonable and prudent that an ex-post assessment is performed following approval of the 2012-13 capital expenditure amounts to determine an amount for equity raising costs into the RAB.*

In 2013, Aurizon Network revised this DAAU in April and then again in June. The 2013 GAPE DAAU removed the claim for equity-raising costs. In the June GAPE DAAU, Aurizon Network submitted that equity raising should be addressed during UT4. In our decision, we concluded some matters, including equity raising costs, should be considered as part of UT4.

The UT3 period went from 1 July 2009 to 30 June 2013. The first claim Aurizon made in respect of equity-raising costs was in September 2012—80 per cent through the UT3 period. We consider that a retrospective review of the capital expenditure costs approved by UT3 does not achieve an appropriate balancing of the factors set out in section 138(2) of the QCA Act as it is

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[327] QRC, 2014 DAU, sub. 59: 19.
[328] QR 2008, QR Network Capex Report, September.
[329] QCA 2009, draft decision on QR's 2009 DAU.
[330] Aurizon Network 2012, QR Network Access Undertaking 2010: Draft Amending Access Undertaking - Reference Tariff for the GAPE System
[331] The original submission had 'included'. Aurizon Network clarified, in its submission to our draft decision, that it should be 'excluded'.

biased in favour of the interests of Aurizon Network as the access provider, to the detriment of access seekers and the public interest.

Aurizon Network argues that access holders could have reasonably expected that equity-raising costs would be recovered when GAPE expenditure was included. However, as no equity-raising costs were included in Aurizon Network's initial proposal, or raised by the QCA when the decision was made to defer inclusion in the RAB until commissioning, we do not consider it reasonable for access holders to expect their inclusion.

Our consolidated draft decision is to refuse to approve an ex post adjustment to the RAB roll-over for UT3 for equity-raising costs.

Inclusion of equity-raising costs in UT4

We consider that prudent and efficient equity-raising costs can be included in the MAR. This is consistent with the QCA's past decision on DBCT[332] and the AER's more recent decision on Powerlink's revenue.[333]

The AER approach (proposed by Aurizon Network) assumes that there is a hierarchy of three methods for raising equity with differing availability and transaction costs for each:[334]

(a) First, firms use retained earnings as a source of equity:

- (i) Annual retained earnings are calculated as the difference between internal cash flows and dividends to shareholders.
- (ii) Dividends are set to be just sufficient to match the distribution of imputation credits.
- (iii) The assumed debt component of forecast capital expenditure is a given percentage (based on the debt to equity ratio) of the annual change in the RAB.
- (iv) The equity component of forecast capital expenditure for each year is the difference between total forecast capital expenditure and the assumed debt component.

(b) Second, firms use dividend reinvestment plans to return up to 30 percent of dividends to the business.

(c) Third, firms use SEOs encompassing both rights issues and placements.

The requirement for external equity funding via SEOs is the shortfall, if any, in retained earnings required to fund the equity component of forecast capital expenditure and the total of reinvested dividends.

[332] QCA 2010, DBCT Capacity Expansion Phase 2/3 Actual Costs DAAU, final decision.
[333] AER 2012, Powerlink Transmission Determination 2012–13 to 2016–17, final decision, April.
[334] AER 2012, Powerlink Transmission Determination 2012–13 to 2016–17, final decision, April, p.108.

Transaction costs are then assigned for each form of equity funding. For the Powerlink decision, the AER based these figures on an empirical review as follows:[335]

- Retained earnings—0 per cent
- Dividend reinvestment plans—1 per cent of total dividends reinvested
- SEOs—3 per cent of total external equity required. The AER considers that these unit costs represent the efficient costs required to raise equity in current market conditions.

We consider that this approach is appropriate since it identifies cases where capital expenditure is lumpy (relative to the existing RAB), and may require external funding, by directly analysing the firm's cash flows.

We have compared Aurizon Network's assumptions to available benchmark estimates of Australian regulators (Table 79) and based on this comparison consider Aurizon Network's approach to be reasonable.

Table 79 Australian regulators' determination of equity raising costs

Regulator	*Approach*	*Key parameters*
AER	Equity-raising costs are a legitimate cost for a benchmark efficient firm only where external equity funding is the least-cost option available. A firm should only be provided an allowance for equity raising costs where cheaper sources of funding, for instance, retained earnings are insufficient, subject to the gearing ratio and other assumptions about financing decisions being consistent with regulatory benchmarks.	(a) dividend reinvestment of 30% (b) dividend reinvestment plan cost of 1% of the total dividends reinvested (c) dividend imputation payout ratio of 70% (d) SEO costs of 3% of total external equity requirement.
ERA	An allowance for the transactions costs of raising equity is justified where an adjustment is required to maintain the debt to equity ratio.	(a) dividend reinvestment of 25% (b) dividend reinvestment plan cost of 1% of the total dividends reinvested (c) dividend imputation payout ratio of 70% (d) SEO costs of 3% of total external equity requirement.
IPART	As IPART only regulates government-owned businesses which are unlikely to raise equity capital (capital is typically injected into the businesses either via borrowing from the State Treasury Corporation or third party lenders to fund growth or replacement capital expenditure), IPART does not provide an allowance for benchmark equity-raising costs.	N/A.
QCA	In the case of DBCT's phase 1 expansion, the QCA noted that while it has been a common regulatory practice for equity raising costs to be included in initial DORC valuations, Australian regulators have not generally	The QCA approved an equity-raising fee of 3.55% of its assessment of DBCT's required external funding.

[335] AER 2012, Powerlink Transmission Determination 2012–13 to 2016–17, final decision, April, p. 108.

Regulator	Approach	Key parameters
	included such allowances in respect of incremental capital expenditure as the cash flows from existing operations are generally sufficient to fund incremental capital expenditure requirements, but not the original construction of a facility. As the phase 1 expansion represented a significant proportion of the existing DBCT asset base (i.e. around 70%), the QCA accepted that DBCT Management's claim had some merit. The QCA took the same approach with the phase 2/3 expansion.	

Sources: AER 2012, Powerlink Transmission Determination 2012–13 to 2016–17, final decision, April; AER 2009, New South Wales distribution determination 2009–10 to 2013–14, final decision, April; ERA 2013, Draft Rate of Return Guidelines—Meeting the Requirements of the National Gas Rules, August; IPART 2012, Comparison of Financial Models—IPART and Australian Energy Regulator, Information Paper, July; QCA 2009, DBCT Capacity Expansion Phase 1 Actual Costs DAAU, final decision; QCA 2010, DBCT Capacity Expansion Phase 2/3 Actual Costs DAAU, final decision.

Financing costs should be determined as an efficient benchmark so that Aurizon Network has an incentive to minimise these costs.

Our consolidated draft decision is to determine benchmark equity raising costs associated with an efficient benchmark capital expenditure funding requirement, as proposed by Aurizon Network. This approach is consistent with regulatory practice. An adjustment will be made at the conclusion of UT4 to account for equity-raising costs.

Consolidated draft decision 25.2

(1) After considering Aurizon Network's proposal to include $5.77 million in equity-raising costs in respect of UT3 in the regulatory asset base as at 30 June 2013, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

(2) The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to not include any amount in equity-raising costs in respect of UT3 in the regulatory asset base as at 30 June 2013.

(3) After considering Aurizon Network's proposal to include future equity raising costs in the RAB at the conclusion of a regulatory period, our consolidated draft decision is to approve Aurizon Network's proposal as contained in its December 2014 submission.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

26 REGULATORY ASSET BASE (INCLUDING CAPITAL EXPENDITURE)

Aurizon Network is a capital intensive business. The return on, and return of, capital relating to its regulatory asset base (RAB) is a significant component of the reference tariffs for each system in the CQCN.

Aurizon Network's RAB is growing. At the beginning of UT3, Aurizon Network's RAB was around $3.4 billion with contracted capacity of around 184.7 million tonnes per annum (mtpa)[336] *By the end of UT4, Aurizon Network estimates that its RAB will be around $6.2 billion, with an infrastructure capacity of around 310 mtpa.*[337]

The growth in the RAB arises principally from major expansion projects. The major projects to be completed over the UT4 period include the Wiggins Island Rail Project (WIRP), the Goonyella Rail Expansion Project (HPX 3) and the Rolleston Rail electrification. Renewals expenditure will also become more significant during UT4, with around $512 million to be spent over the period.

Aurizon Network's prudent capital expenditure is included in the RAB on an ex post basis. The ex post process means that when determining the RAB for Aurizon Network for the 2014 DAU, we have approved a 'capital indicator' with our assessment of the appropriateness of the projects and expenditure, proposed by Aurizon Network, to be included in the capital indicator. The capital indicator is, in essence, the forecast capital expenditure that is to be included in the RAB and ultimately recovered through reference tariffs for the 2014 DAU.

26.1 Forecast capital expenditure (the capital indicator)

26.1.1 Aurizon Network's proposal

In its 2013 DAU (April 2013), Aurizon Network proposed a forecast capital expenditure of $1.95 billion over the four years for its rail systems in the CQCN.[338] This was an 84 per cent increase in capital expenditure compared to the 2010 undertaking driven by:

- WIRP Stage 1
- electrical replacements and power system upgrades
- system enhancement and reliability
- a significant increase in asset renewals expenditure
- a change in the approach to calculating interest during construction (IDC).

In December 2013, Aurizon Network submitted an updated capital indicator forecast of $2.07 billion. The main change in Aurizon Network's revised capital indicator was a deferment of the WIRP capital expenditure commissioning date from 2014–15 to 2015–16.

We addressed each of these matters in detail in section 8.1 of our MAR draft decision, including a summary of Aurizon Network's proposal. We have adopted that analysis for the purposes of this consolidated draft decision, subject to the comments below.

[336] All dollars in this chapter are nominal unless otherwise indicated.
[337] Aurizon Network, 2013 DAU, sub. 3: 13.
[338] Aurizon Network, 2013 DAU, sub. 3: 151.

26.1.2 Legislative framework

We are required to assess the appropriateness of Aurizon Network's proposal having regard to all of the criteria in section 138(2) of the QCA Act. In the context of assessing Aurizon Network's regulatory asset base proposal, we must have regard to the factors listed in section 138(2) and weight them appropriately, as discussed in Chapter 2 of this consolidated draft decision.

In this case, Aurizon Network's proposal relates to the forecast capital expenditure over the term of the draft access undertaking, as reflected in the capital indicator. Against this background, we consider:

- section 138(2)(a), (b), (d), (e), (g) and (h) should be given more weight, as identified below
- section 138(2)(g) refers to the pricing principles mentioned in section 168A of the QCA Act, of which we consider section 168A(a), (c) and (d) should be given more weight
- sections 138(2)(c), 138(2) (f) and 168A(b), should be given less weight, as they are not practically relevant to our assessment of Aurizon Network's existing RAB.

Prudent and efficiently incurred infrastructure investment

Section 138(2)(a) of the QCA Act requires that we have regard to the object of Part 5 of the QCA Act as set out in section 69E, namely to promote the economically efficient operation, use of and investment in the CQCN, as the significant infrastructure by which services are provided, with the effect of promoting effective competition in upstream and downstream markets.

Sections 138(2)(g) and 168A 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 includes a return on investment commensurate with regulatory and commercial risks involved.

To meet these objectives, both the return on and of capital must reflect prudent and efficiently incurred infrastructure investment in the CQCN. In broad terms, we consider, pursuant to section 138(2)(b) of the QCA Act, that the legitimate business interests of Aurizon Network require that it is permitted to recover a regulated return on its capital investment and the depreciation allowance associated with prudently and efficiently incurred infrastructure investment in the CQCN.

Conversely, sections 138(2)(e) and (d) require us to have regard to the interests of access seekers and the public interest. We also consider that the rights of existing access holders are relevant under section 138(2)(h), to the extent they are not already 'access seekers' under section 138(2)(e). As identified earlier, consideration of all of these interests leads to a conclusion that Aurizon Network should be permitted to recover expected revenue for the service that is at least enough to meet the efficient costs of providing access service and including a return on investment commensurate with the regulatory and commercial risks involved, as identified in section 168A(a). However, consideration of all those interests also leads to the conclusion that Aurizon Network should be permitted to recover expected revenue that is no more than enough to meet such efficient costs and including that risk-adjusted return on investment. In this manner, effective competition in markets upstream and downstream of the CQCN will be promoted as contemplated by the objective of Part 5 specified in section 69E of the QCA Act.

Moreover, if Aurizon Network is permitted to recover only its efficient costs and risk-adjusted return on investment (i.e. at least enough and no more than enough), it will have incentives to reduce costs and otherwise improve productivity for the purposes of section 168A(d) and will

have less scope to discriminate in favour of its downstream operations—which could otherwise raise concerns under section 168A(c). The need for costs to be minimised is also particularly important.

An additional consideration relevant to our assessment of Aurizon Network's existing RAB is that, where possible, an approach should be adopted which provides for regulatory certainty. We have had regard to this factor pursuant to section 138(2)(h) of the QCA Act. We support a stable and predictable regulatory environment for Aurizon Network; an environment in which there are changes to the methodology only where there is a clear case for such changes.

Allocation of costs

When considering cost allocation, in addition to section 138(b) of the QCA Act we have also had regard to section 137(1A)(b) and section 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 an 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 service.

26.1.3 QCA MAR draft decision

In our MAR draft decision we:

- refused to approve Aurizon Network's proposal to change the methodology for calculating interest during construction (IDC) to a post-tax nominal classic WACC. Accordingly, we also refused to approve Aurizon Network's proposed capital indicator, as at December 2013
- proposed to treat Aurizon Network's proposed re-railing maintenance costs as renewals expenditure
- considered it appropriate for Aurizon Network to provide an annual forecast of asset renewal costs and scope to the QCA prior to the commencement of each financial year, with renewals activities to be included as part of the reporting arrangements for the annual maintenance report.

Specifically, we stated in our MAR draft decision (at draft decisions 8.1 to 8.4):

> *8.1 We refuse to approve Aurizon Network's proposal to change the methodology for calculating interest during construction to a post-tax nominal classic WACC.*
>
> *8.2 We refuse to approve Aurizon Network's proposed capital indicator, as at December 2013, as set out in Table 73, above. We consider it appropriate for Aurizon Network to amend the 2014 DAU to reflect the interest during construction WACC calculation to be a post-tax nominal WACC.*
>
> *8.3 We propose to treat Aurizon Network's proposed re-railing maintenance costs as renewals expenditure, as set out in Table 74.*
>
> *8.4 We consider it appropriate for Aurizon Network to provide an annual forecast of asset renewal costs and scope to the QCA prior to the commencement of each financial year, with renewals activities to be included as part of the reporting arrangements for the annual maintenance report.*

Our full analysis and reasoning is contained in section 8.1 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

26.1.4 Aurizon Network's response

In its submissions on our MAR draft decision, Aurizon Network indicated its willingness to accept some of the ways in which we considered it appropriate to amend the 2014 DAU. Aurizon Network also made submissions which suggested amendments to those ways. For the purposes of this consolidated draft decision, we have considered the appropriateness of the 2014 DAU as originally proposed by Aurizon Network hence considered Aurizon Network's submissions in that context. However, we have also considered Aurizon Network's submission in the context of amendments to the way in which we consider that the 2014 DAU should be amended.

Capital indicator

Aurizon Network accepted our MAR draft decision that it is appropriate that the capital indicator include IDC calculated using the post-tax nominal vanilla WACC. Aurizon Network stated that it had updated the capital indicator for reduced capital expenditure in the Blackwater system to assist our consolidated draft decision. Aurizon Network did not update the capital indicator for its capital expenditure claim for 2013–14 as the QCA had not yet approved the claim and the difference between the capital indicator and the claim does not have a material impact on UT4 pricing. Aurizon Network indicated a willingness to deal with the difference through the UT4 capital carryover mechanism.

Table 80 Aurizon Network's revised capital indicator by system, December 2014 ($ millions)[a]

	2013–14	***2014–15***	***2015–16***	***2016–17***	***Total UT4***
Non electric					
Blackwater	80.54	96.80	844.02	77.99	1,099.35
Goonyella	170.31	62.48	85.47	68.31	386.57
Moura	5.42	5.10	55.63	7.66	73.81
Newlands	7.24	4.11	7.11	5.19	23.65
GAPE	42.64	26.68	-	—	69.31
Total non-electric	**306.14**	**195.17**	**992.23**	**159.15**	**1,652.68**
Electric					
Blackwater	7.48	137.63	82.83	2.02	229.96
Goonyella	53.37	6.62	2.53	2.36	64.87
Total electric	**60.84**	**144.25**	**85.36**	**4.38**	**294.83**
Total assets	**366.98**	**339.42**	**1077.59**	**163.53**	**1947.51**

a - Aurizon Network clarified in September 2015 that this table inadvertently excluded IDC.

Note: Figures are reported as mid-year values.

Source: Aurizon Network, 2014 DAU, sub. 59: 156.

Treatment of re-railing costs

Aurizon Network accepted our MAR draft decision that it is appropriate to treat its proposed re-railing maintenance costs as renewals expenditure subject to these costs being included in the capital indicator for 2015–16 and 2016–17 only. Aurizon Network was of the view that this transitional approach, whereby the reclassification would not apply in 2013–14 and 2014–15, was necessary to avoid retrospectivity and maintain the stability of the regulatory regime from the point of view of its investors.[339] Aurizon Network stated that its proposed capital indicator (Table 80) reflects this approach, as submitted to assist our consolidated draft decision.

Asset renewals cost forecast reporting

Aurizon Network disagreed with our proposal in the MAR draft decision, that it provide an annual forecast of asset renewal costs and scope to the QCA prior to the commencement of each financial year.

Aurizon Network stated that it already provides detailed information on these costs to the QCA noting that:[340]

> *Asset renewal costs are currently subject to ... arrangements whereby forecast costs are incorporated in the capital indicator for the regulatory period, an annual claim of actual costs is made ... and the roll-forward and carry-over of QCA approved costs is then implemented. As part of this arrangement, detailed information is provided to the QCA and its consultants on [forecast and actual costs].*

Aurizon Network submitted that a more regular and detailed reporting regime on forecast capital costs, including a reset of the capital indicator, would impose a further regulatory burden and costs on it in the form of increased preparation and management review time and additional time for auditing. Aurizon Network submitted that, given the information it already provides, it did not believe that the public interest would be advanced by the additional reporting requirements.

26.1.5 Stakeholders' comments on the MAR draft decision

Asciano raised some concerns about the inclusion of WIRP capital costs from 2015–16 into the capital indicator including making submissions that:

- only users who benefit from WIRP infrastructure should pay the capital costs related to this infrastructure
- the allocation of WIRP assets between users and between rail systems (Blackwater and Moura) needs to be scrutinised to ensure there is no cross-subsidisation between users and systems.[341]

WIRP users supported the inclusion of WIRP Stage 1 infrastructure in the capital indicator.[342]

Wesfarmers submitted that WIRP infrastructure should be socialised into the RAB for the Blackwater and Moura systems.[343]

The QRC supported the MAR draft decision to capitalise re-railing costs into the capital indicator.[344]

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[339] Aurizon Network, 2014 DAU, sub. 59: 109.
[340] Aurizon Network, 2014 DAU, sub. 59: 157.
[341] Asciano, 2014 DAU, sub. 52: 8.
[342] WIRP users, 2014 DAU, sub. 63: 2.
[343] Wesfarmers, 2014 DAU, sub. 55: 1.

26.1.6 QCA analysis and consolidated draft decision

Interest during construction

For the same reasons as set out in section 8.1 of our MAR draft decision, our consolidated draft decision is to refuse to approve Aurizon Network's proposal to change the methodology for calculating IDC to a post-tax nominal classic WACC, as proposed in the 2014 DAU as originally submitted.

For the same reasons as set out in section 8.1 of our MAR draft decision, the way in which we consider it appropriate to amend the 2014 DAU is to use the post-tax nominal vanilla WACC for calculating IDC. We note that Aurizon Network agreed with this approach in its submission on the MAR draft decision.

Capital indicator

For the same reasons as set out in section 8.1 of our MAR draft decision, our consolidated draft decision is to refuse to approve Aurizon Network's capital indicator as proposed in the 2014 DAU as originally submitted.

For the same reasons as set out in section 8.1 of our MAR draft decision, the way in which we consider it appropriate to amend the 2014 DAU is to use the post-tax nominal vanilla WACC for calculating IDC.

As Aurizon Network's 2013–14 capital expenditure claim has since been approved, we also consider it appropriate to update the capital indicator for 2013–14 approved capital expenditure.

WIRP Stage 1

In respect of stakeholder concerns about the inclusion of WIRP Stage 1 capital expenditure, we note that tariffs associated with this project will be considered separately from the MAR.

Treatment of re-railing costs

For the same reasons as set out in section 8.1 of our MAR draft decision, our consolidated draft decision is to treat Aurizon Network's proposed re-railing maintenance costs as renewals expenditure. However, we accept Aurizon Network's submission that a transitional period excluding re-railing costs for 2013–14 and 2014–15 will not affect the NPV of Aurizon Network's income stream so long as they are included as maintenance costs. Further, Aurizon Network has already submitted its claim for 2013–14 and 2014–15 which did not include re-railing costs.

We have approved re-railing maintenance costs for inclusion in the capital indicator for the remaining UT4 period (Table 81). These values have been subtracted from maintenance costs.

Table 81 Addition to capital indicator for re-railing task ($ million, nominal)

	2013–14	*2014–15*	*2015–16*	*2016-17*
QCA consolidated draft decision	—	—	16.26	17.12

Sources: Aurizon Network December 2013 financial model; QCA analysis.

[344] QRC, 2014 DAU, sub. 62: 13.

Reporting of asset renewals cost forecasts

The renewals costs forecasts provided for at the commencement of the regulatory period are not reviewed prior to incorporation in the capital indicator. A detailed ex ante assessment (in addition to an ex post assessment) will allow the QCA or Aurizon Network's customers to consider the proposed projects prior to the expenditure occurring. This transparency may lead to a reduction to renewals costs that cannot be achieved with only an ex post review.

With regard to the cost involved in providing this information, we note that Aurizon Network already has an Asset Maintenance and Renewal Policy that it uses as the basis for estimating its future renewals program. We do not consider that providing the QCA with information on forecast renewals would materially increase Aurizon Network's regulatory burden.

On this basis, our consolidated draft decision is to require Aurizon Network to provide an annual forecast of asset renewal costs and scope to the QCA prior to the commencement of each financial year.

Conclusion

For the reasons set out above, our consolidated draft decision is to refuse to approve Aurizon Network's proposed capital indicator for the 2014 DAU. We consider it appropriate that Aurizon Network amend the capital indicator to include approved capital expenditure for 2013–14, reallocate and defer some capex associated with WIRP (refer WIRP chapter), capitalise re-railing costs as renewals expenditure from 2015–16 and calculate IDC using the post-tax nominal vanilla WACC.

Table 82 Capital indicator for 2014 DAU ($ million, nominal)[a]

Non-electric	*2013–14*	*2014–15*	*2015–16*	*2016–17*	*Total UT4*
Blackwater[b]	100.56	98.45	714.29	77.34	990.64
Goonyella	165.27	87.69	95.58	67.9	416.44
Moura	3.69	5.29	69.97	7.61	86.56
Newlands[c]	7.92	4.54	7	5.33	24.79
GAPE[c]	17.79	25.86	—	—	43.65
Total non-electric	**295.23**	**221.83**	**886.84**	**158.18**	**1562.08**
Electric					
Blackwater	5.11	138.31	71.12	1.95	216.49
Goonyella	15.25	8.8	2.76	2.28	29.09
Total electric	**20.36**	**147.11**	**73.88**	**4.23**	**245.59**
Total assets	**315.59**	**368.94**	**960.73**	**162.41**	**1807.66**

__a__ Figures are reported as 'start-of-year' values. __b__ A portion of Blackwater capital expenditure associated with WIRP has been deferred until the commencement of railing. __c__ 2013–14 capital expenditure reflects the reallocation of $30 million of capital expenditure, previously allocated to Newlands, to NAPE and GAPE Deed customers.

Sources: Aurizon Network's September 2015 capital indicator model; QCA analysis.

Consolidated draft decision 26.1

(1) After considering Aurizon Network's proposal to change the methodology for calculating interest during construction to a post-tax nominal classic WACC, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

(2) The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to use the post-tax nominal vanilla WACC for calculating interest during construction.

(3) After considering Aurizon Network's proposed capital indicator, as at December 2013, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

(4) The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to use the post-tax nominal vanilla WACC for calculating interest during construction and include approved capital expenditure for 2013–14.

(5) After considering Aurizon Network's proposal to treat re-railing costs as maintenance expenditure, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

(6) The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to treat re-railing costs as renewals expenditure and include them in the capital indicator from 2015-16, as set out in Table 81.

(7) We consider it appropriate that Aurizon Network provide an annual forecast of asset renewal costs and scope to the QCA prior to the commencement of each financial year, with renewals activities to be included as part of the reporting arrangements for the annual maintenance report.

(8) We consider it appropriate that the capital indicator for UT4 be amended, as set out in Table 82.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

26.2 Capital expenditure carryover account

The capital expenditure carryover account reflects 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.

The balance in this account will be included in the MAR for pricing related purposes at the end of the regulatory period and the start of a new one. Clause 4 of Schedule A (2010 AU) requires Aurizon Network to maintain and record a capital expenditure carryover account.

We explained our approach in section 8.2 of the MAR draft decision, including a summary of Aurizon Network's proposal. We have adopted that analysis for the purposes of this consolidated draft decision.

26.2.1 Aurizon Network's proposal

In deriving the capital indicator, Aurizon Network's approach for the 2014 DAU is the same as UT3, where the capital expenditure carryover account is maintained to reflect differences between actual and forecast expenditure.

In its proposal, Aurizon Network said it has taken account of the approved capital indicator inclusive of additional amounts proposed for GAPE, including final capital expenditure amounts to be claimed for the UT3 period, and that the UT4 revenues are adjusted to reflect the forecast balance of the capital expenditure carryover account.

Aurizon Network proposed a total carryover balance at 1 July 2013 of $110.6 million.

Aurizon Network also said it had included appropriate provision in its proposed MAR to allow for adjustment of revenues to reflect the difference between the forecast balance and the final balance approved by the QCA.

26.2.2 QCA MAR draft decision

We updated Aurizon Network's proposed carryover balance to include the 2012–13 capital expenditure amounts approved by the QCA in August 2014, resulting in a total balance of $113.6 million.

We stated in our MAR draft decision (at MAR draft decision 8.5):

> *We propose to smooth the return of over-recovery of the capital indicator from the UT3 across the 2014 DAU period.*

Our full analysis and reasoning is contained in section 8.2 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

26.2.3 Aurizon Network's comments on the MAR draft decision

Aurizon Network provided a revised carryover account taking into account approved capital expenditure for 2012–13 and the deferral of GAPE early works capital expenditure (Table 83).

Table 83 Aurizon Network's revised capital expenditure carryover account, end-of-year dollars ($'000, 2012–13)

System	*Non-electric*	*Electric*	*Total*
Blackwater (incl Rolleston & Minerva)	(8,673)	(28,073)	(36,746)
Goonyella (incl Hail Creek & Vermont)	(46,851)	(11,899)	(58,750)
Moura	(2,957)	–	(2,957)
Newlands	977	–	977
GAPE (incl GSE)	(10,902)	–	(10,902)
Total	**(68,405)**	**(39,972)**	**(108,377)**

Source: Aurizon Network, 2014 DAU, sub. 59: 159.

26.2.4 QCA analysis and consolidated draft decision

Our consolidated draft decision is to refuse to approve Aurizon Network's proposed carryover account as proposed in the 2014 DAU as originally submitted.

While Aurizon Network has properly taken account of the deferral of GAPE early-works capital expenditure, we required amendments to the asset lives used by Aurizon Network in its capital carryover model and updated the model to ensure that capital expenditure between 2009–10 and 2012–13 reflects approved capital expenditure for those years. The revised carryover account also reflects our consolidated draft decision on pricing to reallocate $30.3 million of capital expenditure from the Newlands system to GAPE and NAPE Deed customers.

Table 84 Capital expenditure carryover account for the 2014 DAU ($'000, 2012–13)

System	*Non-electric*	*Electric*	*Total*
Blackwater (incl Rolleston & Minerva)	(8,502)	(28,073)	(36,574)
Goonyella (incl Hail Creek & Vermont)	(46,773)	(11,929)	(58,702)
Moura	(2,948)	--	(2,948)
Newlands	(6,024)	--	(6,024)
GAPE (incl GSE)	11,990	172	12,162
Total	(52,257)	(39,830)	(92,087)

We propose to treat any over- or under-recovery of revenue associated with the capital expenditure carryover account through a smoothing process for the 2014 DAU.

Consolidated draft decision 26.2

(1) After considering Aurizon Network's proposed carryover account for the 2014 DAU, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

(2) The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to update the carryover account to reflect approved capital expenditure for 2012–13 and to account for the deferral of GAPE early-works capital expenditure from 2008–09 to 2011–12 as specified in Table 84.

(3) We propose to smooth the return of over-recovery of the capital indicator from the UT3 across the 2014 DAU period.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

26.3 2013–14 RAB roll-forward

The 2013–14 RAB roll-forward should be consistent with our 2014 DAU consolidated draft decision, including our decision on the WACC and depreciation arrangements. Accordingly, we

deferred a decision on the 2013–14 RAB roll-forward until the time of making the 2014 DAU consolidated draft decision[345].

26.3.1 Aurizon Network's proposal

Aurizon Network submitted its 2013–14 RAB roll-forward application to us in June 2015 (Table 85**)**.

Table 85 Aurizon Network's proposed RAB roll-forward ($ '000)

	Opening asset value, 2012–13	*plus 2013-14 Capex[a]*	*plus inflation*	*less depreciation*	*Closing asset value, 2013–14*	*Less Disposals and transfers*	*Opening asset value, 2014–15*
Non-electric							
Goonyella	1,315,228	165,270	47,665	80,554	1,447,609	—	1,447,609
Vermont	43,421	—	1,398	2,892	41,927	—	41,927
Blackwater	1,103,347	97,543	38,663	64,342	1,175,211	—	1,175,211
Rolleston	225,339	3,014	7,352	13,570	222,134	—	222,134
Minerva	69,669	—	2,243	3,366	68,546	—	68,546
Moura	251,089	3,689	8,203	10,334	252,647	—	252,647
Newlands	341,364	7,924	16,262	11,225	354,325	—	354,325
GAPE	1,030,865	17,786	38,375	41,750	1,045,275	—	1,045,275
Electric							
Goonyella	227,084	15,250	7,802	21,162	228,974	424	228,551
Vermont	7,882	—	254	525	7,612	—	7,612
GAPE	4,421	—	142	159	4,405	—	4,405
Blackwater	284,040	5,114	9,309	28,492	269,972	272	269,700
Total Assets	4,903,750	315,590	177,667	278,370	5,118,637	696	5,117,941

a *Capital expenditure has been converted to 'start of year' values.*

QCA analysis and consolidated draft decision

Our consolidated draft decision is to refuse to approve Aurizon Network’s 2013–14 RAB roll-forward application as originally submitted. We consider that the application should be amended to:

(a) reallocate $30.3 million of capex (initially allocated to the Newlands system in 2011–12) to GAPE and NAPE Deed customers

[345] We informed Aurizon Network about this via a letter dated 18 August 2015.

(b) defer the depreciation for NAPE (since there is no railing for NAPE forecast for UT4 period) resulting in higher total opening value as at 2013–14

(c) apply a 20-year asset life for GAPE (electric) assets as per our consolidated draft decision on depreciation arrangements for UT4.

Table 86 shows our consolidated draft decision on Aurizon Network's 2013–14 RAB roll-forward and the variance with Aurizon Network's proposed RAB roll-forward.

Table 86 The QCA consolidated draft decision on the RAB roll-forward ($ '000)

	Opening asset value, 2013-14	*plus 2013-14 Capex*	*plus inflation*	*less depreciation*	*Closing asset value, 2013-14*	*Disposals and transfers*	*Opening asset value, 2014-15*
Non-electric							
Goonyella	1,315,228	165,270	47,665	80,554	1,447,609	—	1,447,609
Vermont	43,421	—	1,398	2,892	41,927	—	41,927
Blackwater	1,103,347	97,543	38,663	64,342	1,175,211	—	1,175,211
Rolleston	225,339	3,014	7,352	13,570	222,134	—	222,134
Minerva	69,669	—	2,243	3,366	68,546	—	68,546
Moura	251,089	3,689	8,203	10,334	252,647	—	252,647
Newlands[i]	316,598	7,924	15,611	9,591	330,542	—	330,542
GAPE[ii]	1,058,906	17,786	39,441	49,447	1,066,686	—	1,066,686
Electric							
Goonyella	227,084	15,250	7,802	21,162	228,974	424	228,551
Vermont	7,883	—	254	525	7,612	—	7,612
GAPE[ii]	4,421	—	142	228	4,335	—	4,335
Blackwater	284,040	5,114	9,309	28,492	269,972	272	269,700
QCA amended Total	**4,907,025**	**315,590**	**178,082**	**284,498**	**5,116,200**	**696**	**5,115,499**
Aurizon Network Total	**4,903,750**	**315,590**	**177,667**	**278,370**	**5,118,637**	**696**	**5,117,941**
Variance	**3,275**	**0**	**415**	**6,132**	**(2,442)**	**0**	**(2,442)**

i *For presentation purposes, Newlands include capital costs related to NAPE deed customers, and GAPE includes capital costs related to GAPE deed customers. However, for pricing purposes, capital costs related to NAPE and GAPE deed customers are deferred until railings commence.* ***ii*** *Includes GAPE, Byerwen (GAPE) and GSE (GAPE).*

Consolidated draft decision 26.3

(1) After considering Aurizon Network's proposed 2013–14 RAB roll-forward, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

(2) The way in which we consider it appropriate that Aurizon Network amend its proposal by amending it to reflect Table 86 above.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

27 RETURN OF CAPITAL

In the building blocks model, the return of capital (depreciation) is included in the build-up of maximum allowable revenue, so that asset owners are able to recover their initial investment in the regulated asset. Regulatory depreciation is a function of:

- *the cost to purchase and place the asset into service (as capitalised into the Regulatory Asset Base (RAB))*
- *the depreciation and indexation methodology*
- *an estimate of the remaining useful life of the relevant asset.*

The regulatory depreciation approach applied to Aurizon Network's RAB was amended for UT3 to deal with concerns about asset stranding. For the 2014 DAU, Aurizon Network proposed an alternative approach to depreciation based on its estimate of a weighted average mine line (WAML) for the CQCN.

Our MAR draft decision was to refuse to approve a further change in regulatory depreciation, as we were not convinced that there had been a significant change in asset stranding risk. Instead, we considered it appropriate to retain the existing arrangements to retain a stable and predictable regulatory environment. The MAR draft decision was supported by Aurizon Network and its stakeholders.

Our consolidated draft decision is to refuse to approve Aurizon Network's 2014 DAU depreciation arrangements. We consider that retaining the UT3 approach to depreciation as per Aurizon Network's December 2014 submission is appropriate.

27.1 Legislative framework

We are required to assess the appropriateness of Aurizon Network's proposal having regard to all of the criteria in section 138(2) of the QCA Act. In the context of assessing Aurizon Network's opening asset value proposal, we must have regard to the factors listed in section 138(2) and weight them appropriately, as discussed in Chapter 2 of this consolidated draft decision.

Against this background, we consider:

- section 138(2)(a), (b), (d), (e), (g) and (h) should be given more weight
- section 138(2)(g) refers to the pricing principles mentioned in section 168A of the QCA Act, of which we consider section168A(a), (c) and (d) should be given more weight
- sections 138(2)(c), 138(2)(f) and 168A(b) should be given less weight, as they are not practically relevant to our assessment of Aurizon Network's proposed depreciation allowance.

An additional consideration relevant to our assessment of Aurizon Network's depreciation allowance is that, to the extent possible, the approach should provide regulatory certainty. We have had regard to this factor pursuant to section 138(2)(h) of the QCA Act. We support a stable and predictable regulatory environment in which the methodology changes only when a clear case is made.

Efficient investment in infrastructure

Section 138(2)(a) of the QCA Act requires that we have regard to the object of Part 5 of the QCA Act as set out in Section 69E, namely to promote the economically efficient operation, use of and investment in the CQCN, as the significant infrastructure by which services are provided, with the effect of promoting effective competition in upstream and downstream markets. Sections 138(2)(g) and 168A 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 should include a return on investment commensurate with regulatory and commercial risks involved.

To meet these objectives, the return on, and of, capital must reflect prudent and efficiently incurred infrastructure investment in the CQCN. Depreciation represents the return of the initial capital to investors. Allowing depreciation in the building blocks model provides the opportunity for investors to recover the capital cost of their prudent and efficient investment in the network.

We also consider, pursuant to section 138(2)(b) of the QCA Act, that Aurizon Network's legitimate business interests similarly require that it is permitted to recover a depreciation allowance sufficient to recover the capital cost of prudently and efficiently incurred infrastructure investment in the CQCN.

Conversely, section 138(2)(d) and (e) require us to have regard to the interests of access seekers and the public interest. We also consider that the rights of existing access holders are relevant under section 138(2)(h), to the extent they are not already 'access seekers' under section 138(2)(e). As identified earlier, consideration of all of these interests leads to a conclusion that Aurizon Network should be permitted to recover expected revenue for the service that is at least enough to meet the efficient costs of providing access service and including a return on investment commensurate with the regulatory and commercial risks involved, as identified in section 168A(a). However, consideration of all those interests also leads to the conclusion that Aurizon Network should be permitted to recover expected revenue that is no more than enough to meet such efficient costs and including that risk-adjusted return on investment. In this manner, effective competition in markets upstream and downstream of the CQCN will be promoted as contemplated by the objective of Part 5 specified in section 69E of the QCA Act.

Moreover, if Aurizon Network is permitted to recover only its efficient costs and risk-adjusted return on investment (i.e. at least enough and no more than enough), it will have incentives to reduce costs and otherwise improve productivity for the purposes of section 168A(d) and will have less scope to discriminate in favour of its downstream operations—which could otherwise raise concerns under section 168A(c).

Allocation of costs

The method used to depreciate capital costs influences when the depreciation charge is recovered through prices and will impact the allocation of costs between current and future users.

When considering cost allocation, in addition to section 138(b) of the QCA Act, we have also had regard to sections 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, via the access price, costs that are not reasonably attributable to the provision of the service.

Our response to Aurizon Network's and stakeholders' submissions regarding our MAR draft decision on Aurizon Network's depreciation allowance proposals is set out below. Each of the following issues is discussed separately:

- asset lives—weighted average mine life
- accelerated depreciation—continuation of 20-year rolling asset lives
- commencement of depreciation.

The first two issues relate to the period over which capital expenditure should be recovered. The third issue relates to whether depreciation should commence in the year the asset is commissioned, or the year after.

27.2 Weighted average mine life

27.2.1 Aurizon Network's proposal

Aurizon Network's 2014 DAU proposed a different approach to determining the period over which assets are depreciated than the approach approved under UT3.

Specifically, Aurizon Network proposed to change the period of depreciation:

- from the rolling 20-year lives for assets included in the RAB after 1 July 2009 and physical lives for assets included prior to 1 July 2009 (UT3 approach),

  to

- an approach in which all assets are depreciated on a straight-line basis over the remaining QCA-endorsed physical life of the asset, except where the remaining physical life of the asset exceeds 25 years, in which case the remaining life of that asset has been capped at WAML (25 years) (2014 DAU approach).

Aurizon Network said we should consider the following issues in estimating the economic lives of CQCN assets, primarily to address stranding risk:

- the impact of new developments on future coal reserves
- the global competitiveness of Queensland coal mines
- the need to match the depreciation profile to the economic characteristics of extractive industries.

27.2.2 QCA MAR draft decision

In response to Aurizon Network's arguments, we considered:

- the demand for expansion of the CQCN appears to have subsided since UT3, with miners having changed focus from expansion to improved productivity of existing assets.
- the depreciation changes in UT3 already takes account of asset stranding risk through the rolling 20-year depreciation for new assets.

In addition, we considered there were measures Aurizon Network could pursue to maximise the efficient use of and investment in infrastructure that provide cost-effective alternatives for new capacity in the CQCN. These alternative strategies would avoid stranding risk including through:

- working more actively with other supply chain participants to optimise the use of the existing infrastructure assets. We noted the Australian Rail Track Corporation (ARTC) in the Hunter Valley Coal Network (HVCN) develops new infrastructure proposals in consultation with a Rail Capacity Group, representing its customers
- capacity transfers to allow unused capacity to move to higher value uses, where infrastructure constraints allow.

We also said we would need to see evidence Aurizon Network had considered incremental capital or operational changes as alternatives to major new capital expansion to meet new demand before we would be convinced that Aurizon Network was required to expand its network at a rate that was increasing the level of its asset stranding risk.

Our MAR draft decision was to refuse to approve Aurizon Network's proposal to adopt the WAML approach for setting asset lives for depreciation for the 2014 DAU because we did not consider there had been a material change in the risk level of asset stranding, which would support a change to the regulatory framework.

Specifically, we stated in our MAR draft decision 8.1:

> *We refuse to approve Aurizon Network's proposal to change to a Weighted Average Mine Life approach for the depreciation of assets.*

Our full analysis and reasoning is contained in section 9 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

27.2.3 Aurizon Network's response

Aurizon Network accepted our decision to refuse to approve a change to the WAML approach for depreciation of assets.

However, Aurizon Network expressed concerns that our MAR draft decision regarding WAML appears contrary to our overall approach to removing complexity and applying a consistent depreciation methodology across all assets. Aurizon Network said it is applying two different methods to calculate depreciation for pricing purposes, depending on the year in which the asset was included in the RAB. Aurizon Network said:

- application of a consistent depreciation methodology across all assets has merit and would reduce modelling complexity[346]
- the use of two separate depreciation methods does not result in an efficient pricing outcome because MAR and access charges for new customers are based on a more aggressive depreciation profile than for the existing customers.[347]

Aurizon Network said it intends to re-evaluate the suitability of the WAML approach in future regulatory periods.

27.2.4 Stakeholders' comments on the MAR draft decision

The QRC noted that Aurizon Network has concerns about the global competitiveness of Queensland coal mines and perversely proposes, based on those concerns, to increase charges

[346] Aurizon Network, 2014 DAU, sub. 59: 160.
[347] Aurizon Network, 2014 DAU, sub. 59: 160, 161.

by accelerating depreciation. The QRC said it would prefer Aurizon Network's influence to be exercised in the opposite direction.[348]

Asciano said changes to depreciation arrangements and methodologies should not be allowed.[349]

27.2.5 QCA analysis and consolidated draft decision

We note Aurizon Network's acceptance of our MAR draft decisions and Aurizon Network's concerns about the complexity attached to the continuation of two different methodologies for depreciating rail infrastructure. We acknowledge that the application of two depreciation methodologies could increase complexity, but consider complexity would not be substantially increased, as it is not a case of introducing a new approach; the current approach would merely be continued.

As per our draft report, we do not think that changed conditions since UT3 justify a change to the depreciation method. Specifically, we continue to consider that asset stranding risk is acknowledged through the rolling 20-year depreciation for new assets. We also consider there are a range of other measures Aurizon Network can pursue to maximise the efficient use of and investment in infrastructure, which could provide cost-effective alternatives to providing additional capacity in the CQCN to avoid stranding risk.

After consideration of stakeholder submissions, we continue to hold the view that Aurizon Network's original 2014 DAU proposal does not achieve an appropriate balancing of the factors set out in section 138(2) of the QCA Act, as it is biased in favour of the interests of Aurizon Network, to the detriment of access seekers and the public interest. We also consider an approach should be adopted which provides for regulatory certainty, pursuant to section 138(2)(h) of the QCA Act.

27.3 Accelerated depreciation—continuation of 20-year rolling asset lives

For UT3, the 20-year rolling depreciation approach was used for assets included in the RAB after 1 July 2009. The suitability of this approach going forward is discussed below.

27.3.1 Aurizon Network's proposal

As discussed above, for its 2014 DAU, Aurizon Network proposed a different approach to calculation of depreciation than the approach approved under UT3. Aurizon Network identified a number of issues with the continued application of the UT3 depreciation approach, particularly:

- the differential rate of depreciation between new and existing users. Aurizon Network said it is unreasonable to potentially require new or expanding producers to bear higher prices relative to other users of common user infrastructure because:
  - they entered the market at a time when the cost of expansions is high
  - if there is no replacement demand they will also be required to bear the risk of prices increasing further in the future.[350]

[348] QRC, 2014 DAU, sub. 62: 20.
[349] Asciano, 2014 DAU, sub. 52: 8.
[350] Aurizon Network, 2013 DAU, sub. 3: 94.

Aurizon Network said this may cause price differentiation between existing and new users solely attributable to differences in depreciation rates and may adversely impact on an access seeker's ability to compete in downstream markets. Aurizon Network also said the UT3 approach:

- does not adequately address the long-term replacement demand risk for installed capacity, given future expansions may occur within the next 10 years
- may result in prices that are not efficient nor consistent with the requirements of section 168A of the QCA Act.

27.3.2 QCA MAR draft decision

Our MAR draft decision was to refuse to approve Aurizon Network's depreciation arrangements for the 2014 DAU. In arriving at our MAR draft decision:

- we were unconvinced that any change in asset stranding risk from UT3 to the 2014 DAU period would require a change to the depreciation approach
- we indicated a preference for stability and predictability to be an important feature of Queensland's economic regulatory environment (s. 138(2)(h) of the QCA Act), which is also in the interests of Aurizon Network's stakeholders, who support no further change to the depreciation approach for the 2014 DAU
- we considered that the UT3 depreciation approach adequately deals with the level of asset stranding risk, and satisfies the legitimate business interests of Aurizon Network[351]
- we considered Aurizon Network had invested in infrastructure on the basis of the depreciation assumptions that existed at the time and that this would have been a factor in its decision making
- we did not agree with Aurizon Network that the UT3 depreciation approach leads to a materially higher level of price differentiation which reduces competition in downstream markets.

Specifically, we stated in our MAR draft decision (at MAR draft decision 9.2):

> *We refuse to approve Aurizon Network's proposal to amend the existing depreciation approach for the 2014 DAU—i.e. a 20-year rolling depreciation approach will be used for assets included in the RAB post 1 July 2009, and depreciation based on physical asset lives will be used for assets included in the RAB prior to 1 July 2009. We consider it appropriate that Aurizon Network amend its 2014 DAU to retain the existing depreciation approach.*

Our full analysis and reasoning is contained in section 9 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

27.3.3 Aurizon Network's response

Aurizon Network accepted our decision to continue the UT3 approach for the depreciation of assets.[352]

[351] In accordance with section 138(2)(b) of the QCA Act, and will allow Aurizon Network to price for access in a manner that is consistent with the requirements of section 168(A)(a) of the QCA Act.
[352] Aurizon Network, 2014 DAU, sub. 59: 162.

27.3.4 Stakeholders' comments on the MAR draft decision

The QRC supported our MAR draft decision to refuse to approve accelerated depreciation for the 2014 DAU period. Asciano said changes to depreciation arrangements and methodologies should not be allowed.

27.3.5 QCA analysis and consolidated draft decision

Aurizon Network and stakeholders have indicated that they accept our suggestion in the MAR draft decision to retain the UT3 depreciation methodology for asset depreciation for the 2014 DAU period. Nonetheless, our consolidated draft decision relates to the 2014 DAU as originally submitted, rather than any subsequent proposal submitted by Aurizon Network. However, any subsequent proposal is relevant to the manner in which we consider it appropriate that the 2014 DAU be amended.

We continue to hold the view that Aurizon Network's original 2014 DAU proposal did not achieve an appropriate balancing of the factors set out in section 138(2) of the QCA Act as it is biased in favour of the interests of Aurizon Network, to the detriment of access seekers and the public interest. We also consider an approach should be adopted which provides for regulatory certainty, pursuant to section 138(2)(h) of the QCA Act.

Consistent with our MAR draft decision, our consolidated draft decision is to refuse to approve Aurizon Network's 2014 DAU depreciation approach. We consider that the 2014 DAU should be amended to adopt the depreciation approach currently used under UT3, as follows:

- A 20-year rolling depreciation approach will be used for assets included in the RAB after 1 July 2009.
- Depreciation based on physical asset lives will be used for assets included in the RAB prior to 1 July 2009.

Consolidated draft decision 27.1

(1) After considering Aurizon Network's proposal to determine the depreciation periods in the 2014 DAU, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

(2) We consider that retaining the UT3 approach to depreciation as per Aurizon Network's December 2014 submission is appropriate. The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to retain the existing depreciation approach, as follows:

(a) A 20-year rolling depreciation approach will be used for assets included in the RAB post 1 July 2009.

(b) Depreciation based on physical asset lives will be used for assets included in the RAB prior to 1 July 2009.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in sections 27.2 and 27.3.

27.4 Summary

Taking account of Aurizon Network's proposed depreciation approach for the 2014 DAU, our consolidated draft decision for the depreciation allowance for the 2014 DAU is to refuse to

approve Aurizon Network's proposal. We consider it appropriate that Aurizon Network amend the depreciation allowance in the 2014 DAU so as to give rise to the depreciation charges as set out in the final row below.

Table 87 Depreciation charges 2013–14 to 2016–17 ($ million, nominal)

Aurizon Network proposals and QCA decisions	***2013–14***	***2014–15***	***2015–16***	***2016-17***	***Total***
Aurizon Network original proposal (April 2013)	269.7	291.1	346.5	348.5	1,255.9
Aurizon Network revised proposal (Dec 2013)	265.1	288.1	313.4	357.9	1,224.5
QCA MAR draft decision (Sep 2014)	270.7	300.5	352.0	375.8	1,318.5
Aurizon Network post–MAR draft decision revised proposal (Dec 2014)	283.7	306.9	375.8	390.8	1,357.3
QCA consolidated draft decision (Nov 2015)	**273.8**	**294.5**	**345.6**	**354.6**	**1,268.5**

The difference between the depreciation charge proposed by Aurizon Network and by the QCA relates mainly to a reduction in capital expenditure over the period (refer Chapter 26—Regulatory Asset Base) and a reduction in interest during construction due to a reduced WACC (refer Chapter 28—Return on Investment).

28 RETURN ON INVESTMENT

The return on investment is a significant component of the reference tariffs for each system in the CQCN. The return on investment is calculated using a regulatory WACC, which comprises an approved: cost of equity; cost of debt; and benchmark capital structure.

Aurizon Network's 2014 DAU proposal was for a WACC of 8.18 per cent per annum, comprising a:

- *cost of equity of 10.15 per cent per annum*
- *cost of debt of 6.56 per cent per annum*
- *benchmark capital structure of 55 per cent gearing (i.e., 55% debt).*

In our MAR draft decision, we proposed to refuse to approve Aurizon Network's 2014 DAU WACC proposal. We required Aurizon Network to amend the 2014 DAU to apply a regulatory WACC of 7.17 per cent per annum, comprising a:

- *cost of equity of 8.41 per cent per annum*
- *cost of debt of 6.15 per cent per annum*
- *benchmark capital structure of 55 per cent gearing.*

In this consolidated draft decision, we have maintained our MAR draft decision position with regard to the regulatory WACC for the 2014 DAU. Our reasons for this decision are discussed in detail in this chapter of the consolidated draft decision and in chapter 10 of the MAR draft decision.

28.1 Background

The regulated rate of return on the central Queensland coal network (CQCN) is a key input into determining the MAR for Aurizon Network for the purposes of the 2014 DAU.

The regulated rate of return is calculated using a regulatory weighted average cost of capital (WACC) for Aurizon Network.

The regulatory WACC for Aurizon Network comprises three primary components:

- cost of equity—typically estimated with reference to the Capital Asset Pricing Model (CAPM)
- cost of debt—observed or estimated from the current debt rate
- capital structure—an appropriate debt and equity capital structure for Aurizon Network, typically determined by benchmarking.

While some elements of the WACC are firm-specific (e.g. the asset beta and capital structure), other components are more general in nature and are unlikely to differ from business to business—such as the risk-free rate, market risk premium and value of dividend imputation credits (i.e. gamma). These 'market parameters' are key drivers of the WACC.

Separately, the QCA has recently undertaken a review of the WACC parameters as they apply to services regulated under the QCA Act in Queensland (the QCA cost of capital methodology review). That review identified the methodology that we will generally apply in assessing the appropriateness of the WACC parameters proposed by Aurizon Network for the 2014 DAU, consistent with the requirements of the QCA Act. That review has also provided guidance on the

components of the WACC that are more general in nature and are unlikely to differ from business to business. Our analysis in the 'Cost of capital: market parameters' and 'Cost of debt estimation methodology' final decisions of August 2014 (the 'market parameters decision' and 'cost of debt decision' respectively) therefore is an important component of our reasoning underpinning this consolidated draft decision and, by reference, our MAR draft decision. We have adopted that analysis for the purposes of this consolidated draft decision.

We have drawn on our cost of capital methodology review and stakeholders' submissions on it, to the extent these are relevant to our consideration of Aurizon Network's proposal. However, our full consideration of the matters raised by Aurizon Network and stakeholders, and of the statutory factors in section 138(2) of the QCA Act, is set out in this consolidated draft decision and, by reference, in our MAR draft decision.

28.2 Aurizon Network's proposal

In its 2010 access undertaking, Aurizon Network's nominal 'vanilla' WACC was set at 9.96 per cent. Given the risk-free rate of 5.19 per cent, set at the commencement of the 2010 regulatory period, the equity and debt margins were 4.80 per cent and 4.75 per cent respectively.

2014 DAU proposal

For the 2014 DAU, Aurizon Network proposed a range for its WACC of 7.27 to 8.18 per cent, with its preferred point estimate of 8.18 per cent being the upper bound of the range.

In its original proposal, Aurizon Network outlined a range of issues for us to consider as we estimate the WACC for the 2014 DAU, including:

- 'framework issues', including commercial and regulatory risks, estimation error and financial market conditions
- its concern that the 'mechanistic' application of the approach we used for the 2010 access undertaking would result in a cost of equity that is the lowest on record
- its concern about our decision on the 2010 access undertaking to base the risk-free rate and debt risk premium on a five-year term to maturity (except for the purposes of estimating the market risk premium).

QCA MAR draft decision

In chapter 10 of our MAR draft decision, we reached various draft decisions in relation to the various parameters for the post-tax nominal (vanilla) WACC for the 2014 DAU that had been proposed by Aurizon Network. In a number of instances, we decided to refuse to approve WACC parameters proposed by Aurizon Network and instead identified the way in which the 2014 DAU should be amended.

Ultimately, we concluded (in MAR draft decision 10.17) that we considered it appropriate that Aurizon Network amend its draft access undertaking to set a post-tax nominal (vanilla) WACC for the 2014 DAU of 7.17 per cent, incorporating:

- a cost of equity of 8.41 per cent
- a cost of debt of 6.15 per cent
- benchmark gearing of 55 per cent.

Our full analysis and reasoning are contained in chapter 10 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

Aurizon Network's revised proposal

Subsequently, in its submission on our MAR draft decision, Aurizon Network proposed a revised WACC of 7.62 per cent.

We note that we are required to assess the 2014 DAU as originally submitted by Aurizon Network for the purposes of our consolidated draft decision. However, if we refused to approve the 2014 DAU in relation to the WACC originally submitted, the revised WACC of 7.62 per cent proposed by Aurizon Network is relevant to our conclusion regarding the way in which we consider the 2014 DAU should be amended.

Aurizon Network's original 2014 DAU lower and upper bound positions are shown below, the 2010 access undertaking position, the preliminary position contained in our MAR draft decision, and Aurizon Network's revised position.

Table 88 Proposed WACC values

Parameter	*2010 access undertaking*	*Aurizon Network's 2014 DAU (lower bound)*	*Aurizon Network's 2014 DAU (upper bound)*	*QCA's preliminary view (MAR draft decision)*	*Aurizon Network's revised position*
Credit rating	BBB+	BBB+	BBB+	BBB+	BBB+
Risk-free rate	5.19%	3.15%	3.15%	3.21%	3.21%
Market risk premium	6.0%	6.0%	7.0%	6.5%	6.5%
Asset beta	0.45	0.5	0.6	0.45	0.5
Debt beta	0.12	0.12	0.12	0.12	0.12
Debt to value	55%	55%	55%	55%	55%
Equity beta	0.8	0.9	1.0	0.8	0.9
Gamma	0.5	0.25	0.25	0.47	0.25
Equity margin	4.8%	5.4%	7.0%	5.2%	5.85%
Cost of equity	9.99%	8.55%	10.15%	8.41%	9.06%
Debt risk premium (raw)	4.45%	2.94%	3.28%	2.72%	3.0%
Debt transaction costs	0.125%	0.125%	0.125%	0.108%	0.108%
Interest rate swap costs	0.175%	NA	NA	0.113%	0.113%
Total debt margin	4.75%	3.065%	3.405%	2.94%	3.23%

Parameter	*2010 access undertaking*	*Aurizon Network's 2014 DAU (lower bound)*	*Aurizon Network's 2014 DAU (upper bound)*	*QCA's preliminary view (MAR draft decision)*	*Aurizon Network's revised position*
Cost of debt	9.94%	6.22%	6.56%	6.15%	6.44%
WACC margin	4.77%	4.12%	5.03%	3.96%	4.41%
WACC	**9.96%**	**7.27%**	**8.18%**	**7.17%**	**7.62%**

28.3 Legislative requirements

In assessing Aurizon Network's WACC proposal, we have had regard to all the factors in section 138(2) of the QCA Act. In the context of assessing Aurizon Network's proposal, we must have regard to the factors listed in section 138(2) and weight them appropriately, as identified in Chapter 2 of this consolidated draft decision.

In this case, Aurizon Network's proposal relates to the WACC to be applied over the term of the draft access undertaking for the purposes of calculating the maximum allowable revenue, including the various parameters for determining the WACC.

Against this background, we consider:

- sections 138(2)(a), (b), (d), (e), (g) and (h) should be given more weight, as identified below
- section 138(2)(g) refers to the pricing principles mentioned in section 168A, of which we consider section 168A(a), (c) and (d) should be given more weight, as identified below
- sections 138(2)(c), 138(2)(f) and 168A(b) should be given less weight, as they are less practically relevant to our assessment.

28.4 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 as set out in section 69E, namely to promote the economically efficient operation, use of and investment in the CQCN, as the significant infrastructure by which services are provided, with the effect of promoting effective competition in upstream and downstream markets.

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 the regulatory and commercial risks involved.

In broad terms, we consider, pursuant to section 138(2)(b) of the QCA Act, that the legitimate business interests of Aurizon Network will be met if the WACC is determined so as to ensure Aurizon Network can earn a return on capital enabling it to attract efficient debt and equity investment. We note that the theory behind the CAPM is that investors should be compensated for systematic risk, but not non-systematic risk, as the latter can be diversified by investors holding a prudent investment portfolio.

Conversely, section 138(2)(e) and (d) require us to have regard to the interests of access seekers and the public interest. We also consider that the rights of existing access holders are relevant

under section 138(2)(h), to the extent they are not already 'access seekers' under section 138(2)(e). As identified earlier, consideration of all of these interests leads to a conclusion that Aurizon Network should be permitted to recover expected revenue for the service that is at least enough to meet the efficient costs of providing the access service, including a return on investment commensurate with the regulatory and commercial risks involved, as identified in section 168A(a). However, consideration of all those interests also leads to the conclusion that Aurizon Network should be permitted to recover expected revenue that is no more than enough to meet such efficient costs, including the risk-adjusted return on investment. In this manner, effective competition in markets upstream and downstream of the CQCN will be promoted, as contemplated by the object of Part 5 specified in section 69E of the QCA Act.

Moreover, if Aurizon Network is permitted to recover only its efficient costs and risk-adjusted return on investment (i.e. at least enough and no more than enough) it will have incentives to incur costs efficiently for the purposes of section 168A(d) and will have less scope to discriminate in favour of its downstream operations—which could otherwise raise concerns under section 168A(c).

A further additional factor relevant to our assessment of Aurizon Network's proposal is that, where possible, an approach should be adopted which provides for regulatory certainty. We have had regard to this factor pursuant to section 138(2)(h) of the QCA Act. We support a stable and predictable regulatory environment for Aurizon Network and other stakeholders, an environment in which there are changes to methodology only where there is a clear case for such changes.

28.4.1 Allocation of costs

When considering cost allocation, in addition to section 138(2)(b) of the QCA Act, we also have had regard to section 137(1A)(b), as well as section 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, via the access price, costs that are not reasonably attributable to the provision of the service.

28.5 Pricing principles

28.5.1 Framework issues

Aurizon Network's proposal

In its 2014 DAU proposal, Aurizon Network identified five specific rate of return issues that it said should be considered in the context of the pricing principles in the QCA Act as 'framework issues', in addition to the legislative requirements identified above. These matters include:

- the investor's perspective
- Aurizon Network's commercial and regulatory risks
- an estimation error
- application of the net present value (NPV) = 0 principle
- the financial market environment.

We addressed each of these matters in detail in section 10.3 of our MAR draft decision, including a summary of Aurizon Network's proposal. Our full analysis and reasoning are

contained in section 10.3 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

We also addressed these matters in our market parameters decision. We adopt that analysis for the purposes of this consolidated draft decision, subject to the comments below.

Stakeholders' comments

We note that Aurizon Network did not comment further on the framework issues in its submission on our MAR draft decision.

The QRC and Vale commented on the estimation error, indicating they believe there is no justification for Aurizon Network's approach to the rate of return, which involves adopting the upper bound of a range of estimates for each parameter. The QRC welcomed the comments made by the QCA regarding our overall approach to determining the rate of return and, in particular, agreed that we should be seeking to 'apply the best estimate of each parameter, rather than err on the high side.'

Anglo American said it was particularly concerned with Aurizon Network's argument that a central consideration when determining WACC should be the investor's perspective. It said it understands and supports the fact that the legitimate business interests of Aurizon Network are to be considered as part of our decision. However, while Anglo American agreed that investors should not in any way be disadvantaged by the decision, Anglo American also considered that Aurizon Network should certainly not be entitled to increased returns simply to protect investors from an investment risk that they were well aware of and that is central to Aurizon Network's existence as a regulated entity.

QCA position on framework issues

We consider that no new evidence has been presented that demonstrates that our consideration of these framework issues was incorrect or inappropriate in section 10.3 of our MAR draft decision, and no issue raised by stakeholders has caused us to revise our conclusions about these matters.

We therefore affirm and maintain our positions on the framework issues, as detailed in section 10.3 of our MAR draft decision. In particular, we:

- agree with Aurizon Network that assessment of its WACC proposal should involve consideration of the investor's perspective, but consider that the legitimate business interests of Aurizon Network (and its investors) will be met if the WACC is determined such that Aurizon Network can earn a return on capital enabling it to attract efficient debt and equity investment, consistent with the pricing principles in section 168A of the QCA Act
- agree with the QRC that, while the investor's perspective is important, it is not the only relevant consideration. Efficient investment is also an important objective—and does not include under- or overinvestment. While underinvestment in the rail infrastructure has negative implications for Aurizon Network and its investors (and the coal industry through potential lack of future capacity), overinvestment also has negative implications as it may lead to underinvestment at other functional levels of the coal supply chain, including mine development
- do not consider that Aurizon Network necessarily faces greater non-systematic risk, including regulatory risk, than other regulated Australian businesses in comparable circumstances. This is with the knowledge that regulatory regimes are designed to fit the particular circumstances of the regulated entities and sectors being regulated—meaning it is

inevitable that the regulatory regime that applies to Aurizon Network will differ in some ways from other Australian regulatory regimes. However, differences in regulatory regimes do not necessarily translate into differences in non-systematic risk

- do not accept Aurizon Network's view that non-systematic risks should be addressed via specifying a range for the WACC and selecting a WACC from within that range. Rather, we consider the WACC (and its constituent parameters) should be determined by carefully assessing all available evidence and using our best judgement to calculate the point estimates that will give rise to an estimate of the WACC that best meets the pricing principles and the other factors in section 138(2) of the QCA Act
- have adopted an approach of applying the best estimate for each WACC parameter, rather than erring on the high side. We consider this approach achieves the correct weighting of the factors set out in section 138(2) of the QCA Act, and achieves an appropriate balance between the competing interests of the various stakeholders
- accept that the CAPM can be subject to some estimation error and is sensitive to the assumptions underpinning it. However, we consider that it remains the model most widely used by regulators (and the corporate sector) to estimate the cost of equity, and it is simpler to understand and easier to apply than competing asset pricing models
- are satisfied that the NPV = 0 principle:
  - achieves an appropriate balancing of the factors set out in section 138(2) of the QCA Act
  - does not prevent commercial and regulatory risks, to the extent they exist, being identified, quantified and incorporated into a regulated firm's prices
  - requires alignment of the term of the risk-free rate with the length of the regulatory cycle (i.e. term matching)[353]
- have adopted the approach of considering a broader range of relevant information (than in previous decisions) in reaching our MAR draft decision and this consolidated draft decision
- consider that current market conditions are not sufficiently different from previous market conditions to warrant significant alteration to the approach we use to calculate the WACC and its parameters. However, we have exercised our judgement to estimate each WACC parameter on the basis of the evidence before us, and we have adjusted our approaches to the estimation task where warranted
- consider our WACC estimate, including the cost of equity and cost of debt, is properly reflective of existing market conditions and is reasonably consistent with recent estimates made by other Australian regulators.

28.5.2 Consistency with requirements of the QCA Act

While Aurizon Network did not directly comment further on the 'framework issues' in its submission on our MAR draft decision, it did raise concerns regarding consistency of the WACC proposed in the MAR draft decision with the QCA Act—particularly the pricing principles contained in section 168A of the Act.

[353] This is discussed in greater detail in our consideration of the risk-free rate, in Section 28.6 of this consolidated draft decision.

Aurizon Network's submission on the MAR draft decision

Aurizon Network submitted that the WACC analysis we employed in the MAR draft decision fell short of regulatory best practice in that it did not provide a return on investment sufficient to compensate the providers of capital for the regulatory and commercial risks involved in investing in the CQCN.

In particular, Aurizon Network submitted that:

- setting an appropriate WACC is essential to the QCA meeting its legislative requirements under the QCA Act, and is particularly critical to:
  - promoting the primary objective of Part 5 of the QCA Act, namely to promote the economically efficient operation of, use of and investment in, significant infrastructure by which services are provided, with the effect of promoting competition in upstream and downstream markets (section 69E)
  - having regard to the legitimate business interests of the owner/operator of the service (section 138(2)). In this regard, Aurizon Network noted that the Australian Competition Tribunal has held that 'legitimate business interests' include being able to achieve a normal return on invested capital[354]
  - allowing the entity to generate expected revenue for the relevant 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 (section 168A(a))
- to the extent there is any balance to be struck between the interests of Aurizon Network, users or persons who may seek access, and the public interest, the specific use of the words 'at least' in section 168A(a) should encourage the QCA, when exercising its functions and powers in respect of the WACC, particularly where there is uncertainty, to take a conservative approach. This is because section 168A(a) recognises that:
  - asymmetric risks arise where networks are not properly funded—that is, the risks that arise where a network is under-funded are greater than the risks that arise where networks are over-funded
  - regulated businesses that are provided with an opportunity to recover at least efficient costs are provided with an incentive to become more efficient over time.

QCA analysis and consolidated draft decision

We do not agree with Aurizon Network's contention that our MAR draft decision on the WACC did not meet the legislative requirements of the QCA Act.

In particular, as discussed in detail in sections 10.2 and 10.3 of our MAR draft decision, and reiterated above, we consider that we:

- applied an approach to the determination of the WACC that meets the object of Part 5 of the QCA Act. Specifically, the permitted recovery of a return on investment commensurate with the regulatory and commercial risks contributes to the economically efficient operation of, use of, and investment in, CQCN infrastructure, with the effect of promoting effective

[354] Re Telstra Corporation Limited [2006] ACompT 4 (2 June 2006).

competition in upstream and downstream markets as contemplated by section 69E of the QCA Act.

- had regard to the legitimate business interests of Aurizon Network (as owner and operator of the service) in the formulation of our WACC proposal, pursuant to section 138(2)(b) of the QCA Act. This matter was one of the relevant legislative requirements given relatively more weight in our assessment of the appropriate WACC. Moreover, in relation to Aurizon Network's reference to the Australian Competition Tribunal's Telstra decision, the achievement of a normal return on invested capital is included in the legitimate business interests of Aurizon Network through application of the WACC.
- provided Aurizon Network with expected revenue sufficient to meet the efficient costs of providing access to the service and a return on investment commensurate with the regulatory and commercial risks involved, pursuant to section 168A(a) of the QCA Act.

Aurizon Network's interpretation of the words 'at least' in section 168A(a) of the QCA Act seems to imply that the WACC should be set such that the expected revenue should be more than that needed to cover efficient costs and an appropriate risk-adjusted return on investment. This higher WACC is apparently sought by Aurizon Network to cover the additional risk associated with possible under-funding, and to provide an incentive for Aurizon Network to become more efficient over time.

We do not agree with Aurizon Network's interpretation for the following reasons:

- Aurizon Network stated that section 168A(a) of the QCA Act recognises that asymmetric risks arise where networks are not properly funded, and that regulated businesses that are provided with an opportunity to recover at least efficient costs are provided with an incentive to become more efficient over time. However, we can find no reference to these matters in the QCA Act, and Aurizon Network did not provide further support of this claim.
- the formulation of our WACC is based on regulatory best practice using generally accepted finance theory. The WACC rewards investors for bearing the systematic risk of their investments. As discussed in section 10.3.5 our MAR draft decision and section 2.3 of our market parameters decision, a return on investment more or less than this could lead to inefficient investment decisions and adverse economic outcomes.
- our calculation of the WACC has regard to the relevant factors set out in the QCA Act and weighs them appropriately, taking into account, for example, the interests of all stakeholders and the public interest.

Aurizon Network's revised proposal

Aurizon Network submitted that, while it considers that its original WACC of 8.18 per cent represents a return on investment commensurate with the risks involved, in light of the QCA's MAR draft decision, it now proposes that an amended WACC of 7.62 per cent or higher may be more appropriate for pragmatic reasons.

We note that in reaching our consolidated draft decision we need to consider whether to approve the 2014 DAU (and hence the original WACC of 8.18 per cent) as originally submitted by Aurizon Network and we can only do so if we consider it appropriate to do so having regard to the matters set out in section 138(2) of the QCA Act. For the purposes of this consolidated draft decision, we are not therefore assessing the 'amended' WACC of 7.62 per cent, but rather the original proposed WACC of 8.18 per cent.

However, if we determined that it was not appropriate to approve the 2014 DAU, we have an obligation under section 136(5)(b) of the QCA Act to state the way in which we consider it is appropriate to amend the 2014 DAU. We believe that Aurizon Network's proposal for an amended WACC of 7.62 per cent is relevant to this second issue, namely the way in which we consider it appropriate to amend the 2014 DAU.

Aurizon Network's revised WACC proposal is based on a set of parameters which now differ from those proposed by the QCA in the MAR draft decision, with Aurizon Network now proposing:

- a debt risk premium of 3.0 per cent (compared with the previous upper-bound estimate of 3.28 per cent) after correction for (alleged) sample bias
- an asset beta of 0.50 and an equity beta of 0.90 (compared with previous upper-bound estimates of 0.60 and 1.0, respectively)
- a gamma value of 0.25 (same as the previous estimate).

In effect, Aurizon Network proposed that it will accept the QCA's position on all other WACC parameters on condition that the QCA applies a WACC of 7.62 per cent or higher.

Aurizon Network also compared its revised position on WACC with its previous position, the QCA's MAR draft decision and the AER's recent draft decisions on the energy businesses of the Australian Capital Territory (ACT) and New South Wales (NSW).

Table 89 reproduces the comparison of relevant parameter values from table 10.1 of Aurizon Network's submission. The AER's parameter values are those drawn from its draft decisions except for the risk-free rate and the debt risk premium, which have been amended by Aurizon Network to reflect its averaging period.

Table 89 Comparison of WACC parameters

Parameter	*Aurizon Network's 2014 DAU (upper bound)*	*QCA's MAR draft decision*	*AER's draft decision amended to reflect Aurizon Network's averaging period*	*Aurizon Network's revised position*
Credit rating	BBB+	BBB+	BBB+	BBB+
Risk-free rate	3.15%	3.21%	4.06%	3.21%
Market risk premium	7.0%	6.5%	6.5%	6.5%
Asset beta	0.6	0.45	—	0.5
Debt beta	0.12	0.12	0	0.12
Debt to value	55%	55%	60%	55%
Equity beta	1.0	0.8	0.7	0.9
Gamma	0.25	0.47	0.4	0.25
Cost of equity	10.15%	8.41%	8.61%	9.06%
Debt risk premium	3.28%	2.72%	3.60%	3.00%

Parameter	*Aurizon Network's 2014 DAU (upper bound)*	*QCA's MAR draft decision*	*AER's draft decision amended to reflect Aurizon Network's averaging period*	*Aurizon Network's revised position*
Debt transaction costs	0.125%	0.108%	0.099%	0.108%
Interest rate swap costs	—	0.113%	—	0.113%
Total debt margin	3.405%	2.94%	3.70%	3.23%
Cost of debt	6.56%	6.15%	7.76%	6.44%
WACC (post-tax nominal)	**8.18%**	**7.17%**	**8.10%**	**7.62%**

Aurizon Network contended that it is hard to reconcile the significant difference between the WACC as determined by the QCA (7.17%) and the AER (8.10%) with the QCA's view that Aurizon Network is of similar risk to the energy and water sectors.

QCA analysis and consolidated draft decision

As identified above, our consolidated draft decision is in relation to the WACC and parameters originally proposed by Aurizon Network. Aurizon Network's revised proposal is only relevant to the way in which we consider the 2014 DAU should be amended, should we refuse to approve relevant aspects of the 2014 DAU.

However, we do not accept Aurizon Network's proposal to adopt certain of our MAR draft decision parameter estimates on condition that we propose an overall WACC greater or equal to 7.62 per cent per annum when stating how we consider the 2014 DAU should be amended. Our calculation of the return on investment has followed our normal practice of applying the post-tax nominal ('vanilla') version of Officer's WACC, based on appropriate and consistent point estimates of constituent parameters, and this approach has been maintained for this consolidated draft decision.

We also do not agree with Aurizon Network's contention that the difference between our estimate of the WACC and the estimate of the AER is difficult to reconcile with our view that Aurizon Network is of similar risk to the energy and water sectors. On the contrary, and as pointed out by Aurizon Network in its note to table 10.1 of its submission, there are clear methodological and empirical reasons for the difference between the WACC estimates. In particular, using the values in Aurizon Network's table 10.1:

- the AER's cost of equity estimate (8.61%) is higher than ours (8.41%) despite the fact that the AER's equity beta (0.70) is lower than ours (0.80) at a higher leverage (60% vs 55%) and the same market risk premium (6.5%). That is, while our measure of systematic risk is higher than the AER's measure, the AER's rate of return on equity is higher. This difference is largely explained by the use of: different approaches to the estimation of beta and the return on equity, different de-leveraging/re-leveraging formulae (Brealey–Myers for AER and Conine for us), and different terms for the risk-free rate (10 years for the AER and four years for us)
- the AER's cost of debt estimate (7.76%) is higher than ours (6.15%). This difference is largely explained by the use of different terms for the risk-free rate, the different methodologies used for calculating the cost of debt (trailing average for the AER and 'on-the-day' for us)

and, importantly, the AER's use of Reserve Bank of Australia (RBA) data as the basis for its estimates—with the RBA methodology appearing to produce estimates that are substantially higher than estimates using other approaches.

This matter was also raised by QRC. QRC argued that the parameter assumptions used by Aurizon Network when back-casting the AER's decisions to Aurizon Network's averaging period may not hold. The QRC also considered that, consistent with the view of the AER, the most relevant metric for comparisons among regulators was the equity risk premium, and in this regard the QRC believed the QCA's allowance to be generous given Aurizon Network's exposure to systematic risk. While we do not believe our estimate is generous, we do consider it is consistent with an efficient return on capital, in accordance with the QCA Act, and comparable to the returns set in other regulatory decisions.

28.6 Risk-free rate

The risk-free rate is the rate of return on an asset with zero default risk.

The rate of return on a risk-free asset compensates the investor for the time value of money. As such, it is the base rate to which the investor adds a premium for risk. The current rate of return on the risk-free asset reflects the latest market information and expectations and is, therefore, the relevant benchmark. The current risk-free rate is used as an input to estimate both the cost of equity and the cost of debt components of the WACC.

We explained our approach in section 10.4 of our MAR draft decision. We also set out a more detailed overview of our approach to the risk-free rate in section 3 and appendix B of our market parameters decision. We have adopted that analysis for the purposes of this consolidated draft decision, subject to the comments below.

Aurizon Network's proposal

In the 2014 DAU, Aurizon Network proposed a 10-year risk-free rate of 3.15 per cent per annum, based on the nominal yields of Commonwealth Government bonds and an indicative averaging period of the 20 days ending 30 November 2012, with the actual averaging period to be determined.

Aurizon Network's risk-free rate proposal is discussed in greater detail in section 10.4 of our MAR draft decision. In summary, Aurizon Network:

- supported a 10-year term for the risk-free rate rather than our approach of aligning the term of the risk-free rate with the term of the regulatory period
- subsequently proposed an actual averaging period of 4–31 October 2013 suited to its debt refinancing policy—that is, around four months later than the 20-day period immediately preceding the start of the regulatory cycle that we would normally apply
- expressed concern with estimating the risk-free rate at a time when Commonwealth Government bond yields are near historical lows.

Stakeholders' initial comments

The QRC:

- supported our approach of matching the term of the risk-free rate to the term of the regulatory period

- estimated a risk-free rate of 2.76 per cent per annum using an indicative averaging period of November 2012 and based on a five-year term of bond[355]
- noted that it was not standard regulatory practice to allow a regulated firm to delay nominating the averaging period from that normally adopted near the start of the regulatory period.

Anglo American:

- did not support a 10-year term for the risk-free rate
- considered the averaging period should be nominated in advance to prevent the regulated firm from choosing an averaging period that favours the firm.

QCA MAR draft decision

Our full analysis and reasoning are contained in section 10.4 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

Our MAR draft decision was as follows:

> *10.1 We refuse to approve the indicative estimate of the 10-year risk-free rate proposed by Aurizon Network of 3.15%.*
>
> *10.2 We propose to estimate the risk-free rate as:*
>
> *(a) Commonwealth Government nominal bond yields as the proxy for the risk-free rate*
>
> *(b) a 20-day averaging period of 20 business days to 31 October 2013*
>
> *(c) a term to maturity consistent with the regulatory cycle (i.e. four years)*
>
> *10.3 We consider it appropriate that Aurizon Network amend its draft access undertaking based on Aurizon Network's averaging period, to reflect our estimate of the risk-free rate at 3.21%.*

In this manner, our MAR draft decision proposed that Aurizon Network amend its draft access undertaking to reflect our estimate of the risk-free rate of 3.21 per cent per annum based on the average of four-year Commonwealth Government nominal bond yields over Aurizon Network's proposed averaging period—that is, the 20 business days to 31 October 2013. An explanation of our full analysis and reasoning is contained in section 10.4 of the MAR draft decision.

In summary, we:

- maintained our view that the NPV=0 principle requires that the term of the risk-free rate should be the same as the term of the regulatory period. While recognising that some other regulators use a 10-year term for the risk-free rate as the result, at least in part, of their statutory requirements, we considered that meeting the NPV=0 principle takes into account and appropriately balances the factors for which we must have regard under the QCA Act
- affirmed our previous analysis that it is appropriate to use the term of the regulatory period for the risk-free rate, while continuing to estimate the market risk premium using methods that imply a 10-year term for the risk-free rate
- concluded that matching the term of the risk-free rate to the term of the regulatory period was not inconsistent with the appropriate criteria needed to achieve economically efficient outcomes for regulated entities

[355] The QRC used a five-year bond yield to proxy a four-year yield in this case (QRC, sub. 64: 10, footnote 18).

- noted that our approach to setting the risk-free rate was also consistent with our approach taken previously in consideration of the 2010 access undertaking and with our other regulatory decisions since 2009
- accepted Aurizon Network's proposal to delay the averaging period into the review process, although this decision is not to be regarded as a precedent. In this case, we were advised prior to the lodgement of the 2013 DAU; the reasons provided were legitimate; and the delay did not prejudice the other considerations to which we must have regard under the QCA Act.

Stakeholders' comments on the MAR draft decision

Aurizon Network

Aurizon Network submitted that:

- it agreed that the QCA's use of Commonwealth Government nominal yields and an averaging period of 20 days near the start of the regulatory period is generally consistent with Australian regulatory precedent. However, it did not agree that matching the term of the risk-free rate to the term of the regulatory period accords with prevailing Australian regulatory practice
- the systematic downward bias in the estimated cost of equity caused by the inconsistent use of the risk-free rate in the CAPM needed to be corrected by the QCA. This view is supported by:
  - regulatory precedents (and associated expert advice) supporting the consistent use of a 10-year term for both the risk-free rate and market risk premium (e.g. ERA(WA) rail decisions; ACT's 2013 APA GasNet decision)
  - expert advice suggesting Lally's analysis of the NPV=0 principle was flawed. For example, Officer and Bishop, SFG Consulting and The Brattle Group contended that term-matching requires that the value of the regulated assets at the end of the regulatory period is known with certainty and that this condition is not satisfied in practice
- to fund the long-term growth and expansion of the CQCN, Aurizon Network needed to engage in long-term debt funding as this reduces the financial risks of projects that extend beyond the regulatory period. The QCA's term-matching approach—by setting the allowed return below the return investors would require in a commercial setting—effectively penalises the regulated firm for implementing efficient financing and risk management practices. This contradicts the objectives of Part 5 of the QCA Act, and in particular section 138(2) on legitimate business interests, and section 168(A) on pricing principles
- despite the above objections, for 'pragmatic' reasons, Aurizon Network amended the WACC in the 2014 DAU to incorporate the MAR draft decision risk-free rate of 3.21 per cent per annum, subject to the QCA adopting an overall WACC of 7.62 per cent per annum or higher.

Aurizon Network's submission also contained a report from its consultant (SFG) on the risk-free rate proposed in the MAR draft decision. Responses to the issues raised in that report are provided below.

Other stakeholders

The QRC, Vale and Anglo American all supported our approach to estimating the risk-free rate.

Consultant's advice

We commissioned Lally to comment on stakeholders' submissions on the MAR draft decision, including the advice provided to Aurizon Network by its consultants, SFG and The Brattle Group. Lally's detailed comments are set out in Lally 2015b and have been considered by us for the purposes of this consolidated draft decision. The main points are summarised below.

SFG Consulting (SFG)

Lally responded to SFG's advice to Aurizon Network about the term of the risk-free rate, as follows:[356]

- SFG's argument that the term of the risk-free rate should be 10 years—because that is the term used in commercial valuation practice—was not supported. The setting of the regulatory rate of return is an unrelated exercise whose purpose is to cover a regulated entity's efficient costs. This is equivalent to satisfying the NPV=0 principle by matching the term of the risk-free rate to the term of the regulatory period.
- SFG's reference to the results of a 2013 survey by Incenta Economic Consulting (Incenta) on the valuation of regulated businesses by investment analysts, which suggested that the QCA should adopt the 10-year term for the risk-free rate, was previously disputed by Lally (Lally 2014); SFG has not responded to the analysis in Lally 2014.
- SFG's contention that the NPV=0 principle is violated (because the value of the business at the end of the regulatory cycle is uncertain rather than known at the start of the period), was not supported. Lally 2004 demonstrated that the NPV=0 principle implies that the appropriate term of the risk-free rate is the term of the regulatory period—because 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 for the risk-free rate.
- Although the QCA's approach of using different terms for the risk-free rate in the first and second components (i.e. risk-free rate and the equity premium) of the CAPM was inconsistent, so was SFG's proposed use of the same fixed term for the risk-free rate (i.e. 10 years) in both components of the CAPM and applying that same fixed term to all regulatory situations—including to those with fixed terms other than 10 years. Inconsistency when applying the CAPM to practical problems, such as the regulatory situation, is unavoidable—as not only is the same risk-free term required throughout the model but also the model needs to be applied to relevant future regulatory periods.[357] Therefore, SFG's approach is considered inferior to that used by the QCA as not only is it inconsistent with the CAPM, but it will also violate the NPV=0 principle whenever the term of the regulatory period differs from the fixed maturity assumed.
- SFG's assertion that the QCA's approach of using different terms of the risk-free rate in the CAPM results in a cost of equity for Aurizon Network that is 'too low' is not supported. Lally demonstrated that SFG's contention relies on several assumptions that are not plausible.

[356] Lally 2015b, sub-section 2.1: 5–9.

[357] The only consistent way to apply the CAPM in this situation is to define it to apply to a fixed period (e.g. 10 years), apply a risk-free rate with that term throughout the model and only apply that model to (regulatory) problems with this fixed term (e.g. 10 years). Of course, regulatory situations often involve time periods (e.g. five years) that do not match the fixed term assumed. Therefore, the model must be adapted (with minimal change) to apply to the relevant situation—in the present case, the context is a regulatory term of four years.

- SFG's implication that a 10-year term for the risk-free rate should be used by the QCA because this represents best regulatory practice in Australia, was not supported on the grounds that the QCA's approach must rest upon its inherent merits rather than mere conformity with existing practice.

The Brattle Group

Lally responded to The Brattle Group's advice to Aurizon Network about the term of the risk-free rate, as follows:[358]

- The Brattle Group's claim that Lally's 2004 analysis of term-matching suffers from two unrealistic assumptions which limit its practical value, was not supported because:
  - the assumption of annual resetting was adopted for presentational convenience and relaxing it does not change the result
  - no assumption was made (as claimed by Brattle) that the risks of asset stranding and revaluation were addressed through a risk allowance. Lally simply stated that any such risks that do exist are not relevant to the choice of the appropriate risk-free rate.
- The Brattle Group's claim about the inconsistent use of different terms for the risk-free rate in the first and second components of the CAPM was addressed above in the responses to SFG on the same matter. However, Brattle's contention that this practice leads to estimation error depends on assumptions that were not considered plausible.
- The Brattle Group's contentions that the 10-year risk-free rate should be used because it is common practice to do so, and 10-year rates are less susceptible to monetary policy, were not supported. The QCA's approach should be assessed on its inherent merits rather than based on deference to common practice, and monetary policy has no bearing on the determination of the appropriate term for the risk-free rate.

Aurizon Network

Lally did not support Aurizon Network's claim that an allowed cost of debt which embodies a four-year risk-free rate did not provide sufficient compensation—because Aurizon Network's appropriate cost of debt is greater than four years.[359] Aurizon Network's claim may have misunderstood the QCA's approach set out in the MAR draft decision, which provides a 10-year debt risk premium and an allowance to cover the transactions costs of using relevant swap contracts to convert the risk-free rate component of the 10-year cost of debt to a four-year rate.

QCA analysis and consolidated draft decision

We have considered the concerns raised by stakeholders and their consultants on our MAR draft decision. We believe that no new evidence has been presented that demonstrates that our estimate of the risk-free rate was incorrect or inappropriate and, therefore, no issue raised by stakeholders has caused us to revise our conclusions about our estimate of the risk-free rate.

In particular:

- commercial valuation practice is not a suitable basis for determining the appropriate term of the risk-free rate for regulatory purposes

[358] Lally 2015b, sub-section 3.1: 32–34.
[359] Lally 2015b, section 4: 39–40.

- by themselves, general Australian regulatory practice and related precedent are not sufficient for determining the term of the risk-free rate; specifically
  - not all Australian regulators use a 10-year term for the risk-free rate. For example, for its gas decisions, the ERA(WA) matches the term of the risk-free rate to the term of the regulatory period[360]
  - a recent decision by the Australian Competition Tribunal makes it clear that matching the term of the risk-free rate with the regulatory period can be appropriate[361]

In any event, our approach appropriately deals with these concerns:

- as pointed out in our market parameters decision, the systematic risk associated with uncertain asset values at the end of a regulatory cycle is compensated through beta, and the use of a risk-free rate with a term that exceeds the regulatory period will therefore overcompensate investors in the regulated entity for interest rate risk that they do not bear when the term structure of interest rates is upward-sloping. It will also under compensate investors when the term structure of interest rates is downward-sloping
- inconsistent use of the term for the risk-free rate in the CAPM is unavoidable. For the same reasons set out in the MAR draft decision and our market parameters decision, we consider that setting different terms for the risk-free rate in the first and second parts of the CAPM—in order to combine satisfying the NPV=0 principle with long-term estimates of the market risk premium—is the most appropriate option for regulatory purposes. We also note that we had regard to the apparent inconsistency in using our judgement to determine our calculation of the market risk premium (MRP)
- in relation to Aurizon Network's claim that we are setting the allowed return below the return that commercial investors would require for efficient financing and investment
  - our use of a 10-year term for the debt risk premium, together with our allowances for the transactions costs of interest rate swap contracts and debt-raising costs, provides appropriate compensation for the cost of debt of a regulated benchmark entity which uses efficient debt management practices
  - at the start of every regulatory period, and consistent with new information, we set a regulated rate of return consistent with that of assets with similar systematic risk. As discussed in our MAR draft decision and market parameters decision, our assessment is that applying a risk-free rate with a term matching the regulatory cycle satisfies the relevant provisions of the QCA Act.

We also note that:

- the QRC, Vale and Anglo American all supported our approach to estimating the risk-free rate
- for 'pragmatic' reasons, Aurizon Network has proposed to amend the WACC in the 2014 DAU to incorporate the QCA's draft decision risk-free rate of 3.21 per cent per annum, subject to the adoption of an overall WACC of 7.62 per cent per annum or higher.

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[360] See: ERA, Explanatory Statement for the Rate of Return Guidelines, December 2013: 84-85. The ERA's use of a 10-year risk-free rate term for its rail decisions is due to different statutory requirements between its gas and rail codes (see MAR draft decision, table 84, p. 208).

[361] Application by DBNGP (WA) Transmission Pty Ltd (No 3) [2012] ACompT 14; Market Parameters Decision, p. 42.

As identified above, our consolidated draft decision is in relation to the WACC and parameters originally proposed by Aurizon Network. Aurizon Network's revised proposal for 'pragmatic' reasons is only relevant to the way in which we consider the 2014 DAU should be amended, should we refuse to approve relevant aspects of the 2014 DAU.

However, in response to this latter bullet point, we do not accept Aurizon Network's proposal to incorporate our risk-free rate calculation in the 2014 DAU on the condition that we proposed an overall WACC greater or equal to 7.62 per cent per annum when stating how we consider the 2014 DAU should be amended. Our calculation of the return on investment has followed our normal practice of applying the post-tax nominal ('vanilla') version of Officer's WACC, based on obtaining appropriate and consistent point estimates of constituent parameters.

Conclusion

The arguments put forward in submissions on the MAR draft decision do not provide sufficient grounds for changing our view that we should refuse to approve the indicative estimate of the 10-year risk-free rate proposed by Aurizon Network of 3.15 per cent.

The arguments put forward also do not provide sufficient grounds for changing our view that an appropriate estimate for the risk-free rate is 3.21 per cent per annum, based on the average of four-year Commonwealth Government nominal bond yields over the 20 business days to 31 October 2013.

We also do not accept Aurizon Network's proposal that we adopt an overall WACC of 7.62 per cent per annum or higher as a condition for Aurizon Network incorporating our risk-free rate estimate of 3.21 per cent per annum into 2014 DAU .

We consider our calculation of the risk-free rate has regard to the relevant factors set out in the QCA Act and weights them appropriately, thereby achieving an appropriate balance between the competing interests of the various stakeholders.

Consolidated draft decision 28.1

(1) After considering Aurizon Network's indicative estimate of the risk-free rate of 3.15 per cent per annum, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

(2) The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to set a risk-free rate of 3.21 per cent per annum.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

28.7 Capital structure and credit rating

Capital structure and credit rating are two related inputs informing the WACC. The benchmark capital structure determines the relative weights to attach to the debt and equity components of the firm's funding. The benchmark credit rating is informed by the capital structure. Specifically, companies that face less risk in their operating environment are in general able to sustain higher levels of debt for a given rating category.

We explained our approach in section 10.5.1 of the MAR draft decision. We have adopted that analysis for the purposes of this consolidated draft decision.

28.7.1 Capital structure

Our MAR draft decision was to approve Aurizon Network's proposed (benchmark) capital structure of 55 per cent debt and 45 per cent equity, see MAR draft decision 10.4(a):

> *10.4(a) We approve Aurizon Network's proposal for a benchmarked capital structure of 55% debt and 45% equity.*

No submissions from stakeholders or new information raised concerns with this element of the MAR draft decision. Therefore, our consolidated draft decision is to approve a capital structure of 55 per cent debt and 45 per cent equity, for the same reasons as detailed in section 10.5 of the MAR draft decision.

We consider that approving a benchmark capital structure of 55 per cent debt and 45 per cent equity is consistent with the application and weighting of the factors set out in section 138(2), including the pricing principles in section 168A of the QCA Act, and appropriately balances the various competing interests of stakeholders.

Consolidated draft decision 28.2

(1) After considering Aurizon Network's proposal for a benchmarked capital structure of 55 per cent debt and 45 per cent equity, our decision is to approve Aurizon Network's proposal.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

28.7.2 Credit rating

Our MAR draft decision was to approve Aurizon Network's proposed (benchmark) credit rating of BBB+; see MAR draft decision 10.4(b):

> *10.4(b) We approve Aurizon Network's proposal for a benchmarked BBB+ credit rating.*

No submissions from stakeholders or new information raised concerns with this element of the MAR draft decision. Therefore, our consolidated draft decision is to maintain our position to approve a credit rating of BBB+, for the reasons detailed in the MAR draft decision.

We consider that approving a benchmark credit rating of BBB+ is consistent with the application and weighting of the factors set out in section 138(2), including the pricing principles in section 168A of the QCA Act, and appropriately balances the various competing interests of stakeholders.

We have also taken into account independent advice, provided by Incenta, as to whether our WACC estimates and other positions determined in this consolidated draft decision are consistent with a benchmark credit rating of BBB+.[362] Its advice reinforced our view that a benchmark credit rating of BBB+ is consistent with the application and weighting of the factors set out in section 138(2) of the QCA Act, including the pricing principles in section 168A.

[362] Confidential advice received from Incenta in 2014 and 2015 (unpublished).

Consolidated draft decision 28.3

(1) After considering Aurizon Network's proposal for a benchmark BBB+ credit rating, our decision is to approve Aurizon Network's proposal.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

28.8 Cost of debt

28.8.1 Cost of debt

Along with the cost of equity and the capital structure, the cost of debt is one of the three key components comprising the total WACC.

We identified our previous consideration of the cost of debt in section 10.6.1 of the MAR draft decision. We also set out a more detailed overview of the cost of debt in our cost of debt decision. We have adopted that analysis for the purposes of this consolidated draft decision.

Aurizon Network's 2014 DAU cost of debt proposal, and our MAR draft decision cost of debt, are shown in Table 90 below:

Table 90 Cost of debt proposals

Parameter	***2014 DAU (%)***	***MAR draft decision (%)***
Risk-free rate	3.15	3.21
Debt risk premium	3.28	2.72
Debt-raising transaction costs	0.125	0.108
Interest rate swap costs	NA	0.113
Cost of debt	6.56	6.15

Notes: 1. The cost of debt estimates are not directly comparable as they are averaged over different 20-day time periods. Aurizon Network's estimate is over the 20 business days to 30 November 2012, while the QCA's averaging period is the 20 days to 31 October 2013.

2. Aurizon Network originally proposed a range for the debt risk premium of 2.94% to 3.28%, but then proposed to select the overall WACC from the top end of a range—implying the top of the range was also its preferred point estimate for each parameter, including the debt risk premium.

28.8.2 Risk-free rate

The risk-free rate is a term that appears in both the cost of equity and cost of debt elements of the overall WACC. Discussion of our views on the methodology and estimation of the risk-free rate is contained in Section 28.6 of this consolidated draft decision. Based on our preferred methodology, and the approved averaging period, our estimate of the risk-free rate is 3.21 per cent.

28.8.3 Debt risk premium

The debt risk premium (also referred to as the debt margin) is the amount above the risk-free rate that a business has to pay to acquire debt funding from financial markets and is related to, among other factors, a firm's credit rating. The debt risk premium increases in line with the riskiness of the business, and varies over time in line with market circumstances.

Aurizon Network's proposal

In the 2014 DAU, Aurizon Network proposed an indicative debt risk premium of 3.28 per cent, based on an averaging period of the 20 business days ending 30 November 2012. Aurizon Network subsequently proposed an actual averaging period of the 20 business days ending 31 October 2013.

Aurizon Network's debt risk premium proposal is discussed in greater detail in our MAR draft decision. In summary, Aurizon Network proposed:

- an indicative range for the debt risk premium of 2.94 to 3.28 per cent, based on two extrapolation methods used by its consultant (Value Advisor Associates), with the top of the range being the preferred estimate
- a 10-year term of debt and a benchmark BBB credit rating
- extrapolation of Bloomberg seven-year fair value estimates to obtain a 10-year estimate of the debt premium—which formed the top of Aurizon Network's range.

Following the WACC forum (held at the QCA on 13 December 2013), Aurizon Network maintained its view that a 10-year term of debt is appropriate but also linked this position to two methodological issues. Specifically, Aurizon Network stated that if we were to approve:

- a proposed 10-year fixed term yield (i.e. 10-year risk-free rate plus 10-year debt risk premium), then the Bloomberg 'paired-bonds' estimate should be used[363]
- the 'Lally approach' to the cost of debt (i.e. four-year risk-free rate plus 10-year debt risk premium)[364], then the econometric simple portfolio estimate should be used.[365]

[363] The 'paired-bonds' methodology was originally developed to extrapolate the Bloomberg seven-year BBB fair value yield to a 10-year yield, where the increment in the debt risk premium between seven and 10 years is estimated based on the average increments between two bonds of similar (i.e. seven-and 10-year) terms that are issued by the same firm. The logic for using the paired bonds of a single issuer to estimate this change is that the approach holds constant the quality of the issuer so that the difference between debt risk premiums of the two bonds can be fully attributed to the term differential.

[364] The 'Lally approach' to the cost of debt involves: i) setting the term of the risk-free rate equal to the term of the regulatory cycle (N years); ii) determining the benchmark regulated firm's efficient (average) term of debt, from issuance to maturity (T years). On the basis that this term is assessed to be greater than the term of the regulatory cycle, the regulator sets a N-year debt risk premium and provides the firm with allowances to compensate it for undertaking efficient hedging arrangements by entering into the relevant interest rate and credit default swap contracts to convert the T-year rate into a N-year rate. However, if credit default swap contracts are not available, which is typically the case at present, then the regulator provides a T-year debt risk premium (e.g. 10 years) and an allowance for the firm to implement interest rate swap contracts to convert the base rate component of the cost of debt to a term matching the term of the regulatory cycle. See QCA April 2015: 10–11.

[365] The econometric simple portfolio approach applies regression analysis to a 'simple portfolio' of domestic bonds to estimate the debt risk premium. See QCA, August 2014.

Stakeholders' initial comments

The QRC proposed a debt risk premium of 2.60 per cent based on a five-year term to maturity and an averaging period of the 20 business days to 30 June 2013. The QRC's initial position is discussed in greater detail in our MAR draft decision.

Following the WACC forum, the QRC, supported by Anglo American, maintained its view that a five-year term for the cost of debt should be employed, on the basis it was likely to better represent efficient financing practice.

The QRC also considered that, given the trade-offs between the different approaches for estimating the debt risk premium, the relative merits of each methodology should be considered on a case-by-case basis. It said there was no compelling reason to depart from the Bloomberg methodology but added that if the simple portfolio approach were to be used, it would prefer taking an average of the estimates from the two methodologies (i.e. an average of the Bloomberg and simple portfolio estimates).

QCA consultant's advice

We engaged Incenta to provide us with expert advice to assist with our analysis of Aurizon Network's cost of debt proposal. Incenta's advice is discussed in detail in section 10.6.3 of our MAR draft decision.

Incenta first undertook two benchmarking tasks and concluded:

- an efficient term of debt is 10 years
- a BBB+ benchmark credit rating is appropriate.

Incenta then provided two estimates of the debt risk premium based on Aurizon Network's proposed averaging period of October 2013, by applying the:

- Bloomberg paired-bonds approach—debt risk premium of 2.51 per cent[366]
- econometric simple portfolio approach—debt risk premium of 2.72 per cent.

On the basis of these benchmarks, Incenta estimated the benchmark debt risk premium for Aurizon Network to be within the range of 2.51 to 2.72 per cent.

QCA MAR draft decision

Our MAR draft decision was to refuse to approve Aurizon Network's indicative proposed debt risk premium of 3.28 per cent. We stated in MAR draft decisions 10.5 and 10.6:

> *10.5 We refuse to approve Aurizon Network's indicative proposed debt risk premium estimate of 3.28%.*
>
> *10.6 We consider it appropriate that Aurizon Network amend its draft access undertaking to apply a debt risk premium of 2.72%.*

The full reasoning and analysis underpinning our decision on the debt risk premium are contained in section 10.6.3 of our MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

In summary, we accepted Incenta's advice that:

- an efficient term of debt is 10 years and a BBB+ benchmark credit rating is appropriate

[366] The 2.51% is based on a seven-year Bloomberg debt premium of 2.23% plus 9.4 basis points per annum (average) to extrapolate the base estimate from seven to 10 years.

- application of the Bloomberg paired-bonds approach for the proposed averaging period gives a debt risk premium of 2.51 per cent
- application of the econometric simple portfolio approach for the proposed averaging period gives a debt risk premium of 2.72 per cent.

However, we also noted we had recently reviewed our cost of debt estimation approach, as part of the wider review of our overall cost of capital methodology. In our MAR draft decision we affirmed and adopted our analysis from that wider review, as set out in our cost of debt decision. For the reasons detailed in the cost of debt decision, our decision was that we will use the econometric simple portfolio approach as our principal methodology for estimating the debt risk premium in future regulatory reviews. However, we noted that we will continue to consider estimates from the Bloomberg or other relevant approaches to 'cross-check' estimates from the econometric approach.

Given this decision, we used the econometric simple portfolio approach as the main method for estimating the debt risk premium for Aurizon Network. Estimates from this approach indicated a debt risk premium of 2.72 per cent was appropriate for Aurizon Network. We used the Bloomberg paired-bonds estimate (2.51%) as a 'cross-check' on the reasonableness of the econometric estimate. We did not consider the difference (i.e. 21 basis points lower) implied by this latter approach to be sufficiently material to suggest that the econometric approach was inappropriate or that further analysis was necessary.

Stakeholders' comments on the MAR draft decision

Aurizon Network

In response to the MAR draft decision, Aurizon Network submitted that it had, from a pragmatic perspective, adopted the QCA's preferred methodology for measuring the debt risk premium—that is, using the econometric simple portfolio approach. At the same time, however, it did not incorporate our estimate of 2.72 per cent from the MAR draft decision.

Instead, Aurizon Network proposed a debt risk premium of 3.00 per cent, which it stated was a more appropriate estimate, due to concerns with Incenta's application of the econometric methodology and with the 'cross-checks' Incenta applied (i.e. the paired-bonds analysis). Aurizon Network stated that its key concerns were:

- incorrect application of the econometric simple portfolio approach
- the paired-bonds analysis contained discrepancies
- the paired-bonds estimate was an outlier.

Incorrect application of econometric simple portfolio approach

Aurizon Network considered that Incenta's application of the econometric simple portfolio approach failed to identify sample bias within the specific dataset. Aurizon Network considered that the weighting method Incenta applied to test whether the (pooled) sample of bonds reflects an average BBB+ credit rating was invalid.[367] Specifically, Aurizon Network stated that

[367] The econometric methodology uses bonds on either side of the BBB+ credit rating band (i.e. A– and BBB bonds), in addition to BBB+ bonds, to estimate the BBB+ debt risk premium because this provides a much larger sample of bonds. It is generally found that only 15 to 20 BBB+ bonds satisfy the selection criteria, while there can be 80 to 90 bonds in the sample if BBB and A– bonds are included. Incenta said the weighting mechanism is a broad approximation, which acts as a high-level 'cross-check' of whether the sample is materially biased away from the target BBB+ rating band.

Incenta's sample was downward-biased and provided the following observations in support of this claim:

- The application of more realistic weights to the BBB, BBB+ and A– bond observations in the sample shows that the sample systematically under-estimates the debt risk premium because the weighted average falls between the BBB+ and A– ratings.
- Visual inspection of the sample data shows that about half of the BBB bond observations are below the 'line of best fit' (while the other half are above it), but almost all of the A– bond observations are below the line—suggesting that the presence of the A– bonds in the sample biases the estimate downward.
- Empirical testing revealed no (statistically) significant difference between BBB and BBB+ bond yields, but showed a (statistically) significant and economically material difference between A– and BBB+ bond yields.

Given this analysis, Aurizon Network then re-estimated the debt risk premium by applying the same principles as the econometric simple portfolio approach. However, to account for the apparent bias in Incenta's sample, Aurizon Network applied alternative statistical specifications, including:

- using a dummy variable for A– bond observations—the BBB+ estimate was 3.00 per cent
- excluding A– bond observations—the BBB+ estimate was 2.99 per cent.

Aurizon Network concluded that this analysis supported an estimate of 3.00 per cent for BBB+ rated debt as being appropriate.

Paired-bonds analysis contains discrepancies

Aurizon Network expressed several concerns with Incenta's paired-bonds analysis:

- The variation in term differentials across the four pairs of bonds was sufficiently large to make them unreliable for extrapolation purposes.
- The quality of the data is suspect, as several bonds in the paired-bonds sample appear to be inconsistent with the wider sample used for the econometric analysis—with Commonwealth Property Fund and General Property Trust bonds excluded from the wider sample.

Given these unexplained discrepancies, Aurizon Network concluded that if we adopt Incenta's paired-bonds extrapolation method as a cross-check, we should further investigate these estimates or place much less weight on them (i.e. as a cross-check).

Paired-bonds estimate is an outlier

Aurizon Network agreed that the estimate of the debt risk premium should be checked against other relevant information for reasonableness, including yields published by the Reserve Bank of Australia (RBA). Aurizon Network considered that its estimate of 3.00 per cent was conservative, based on the majority of alternative estimates:

- paired-bonds extrapolation of Bloomberg (Incenta 2013)[368] 2.51%
- RBA extrapolation of Bloomberg (AER 2014)[369] 3.28%
- RBA BBB non-financial corporate bond yield (QCA 2014)[370] 3.38%

[368] The Bloomberg seven-year BBB fair value estimate extrapolated to 10 years using the paired-bonds method.
[369] The Bloomberg seven-year BBB estimate extrapolated to 10 years using the margin between the (adjusted) 10-year and seven-year RBA BBB estimates.

- adjusted RBA BBB non-financial corporate bond yield (AER 2014)[371] 3.91%
- combined estimation[372] 3.60%.

Based on these estimates, Aurizon Network stated that Incenta's proposed estimate of 2.72 per cent was an outlier.

As identified above, our consolidated draft decision is in relation to the WACC and parameters originally proposed by Aurizon Network. Aurizon Network's revised proposal is only relevant to the way in which we consider the 2014 DAU should be amended, should we refuse to approve relevant aspects of the 2014 DAU.

Other stakeholders

In its main submission on the MAR draft decision, the QRC stated:

- there is no compelling reason not to use Bloomberg data to estimate the debt risk premium—while there are advantages to the econometric methodology, these do not outweigh the advantages of using a third-party data source
- if the simple portfolio approach is to be used, the QRC would prefer that it be used as part of an average, along with the Bloomberg estimate—this would be a more prudent approach, given the simple portfolio approach is a relatively new methodology, and in the present case does not seem to be as accurate as Bloomberg.

The QRC also provided a supplementary submission that responded to some elements of Aurizon Network's submission on the MAR draft decision. The QRC referred specifically to Aurizon Network's claim of sample bias in Incenta's analysis of the debt risk premium, and stated that it:

- is surprising that this is the first time Aurizon Network has raised this issue, as the Incenta methodology was explained to stakeholders some time ago
- previously expressed concern that use of a 'bespoke' methodology would invite debate around methodological choices and datasets, which could be avoided by use of an independent third-party data provider
- repeats its previous submission that using the Bloomberg data would avoid unnecessary debate
- considers, however, that if we are minded to continue to adopt the Incenta econometric approach, we should not accept any of the criticisms made by Aurizon Network without undertaking our own independent assessment of the modified data, regression analysis and sample selection used by Aurizon Network and its experts.

Anglo American said it did not support the QCA's decision to set a regulatory precedent by using the simple portfolio econometric approach to estimate the debt risk premium. Anglo American:

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[370] The simple average of the RBA's published 10-year non-financial corporate debt premiums between the end of September 2013 and October 2013. It does not reflect a true 10-year debt premium because the effective term is only about 8.7 years.

[371] The published RBA 10-year non-financial corporate debt premium over the same period extrapolated to an effective 10-year rate using the AER's extrapolation methodology.

[372] The simple average of the extrapolated Bloomberg and the adjusted RBA estimates (i.e. the average of 3.28% and 3.91% respectively).

- considered that, while this methodology can in some circumstances provide a more accurate estimate, it does not believe we should so readily disregard the quality of data presented by Bloomberg (a reputable worldwide financial institution)
- recommended analysing both approaches to determine which is the more accurate, or potentially weighting the approaches to ensure the most accurate average is produced
- submitted that the QCA should revise its estimate to 2.62 per cent, as this estimate is the average based on estimates from two reputable methods used by Incenta to estimate the debt risk premium.

Vale also considered that it would be prudent to use both methodologies and base the debt risk premium estimate on the average. This approach is likely to produce a more robust result, as it increases the number of data points, limiting exposure to bias or error.

QCA consultant's advice

We engaged Incenta to prepare a report responding to issues raised in submissions by stakeholders on the MAR draft decision. Incenta provided us with its report in September 2015.

Incenta's detailed comments on the debt risk premium are set out in Incenta 2015. However, the main points are summarised below.

Aurizon Network

Incorrect application of econometric simple portfolio approach

Incenta did not agree with Aurizon Network that it applied the econometric simple portfolio approach incorrectly.

Incenta noted that the econometric simple portfolio approach uses bonds on either side of the target credit rating band (i.e. BBB+) because this approach provides a much larger sample of bonds and, therefore, a more reliable estimate. Therefore, the question naturally arises as to whether the pooled sample is biased toward one of the neighbouring credit rating bands (i.e. in this case, toward either the A– or BBB bands that surround the BBB+ target band).

While Incenta agreed with Aurizon Network that the weighting mechanism applied to the bond sample to test for bias was relatively simple, it emphasised that the purpose of the test is as a broad cross-check only. In this respect, Incenta noted that, unless the specific impact of all characteristics of a bond on the debt risk premium are known, it is not possible to devise a specific weighting mechanism that fully captures all of these differences. Therefore, any test devised to detect sample bias will not be determinative in, and of, itself. In addition, Incenta's analysis of Aurizon Network's alternative weighting mechanism determined it to be inappropriate.[373]

Further, and fundamental to corporate finance theory, Incenta noted that investors require a premium to attract them to an investment of a lower credit quality (for a given maturity). To support this view, Incenta conducted an exercise for a similarly selected sample of bonds (19 BBB+ and 31 BBB rated) for the 20-day averaging period ending 12 January 2015. It found that the difference in differentials (from the regression line) between BBB and BBB+ rated bonds was

[373] The weighting approach involves intercept dummy variables, which are not necessarily the best fit to the data. The individual regressions for each of the three credit rating groups show that the slopes are all different, which would imply that additional slope dummy variables may be appropriate. As it stands, the two dummy variables used by Aurizon Network assume that all three credit rating bands have the same slope with respect to term.

highly statistically significant.[374] Therefore, Incenta concluded that Aurizon Network's suggestion—that BBB and BBB+ credit rated bonds be treated as a combined group, with the resulting estimate considered reflective of a benchmark BBB+ credit rating—is neither theoretically nor empirically justifiable.

Incenta also acknowledged that the difference between the yields of the BBB and BBB+ bonds in the sample (over Aurizon Network's averaging period) was not statistically different from zero. However, Incenta undertook further analysis and determined that this outcome was due to the impact of four unusual observations in the relatively small sample of 18 BBB+ rated bonds. In particular, including these four bonds raised the average debt risk premium in the BBB+ sample, thereby making it statistically indistinguishable from the average premium for the BBB sample. Incenta found that excluding these four bonds made the BBB+ sample statistically different from the BBB sample, and it also resulted in the BBB+ regression line (based on all 84 bonds in the three credit rating samples) characterising the debt risk premiums of the 14 remaining BBB+ bonds extremely well. Incenta concluded that this result clearly demonstrates how the utilisation of a large sample effectively neutralised the impact of the four unusual bond observations.

Accordingly, Incenta did not agree with Aurizon Network's alternative approaches, as they do not make full use of all available information. However, to investigate Aurizon Network's claims, Incenta applied these methods to its dataset:

- using a dummy variable for the A– rated bonds as the BBB and BBB+ bond yields are statistically indistinguishable—Incenta's estimate is 2.80 per cent in comparison to Aurizon Network's estimate of 3.00 per cent
- using only the BBB and BBB+ bonds, excluding the A– bonds from the sample—Incenta's estimate is 2.82 per cent in comparison to Aurizon Network's estimate of 2.99 per cent.

These differences relative to Aurizon Network's estimates, based on applying the same method, suggest that Aurizon Network could be using a different dataset. While we provided Incenta's data to Aurizon Network for analysis, we do not know whether this data is, in fact, the basis of Aurizon Network's analysis and therefore its estimates of 3.00 per cent and 2.99 per cent.

Incenta also took its analysis a step further and used only the 18 BBB+ rated bonds from the sample and obtained an estimate of 2.74 per cent—this estimate is only two basis points higher than its estimate of 2.72 per cent using all 84 bonds.[375] These results are summarised below.

[374] Incenta also pooled the debt risk premium differentials at the two dates (i.e. 31 October 2013 and 12 January 2015) and found a statistically significant differential between BBB and BBB+ bonds, as well as a negligible overall average differential from the regression line for the pooled sample of 37 BBB+ bonds.

[375] We note that Aurizon Network does not report an estimate using all of the data.

Table 91 Summary of econometric estimates

Estimation approach (number of bonds)	*Debt premium estimates (%)*	
	Aurizon Network	Incenta
Simple portfolio (84)	n/a	2.72
BBB/BBB+ combined (50)	2.99	2.82
A– dummy (84)	3.00	2.80
BBB+ only (18)	n/a	2.74

Further, Incenta said that the point being made by Aurizon Network—that the weighting implied by the coefficients suggests that the prediction for BBB+ bonds at 10 years should be closer to BBB bonds than to A– bonds—is exactly what comes out of the analysis using all of the bonds. The analysis predicts a 2.72 per cent yield for BBB+ bonds at 10 years, which is:

- 18 basis points lower than the BBB prediction at 10 years using only BBB bonds (2.90%)
- 54 basis points higher than the prediction for A– bonds (2.18%).[376]

In other words, the BBB+ prediction is similarly weighted much closer to the BBB yield at 10 years relative to the A– yield at 10 years.

Paired-bonds analysis contains discrepancies

Incenta agreed with Aurizon Network that the terms of the shorter and longer term bonds in each pair should ideally align with the seven and 10-year target terms. However, Incenta stated that it could not identify more closely aligned bonds. Even so, Incenta noted that the pair of bonds with the shortest term differential (Sydney Airport—less than one year) produced a 13.8 basis points per annum increase. As the Sydney Airport bonds are BBB rated, this differential is not inconsistent with the 12.6 basis points per annum differential observed for SP Ausnet, a BBB+ rated bond.

Incenta also said that Aurizon Network is correct in noting that two longer-term A– rated bonds (Commonwealth Property Fund and General Property Trust) were not included in the econometric analysis sample. Incenta said this was because these two bonds did not have BGNs ('Bloomberg Generic Prices'), which is Bloomberg's 'market consensus view' of the yields that are supplied to it on a daily basis by financial institutions. However, Incenta acknowledged that this meant the approach adopted in the case of Aurizon Network's October 2013 averaging period was not strictly in line with the PwC methodology.

Given this, Incenta also considered two alternative possibilities for determining an appropriate seven to 10-year extrapolation margin:

- simply adopting the single BBB+ observation (SP Ausnet), which results in a 261 basis point estimate (i.e. the seven-year estimate of 2.23% extrapolated by 12.6 basis points per annum from seven to 10 years)

[376] As noted above, the BBB+ prediction at 10 years using only the 18 BBB+ bonds is 2.74%, which is only two basis points higher than the prediction using all of the bonds. The 2.74% is 56 basis points higher than the A– estimate (2.18%) and 16 basis points lower than the BBB estimate (2.90%).

- the average of the SP Ausnet and Sydney Airport bonds, which results in a 263 basis point estimate (i.e. the seven-year estimate of 2.23% extrapolated by 13.2 basis points per annum from seven to 10 years).

Relevantly, Incenta noted that the estimates of 12.6 (SP Ausnet) and 13.2 (average of SP Ausnet and Sydney Airport) basis points per annum from these alternative approaches are within the range experienced over the past four years, namely 5.7 to 15.5 basis points per annum. As a result, all of these observations support an extrapolation margin of 13.2 basis points per annum as reasonable. Further, at 31 October 2013, the paired-bond estimate is very close to the 14 basis point per annum increment estimated using the econometric approach.

Paired-bonds estimate is an outlier

Incenta disagreed with Aurizon Network that its paired-bonds approach produces a debt risk premium that is an outlier.

First, Incenta noted that the RBA methodology estimated a seven-year BBB yield of 6.47 per cent (as at 31 October 2013). In contrast, the Bloomberg and econometric methodologies estimated seven-year yields of 6.12 per cent and 6.06 per cent. Therefore, for Aurizon Network's October 2013 averaging period, the RBA methodology estimated a seven-year BBB yield that was 35 and 41 basis points higher, respectively, than comparable estimates from the Bloomberg and the econometric approaches.

Given the objective is to estimate a 10-year debt risk premium, Incenta then compared the estimated annual changes in the debt risk premium between seven and 10 years using the three primary methodologies (i.e. RBA, Bloomberg paired-bonds and econometric simple portfolio) for Aurizon Network's averaging period. The RBA methodology indicated an increase in the debt risk premium of 38 basis points per annum from seven to 10 years for October 2013. In contrast, the paired-bonds approach suggested an increase of 9.4 basis points per annum, while the econometric approach indicated an increase of 14 basis points per annum. The latter two estimates of the annual extrapolation margin again fall within the historical range of 5.7 to 15.5 basis points per annum obtained at other times over the last four years.

Therefore, Incenta demonstrated that the RBA's methodology appears to produce estimates that are substantially higher than estimates from either the paired-bonds or econometrics approaches. This evidence points strongly to the RBA estimates as the outliers. This conclusion is important because the alternative estimates of the debt risk premium suggested by Aurizon Network—3.28%, 3.38%, 3.91% and 3.60%—all rely on the RBA data in one way or another.

Finally, Incenta noted that, as at October 2013, the AER had not introduced its new approach of providing equal weighting to the RBA's estimate and the extrapolated Bloomberg estimate. This policy was introduced in 2014 after an analysis of the RBA methodology, and to be used in the context of a trailing average approach. Hence, it is not clear that, if the AER were to estimate a spot debt risk premium, it would have necessarily applied its new approach in October 2013, when the RBA's methodology implied the high level of annual change observed then.[377]

[377] Earlier work by Incenta has also shown that the RBA methodology has a tendency to volatility, but with under- and overestimates cancelling out over time. This suggests that while it may be appropriate to apply the RBA methodology in the context of a trailing average approach to estimating the cost of debt, it could result in significant inaccuracy if applied in the context of the 'on the day' approach applied by the QCA.

Other stakeholders

Incenta agreed with the QRC that it would be preferable to rely on a third-party provider of BBB+ estimates of the debt risk premium. However, as at October 2013, only the Bloomberg fair value curve was available, and it has been unreliable at certain times (e.g. during the GFC). In addition, Incenta noted that the RBA BBB series does not appear to be reliable, as it is subject to very wide fluctuations, which are inconsistent with the underlying market data. As a result, Incenta considered the econometric methodology to be a reliable alternative to placing primary weight on other, largely untested, third-party data sources, such as the new BVAL series (which replaced Bloomberg fair value curves from December 2013).

Conclusion

Incenta remains of the view that the econometric estimate of 2.72 per cent is the best estimate available for a 10-year BBB+ debt risk premium over the 20 business days to 31 October 2013. Due to the relatively small number of BBB+ rated bonds available (18) at that time, the pooled regression of 84 BBB, BBB+ and A– rated bonds gives Incenta greater confidence in the resulting estimate than the alternative estimates proposed.

QCA analysis and consolidated draft decision

We have considered the concerns raised by stakeholders on our MAR draft decision. We believe that no new evidence has been presented that demonstrates that our estimate of the debt risk premium was incorrect or inappropriate and, therefore, no issue raised by stakeholders has caused us to revise our conclusions about our estimate of the debt risk premium.

Our consolidated draft decision is to refuse to approve Aurizon Network's indicative, proposed debt risk premium estimate of 3.28 per cent. Again, we consider it appropriate that Aurizon Network amend its draft access undertaking to apply a debt risk premium of 2.72 per cent.

In making this decision, we have taken account of the further advice provided by Incenta. We are satisfied that:

- Incenta has provided an appropriate estimate of the debt risk premium calculated using the econometric simple portfolio approach (i.e. its estimate of 2.72%)
- the sample used by Incenta to calculate its econometric estimate is appropriate—noting that the use of 84 A–, BBB+ and BBB rated bonds provides a much larger sample than if only BBB+ bonds were used
- a statistically non-significant difference found between BBB and BBB+ bonds was due to the impact of four unusual bond observations within the relatively small sample of 18 BBB+ bonds—noting we agree with Incenta that treating BBB and BBB+ rated bonds as a combined group, with the resulting estimates considered reflective of a benchmark BBB+ credit rating, is neither theoretically nor empirically justifiable
- Incenta's application of variations to its econometric methodology produced debt risk premium estimates much closer to its original estimate of 2.72 per cent than those generated by Aurizon Network—that is, 2.82 per cent excluding A– rated bonds; 2.80 per cent using dummy variables for BBB and A– rated bonds; and 2.74 per cent using only BBB+ rated bonds
- Incenta's revised paired-bonds estimate of 2.63 per cent represents a reasonable 'cross-check' on its econometric simple portfolio estimate:
  - the revised paired-bonds estimate does not appear to be an outlier—instead, the evidence suggests that the estimates produced using the RBA data are the outliers

- the reasons for not using more closely aligned bonds, and for excluding two bond pairs from the econometric sample, are reasonable and have not impacted on the final debt risk premium estimate
- the two alternative approaches to the paired-bonds analysis produce debt risk premium estimates closer to, but still below, the econometric estimate (i.e. 2.61% and 2.63% versus 2.72%).

We consider that Incenta has appropriately responded to all the matters raised by Aurizon Network in its submission on our MAR draft decision, and we do not consider that Aurizon Network has provided new evidence that would cause us to revise the position proposed in the MAR draft decision.

We have also considered the additional views put forward by the QRC, Anglo American and Vale, in particular that:

- there is no compelling reason not to use Bloomberg data to estimate the debt risk premium, as it is a third-party data source provided by a reputable worldwide financial institution
- if the econometric simple portfolio estimate is to be used, at most, it should be used as part of an average with the Bloomberg estimate, as this will produce a more robust result.

As noted in our MAR draft decision, Incenta did not recommend one specific approach. Rather, it said the decision as to whether to adopt the Bloomberg estimate or the econometric estimate, or an average of the two, is a decision for us.

In our August 2014 cost of debt decision, which was released as part of our wider review of our overall cost of capital methodology, we considered whether to continue with our previous practice of using fair value yield curves estimated by third-party data providers such as Bloomberg, or to move to an alternative approach such as the econometric simple portfolio approach.

Our decision was to use the econometric approach in future regulatory reviews. We again affirm and adopt our analysis on this issue set out in the cost of debt decision for the purposes of this consolidated draft decision.

Our cost of debt decision outlined the advantages and disadvantages of the two methodologies, which are summarised in Table 92 below.

Table 92 Comparison of estimation methodologies

Estimation approach	***Advantages***	***Disadvantages***
Extrapolated Bloomberg ('paired-bonds') approach	• Relatively low cost and easy to apply • Produced by credible organisation (traditionally used by regulators) that is independent of the regulatory process.	• Lack of transparency associated with a proprietary algorithm • Available data series limited to combinations of broad credit rating bands (i.e. BBB, A, AA and AAA) by a single specified term • Requires extrapolation due to lack of data series for a 10-year term of debt • Discontinuation of the series from December 2013, with Bloomberg fair value yield curves replaced by new BVAL data series.

Estimation approach	*Advantages*	*Disadvantages*
Econometric simple portfolio approach	• Transparent method with data sources and estimation approach clearly outlined • Can be applied to a range of debt terms and benchmark credit ratings • This approach has been shown to be practicable and capable of producing comparable results to extrapolated Bloomberg estimates.	• More complex to implement than using index published by a third-party data provider • New approach that has so far had limited use in regulatory reviews in Australia.

The cost of debt decision concluded that, while the Bloomberg approach has benefits in terms of credibility and regulatory precedence, there are also key issues associated with its ongoing use in regulatory reviews. In particular:

- the lack of transparency around the proprietary approach means estimates can be criticised as being 'black box' in nature
- the extrapolation techniques required to account for lack of data for specific debt terms (e.g. 10-year BBB+) also increase complexity
- the discontinuation of the fair value yield curves raises questions as to the ability of the new BVAL series to produce reliable estimates for future processes.

For these reasons, and as the econometric simple portfolio approach is considered transparent, robust and replicable, the cost of debt decision concluded that we will use the econometric approach as the primary method for estimating the debt risk premium in future regulatory reviews. We said we would continue to reference the Bloomberg or other approaches (e.g. the new BVAL data series and RBA estimates) to 'cross-check' the econometric estimate, but not as the main method of estimation.

We do not consider that stakeholders have provided new evidence to cause us to revise this position for the purposes of this consolidated draft decision.

Given this, we maintain our MAR draft decision position to use the simple portfolio econometric approach as the main method for calculating the debt risk premium for Aurizon Network in the 2014 DAU. We consider the approach still indicates a debt risk premium of 2.72 per cent for the relevant averaging period.

We have also considered the Bloomberg paired-bonds estimate of 2.63 per cent as a 'cross-check' of the econometric estimate. While noting the revised Bloomberg estimate is nine basis points lower than the econometric estimate for the relevant averaging period, we consider this difference is not sufficiently material to suggest the econometric approach is inappropriate for determining the debt risk premium for the 2014 DAU.

We have also considered the RBA data for the relevant averaging period. However, as noted earlier, we consider there is strong evidence to suggest that the RBA data was producing estimates that were outliers at that time. Incenta has also pointed to the apparent volatility in the RBA estimates, which indicates they may be better suited to informing cost of debt estimates for a trailing average approach rather than for an 'on the day' approach. Thus, the RBA estimate has not caused us to change our preferred estimate of the debt risk premium of 2.72 per cent for the 2014 DAU.

Accordingly, we consider our debt risk premium calculation of 2.72 per cent takes into account and appropriately balances the various factors under section 138(2) of the QCA Act, as identified earlier in this chapter.

Consolidated draft decision 28.4

(1) After considering Aurizon Network's indicative proposed debt risk premium estimate of 3.28 per cent per annum, our decision is to refuse to approve Aurizon Network's proposal.

(2) The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to apply a debt risk premium of 2.72 per cent per annum.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

28.8.4 Debt-raising transaction costs

Our historical practice and Aurizon Network's proposal in relation to debt-raising transaction costs are set out in section 10.6.4 of the MAR draft decision. We also refer to our cost of debt decision. We have adopted that analysis for the purposes of this consolidated draft decision.

Our MAR draft decision was to refuse to approve Aurizon Network's proposal, as follows:

> *10.7 We refuse to approve Aurizon Network's proposed debt-raising transaction costs of 12.5 basis points per annum.*
>
> *10.8 We consider it appropriate that Aurizon Network amend its draft access undertaking to set debt-raising transaction costs of 10.8 basis points per annum.*

In response to the MAR draft decision, Aurizon Network said it would amend the 2014 DAU to incorporate the draft decision on debt-raising transaction costs and has adjusted the debt-raising transaction costs to 10.8 basis points per annum.

The QRC said it has previously argued that, to the extent that any allowance is to be made for debt-raising transaction costs, this should be based on careful analysis of the costs that would be incurred by a prudent and efficient business. As discussed in detail in our cost of debt decision, and summarised in the MAR draft decision, our estimate of 10.8 basis points per annum for debt-raising transaction costs is based on benchmark efficient costs estimated for us by PwC and Incenta.

No other submissions from stakeholders raised concerns with this element of the MAR draft decision. Therefore, our consolidated draft decision is to refuse to approve Aurizon Network's proposed debt-raising transaction costs of 12.5 basis points per annum, and maintain our position that Aurizon Network should amend its draft access undertaking to set debt-raising transaction costs of 10.8 basis points per annum.

We consider that maintaining debt-raising transaction costs of 10.8 basis points is consistent with the application and weighting of the factors set out in section 138(2), including the pricing principles in section 168A, of the QCA Act, and appropriately balances the various competing interests.

Consolidated draft decision 28.5

(1) **After considering Aurizon Network's proposed debt-raising transaction costs of 12.5 basis points per annum, our decision is to refuse to approve Aurizon Network's proposal**.

(2) The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to set debt-raising transaction costs of 10.8 basis points per annum.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

28.8.5 Swap cost allowances

Our previous consideration of swap cost allowances is set out in section 10.6.5 of our MAR draft decision. We also refer to our cost of debt decision. We adopt that analysis for the purposes of this consolidated draft decision.

Given the nature of Aurizon Network's proposal, it had not estimated an interest rate swap cost.

Our MAR draft decision was set out in MAR draft decision 10.9, as follows:

> *10.9 We consider it appropriate that Aurizon Network amend its draft access undertaking to set the interest rate swap costs at 11.3 basis points.*

In response, Aurizon Network said it has amended the 2014 DAU to incorporate interest rate swap costs on the basis that a term for the risk-free rate of less than 10 years is adopted. It added this should not be taken as Aurizon Network accepting that the term of the risk-free rate and cost of debt should be aligned to the term of the regulatory period, and if we accept a 10-year term for risk-free rate and cost of debt, then no swap cost allowance is required. The term of the risk-free rate, for the cost of debt and cost of equity, is discussed in detail in Section 1.5 of this consolidated draft decision. As no other submissions from stakeholders raised concerns with this element of the MAR draft decision, our consolidated draft decision is to maintain our position to require Aurizon Network to set the interest rate swap costs at 11.3 basis points, for the reasons detailed in the MAR draft decision.

We consider that maintaining interest rate swap costs of 11.3 basis points is consistent with the application and weighting of the factors set out in section 138(2), including the pricing principles in section 168A, of the QCA Act, and appropriately balances the various competing interests.

Consolidated draft decision 28.6

(1) After considering Aurizon Network's proposal in relation to an interest rate swap cost (or, more accurately, the absence of any proposal), our decision is to refuse to approve Aurizon Network's proposal.

(2) The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to set the interest rate swap costs at 11.3 basis points per annum.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

28.9 Market risk premium

The market risk premium (MRP) is the additional return an equity investor requires to be compensated for the risk of investing in a market portfolio of risky assets as against purchasing a risk-free asset.

The MRP is a key component of the cost of equity and, in turn, the WACC.

We identified the background to the MRP in section 10.7 of the MAR draft decision, including a relevant comment by the Australian Competition Tribunal. We also set out a more detailed overview of the MRP in our market parameters decision. We adopt that analysis for the purposes of this consolidated draft decision.

Aurizon Network's proposal

In the 2014 DAU, Aurizon Network proposed that a reasonable range for the MRP was 6.0 to 7.0 per cent per annum under 'normal' market conditions. However, Aurizon Network noted this range was likely to be conservative in the light of forward estimates, which Aurizon Network indicated suggest values above the upper bound of 7.0 per cent per annum.

Aurizon Network's MRP proposal is discussed in greater detail in our MAR draft decision. In summary, Aurizon Network:

- suggested that the QCA address certain limitations of some of the individual estimation methods used—Ibbotson, Siegel, survey evidence, and Cornell methods
- recommended that additional information and methods be considered in the estimation procedure, particularly in recognition of post-GFC uncertainty and market conditions
- raised concerns with the averaging and rounding procedures used by the QCA in obtaining a final point estimate of the MRP.

Stakeholders' initial comments

The QRC:

- proposed an MRP range of 5.0 to 6.0 per cent per annum with a point estimate not exceeding 6.0 per cent per annum. The QRC stated that a MRP of 7.0 per cent per annum was not supported by available evidence and would reflect a significant departure from regulatory precedent

- generally supported our estimation methods, although with some qualifications, including the need to: adjust for upward biases where possible; consider the use of additional information, methods, and more recent evidence; and adopt a smaller unit of 0.25 per cent for rounding of estimates.

Vale suggested that upward biases should be corrected where possible. In particular, the Cornell estimate should not receive any weight as it represents an upper bound.

Anglo American:

- suggested that our MRP estimate should be based only on the Ibbotson, Siegel and survey approaches, with the Cornell estimate used as a cross-check to ensure that the final estimate is not too high
- recommended that MRP estimates from overseas countries should be taken into account and noted that doing so reduces the Australian estimate.

QCA MAR draft decision

Our MAR draft decision proposed that Aurizon Network amend its draft access undertaking and set the MRP at 6.5 per cent per annum. Our full analysis and reasoning is contained in section 10.7 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

Our MAR draft decision was as follows:

> *10.11 We consider it appropriate that Aurizon Network amend its draft access undertaking to set the market risk premium at 6.5%*

In summary, our decision was based on an analysis of:

- Ibbotson estimates, which ranged from 5.8 to 6.6 per cent over all sample periods analysed, with an estimate of 6.5 per cent for the period 1958–2013
- Siegel estimates, which ranged from 4.1 to 6.4 per cent, with an estimate of 5.5 per cent for the period 1958–2013
- survey evidence and independent expert report estimates which support an estimate of 6.0 per cent (excluding imputation credits), and 6.8 per cent (including imputation credits)
- Cornell dividend growth estimates, which ranged from 5.6 to 8.3 per cent, with a median estimate of 7.1 per cent
- additional sources of information, including volatility measures, corporate debt premiums, and the relationship between the risk-free rate and the MRP.

We used the above sources of information to determine a range of 5.0 to 7.5 per cent for the MRP, and then applied our best judgement to determine the final point estimate of 6.5 per cent per annum.

Stakeholders' comments on the MAR draft decision

Aurizon Network

Aurizon Network submitted that:

- it did not endorse the use of the Siegel method because it is not used by any other Australian regulator, and the data required is not readily available. However, if the QCA continued to use the Siegel method, then for consistency it should set the lower bound of the MRP at the Siegel estimate of 5.5 per cent, rather than 5.0 per cent as proposed

- it did not agree with the approach used by the QCA to apply the Cornell Dividend Growth Model (DGM).[378] In particular,
  - an adjustment should not have been made to the gross domestic product (GDP) growth rate, and two discount rate periods (i.e. the 'dual rate adjustment') should not have been used. These adjustments are contrary to the standard application of the Cornell DGM which applies a single discount rate to equate forecast dividends to a prevailing share price
  - although the Cornell DGM did take into account new equity issues, it did not consider share repurchases. This resulted in a downward bias in the MRP estimate
  - once the required market return was derived, the QCA inconsistently used the 10-year Commonwealth Government security (CGS) bond yield in one part of the CAPM and the four-year CGS bond yield in another
- it proposed a Cornell-type market risk premium of 8.9 per cent based on no adjustments and using a four-year risk-free rate of 3.21 per cent[379]
- the QCA should clarify why the Wright method appears not to have been taken into account even though, in the MAR draft decision, the QCA said it would have regard to the Wright estimates in forming a view on the appropriate MRP estimate
- the QCA should address several discrepancies in its estimates of the MRP obtained from the various methods applied, as identified by Aurizon Network's consultant, SFG. SFG obtained a mean MRP estimate of around 7.7 per cent compared with 6.5 per cent by the QCA[380]
- the QCA should clarify how it applied its judgement in deriving the MRP range and point estimate of 6.5 per cent, including the nature and magnitude of the weights applied to the estimates obtained from the different methods used. In particular,
  - the method the QCA applied to determine the (asymmetric) lower and upper bounds of its MRP range is not apparent
  - the QCA appears to have simply used an equally-weighted mean of its four conventional methods and rounded to the nearest half percentage point, rather than to the nearest whole percentage point[381]
- for the above reasons, the methods chosen by the QCA were not appropriate and did not represent regulatory best practice. However, for 'pragmatic' reasons, Aurizon Network has

[378] The key features of our Cornell-type DGM are outlined in our market parameters decision (QCA 2014a, Appendix C: 67–73). Although there are several differences between the original Cornell DGM and our Cornell-type DGM, the essential distinctions are between the market return on equity and GDP growth rate assumptions used. Whereas the Cornell 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 (i.e. a 'two-discount rates' approach). In addition, the original Cornell DGM does not adjust the assumed expected long-run growth rate in GDP whereas our method 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.

[379] Aurizon Network 2014: 190.

[380] The estimate of 7.7% is an equally-weighted mean, which includes the estimates from the expert reports and the Wright method (AN 2014: 191).

[381] Aurizon Network 2014: 189.

amended the WACC in the 2014 DAU to incorporate the MAR draft decision MRP (6.5% per annum) subject to the QCA adopting an overall WACC of 7.62 per cent per annum or higher.

Aurizon Network's submission also contained a number of reports from its consultants, SFG and The Brattle Group, which commented on the MRP proposed in the MAR draft decision. Responses to the issues raised in those reports are provided below.

Other stakeholders

The QRC submitted that the QCA's estimate of the MRP of 6.5 per cent is at the upper end of a reasonable range and was therefore more likely to overestimate, rather than underestimate, the true MRP.

Anglo American submitted that:

- a MRP of 6.0 per cent for Aurizon Network was appropriate, rather than the 6.5 per cent proposed by the QCA, because Aurizon Network's operational, commercial and regulatory circumstances resulted in very low risk
- the QCA should have taken greater account of the upward bias in most of the estimation methods it relied on. Once the bias was removed, the MRP was closer to 5.8 per cent, rather than to 6.5 per cent.
- with the inclusion of data from foreign markets, the MRP estimate was in the range 5.0—6.0 per cent, and an appropriate point estimate would have been around 5.8 per cent or 5.9 per cent based on available data.

Consultant's advice

We commissioned Lally to comment on stakeholders' submissions on the draft report, including the advice provided to Aurizon Network by its consultants, SFG and The Brattle Group.

Lally's detailed comments are set out in Lally 2015b. However, the main points are summarised below.

Market risk premium (MRP)

SFG Consulting (SFG)

Lally responded to SFG's advice to Aurizon Network about the MRP as follows:[382]

- The QCA's approach of exercising its judgement to determine an estimate for the MRP from the various methods considered, and the estimate reached on this basis, were considered reasonable.
- By suggesting that it was implausible that the cost of equity decreased between the 2010 access undertaking and 2014 DAU estimates, SFG implied that the MRP must have risen by at least as much as the risk-free rate had fallen during this time. Although this contention may be plausible, no proof was offered by SFG. Even if the use of Ibbotson and Siegel approaches by the QCA underestimated the current MRP (because Ibbotson and Siegel estimates may not be very sensitive to changes in the MRP), by placing significant weight on the Ibbotson and Siegel approaches, the estimate of the MRP was likely to be improved not only at the present time in terms of minimising mean squared error (MSE), but also in terms of producing a good estimate of the long-run average MRP.
- SFG's criticisms of the Siegel method were not supported because:

[382] Lally 2015b, sub-section 2.4: 24–32.

- contrary to SFG's claims, the QCA did not maintain that the Siegel method is not used by other regulators or a high proportion of survey respondents, but only that these views were presented in some submissions. Moreover, the choice of a particular method must rest on its inherent merits rather than solely on whether or not it is widely used.
- SFG's claim that sufficient data was not available to implement the Siegel approach failed to acknowledge that the QCA's estimate of the average long-term yield of the real risk-free rate (3.7% per annum) was corroborated by the estimated average realised real return of 3.5 per cent per annum over the period 1883–1939
- Siegel did not base his methodology on future expected real yields on government bonds remaining at about 4 per cent per annum, which SFG claimed was inconsistent with observed yields below 3 per cent over the last 10 years and below 2 per cent over the past three years. Rather, Siegel predicted only that future long-term real yields are likely to be higher than that estimated on earlier data, and this prediction has empirical support. However, Siegel's more important point was that the future MRP was likely to be below the Ibbotson estimate because the average realised real returns on government bonds was unusually low for much of the 20th century due to high unexpected inflation, and this effect was unlikely to recur.

- SFG said that, as the QCA drew on a median MRP estimate from independent expert reports as an input into its overall estimate of the MRP, it should also have used the same risk-free rate term used in these reports to determine the cost of equity—that is, a term longer than the regulatory period. This view was not supported because the objectives of the QCA in setting the regulatory rate of return and those of commercial valuers are unrelated. SFG's contention that the mean value of the MRP, rather than the median, should have been used was also not supported because the QCA's preferred practice is to adopt the median to avoid the influence of outliers, and the QCA's use of the median in this context is consistent with its preferred practice.
- Although SFG correctly commented that Lally supported formal consideration of the Wright approach, SFG failed to mention that Lally also supported consideration of results from international markets. The latter resulted in a downward effect on the MRP estimate, and the net effect of taking into account both factors is downward. In addition, and in contrast to SFG, the QCA's use of the Siegel method, which was seen to address the same problem as the Wright method (albeit in a different way), was supported; SFG's explanation of the difference between the Wright and Siegel methods was not supported; and, although Wright and Siegel estimates were shown to differ, each was superior under certain conditions.

The Brattle Group

Lally responded to The Brattle Group's advice to Aurizon Network about the MRP, as follows:[383]

- The Brattle Group's contention that using the four-year risk-free rate would result in an MRP estimate of 7.05 per cent, which is 0.55 per cent higher than 6.5 per cent, was not supported. Across four of the methods primarily relied upon by the QCA, the MRP increment from using the four rather than the 10-year risk-free rate was only 0.33 per cent, which did not affect the QCA's median estimate.
- The Brattle Group's view that the MRP estimate of Dimson et al. of 7.6 per cent for the period 1900–2013 was superior to the QCA's estimate was not supported. Conceptually, the

[383] Lally 2015b, sub-section 3.2: 34-37

implicit definition of the MRP used by Dimson et al. is not consistent with the CAPM, whereas the QCA definition is consistent; Dimson et al. did not include imputation credits in their MRP estimate whereas the QCA definition did include the credits, consistent with the Officer CAPM; and the data used for the QCA estimate was superior.

- The Brattle Group's reasons for not favouring the QCA's Siegel estimates were not supported because:
  - the Brattle Group's claim that sufficient data was not available to implement the Siegel approach failed to acknowledge that the QCA's estimate of the average long-term yield of the real risk-free rate (3.7 per cent per annum) was corroborated by the estimated average realised real return of 3.5 per cent per annum over the period 1883–1939
  - the Brattle Group's contention that the Siegel estimate may have been incorrect—because inflation may have been overestimated after 1990 to 'compensate' for underestimation of inflation during the high inflation period 1940–1990—was not supported. The evidence from the returns on conventional and inflation-indexed government bonds suggested that there was no inflation 'compensation' after 1990.
  - the Brattle Group's claim that the QCA needed to provide additional material to support its use of the Siegel method was not supported. The QCA already provided such material in the form of a summary of evidence, contrary views and conclusions, together with citations to relevant papers.

Anglo American

Lally responded to issues raised by Anglo American as follows:[384]

- Anglo American's claim that the final MRP estimate should be lowered to reflect Aurizon Network's low risk was not supported. The MRP is a market parameter which applies equally to all risky assets. Asset-specific systematic risk characteristics are reflected in the asset's beta.
- Anglo American's claim that the MRP estimate should be reduced because the QCA previously acknowledged upward biases in three of the four methods it principally relied upon was not supported. Subsequent analysis by the QCA has sought to address claims of upward bias in the Cornell, Siegel and Ibbotson methodologies.

QRC

Lally responded to issues raised by the QRC as follows:[385]

- The QRC's claim that the MRP estimate should not be greater than 6.0 per cent based on earlier analysis by the QCA was not supported. Subsequent analysis and a consideration of other material by the QCA sought to address claims of potential bias with previous estimates, and this resulted in a superior, updated estimate of 6.5 per cent.

Application of the dividend growth model

SFG Consulting

Lally responded to SFG's advice to Aurizon Network about the DGM, as follows:[386]

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[384] Lally 2015b, section 5: 40.
[385] Lally 2015b, section 6: 40–41.
[386] Lally 2015b, sub-section 2.3: 16–24.

- SFG did not provide support for its view that a constant cost of equity over all forecast years to perpetuity was superior to the QCA's approach. In particular:
  - SFG contends that QCA's DGM approach leads to a pronounced and undesirable variation over time in the MRP estimate for the first 10 years of the forecast period. However, variation over time per se is not necessarily an undesirable feature of an estimator; what matters is whether the variation reasonably represents the underlying situation
  - both the QCA's and SFG's methods give rise to questionable estimates of the MRP during the GFC period, perhaps due to problems with the data or use of the methodology during this period. While a DGM may provide a reasonable estimate of the MRP under most conditions, it will not do so when short-run forecasts of earnings per share (EPS) are extreme, regardless of whether the model assumes one or two discount rates. The problem lies in the difference between the assumed convergence path of short to long-run growth rates in dividends per share (DPS) and the convergence path expected by investors.
- SFG's argument that the expected growth rate in DPS should not be limited in the long-run to the expected growth rate in GDP was not supported. SFG's argument may be relevant to a company, but cannot be applied to the market portfolio and therefore is not relevant to estimating the MRP.
- SFG's contention that the existence of dividend reinvestment plans meant that the expected growth rate in EPS could exceed that of GDP, was not supported. The new equity investment from dividend reinvestment plans would raise the GDP growth rate but this benefit would not flow to the existing shares because the number of shares in the firm has increased. Hence EPS and DPS growth rates should be below that of GDP.
- SFG's claim that a GDP growth constraint would only be necessary in the very long-run—that is, beyond the point at which there is any material effect on equity value (e.g. 100 years)—was not supported. Information limitations would require the adoption of a constant expected growth rate for all subsequent years at a point in time much sooner than 100 years into the future. As this expected growth rate applies to all subsequent years, it cannot exceed the long-run expected growth rate in GDP.
- SFG's contention that the QCA's deduction for dilution (due to new share issues and formation of new companies) was not warranted—because its historical derivation was not a suitable basis for extrapolation into the future—was not supported. Some dilution is necessary because the long-run expected growth rate in earnings for all shares in all companies (existing and future) must match that for GDP.[387] Therefore, the long-run expected growth rate of EPS for existing companies must be less than that of GDP. On this basis, the 1990–2013 estimation period used by SFG was unsuitable, as the real growth rate for EPS was 5.0 versus 3.4 per cent for GDP. On the other hand, for the period 1969–2013 (the longest period available for EPS growth rate data) the real GDP growth rate exceeded that for EPS (3.2 per cent versus 1.5 per cent) suggesting a dilution deduction of 1.7 per cent. On the basis of this time period, the QCA's deduction for dilution of 1 per cent was therefore probably conservative.

[387] If this were not the case the earnings share of GDP would eventually either converge to zero or exceed 100%.

- SFG's argument that the higher price-earnings (PE) ratio observed since 1990 (due to both higher expected growth and lower cost of equity) was consistent with its view that historical evidence on the EPS growth rate prior to 1990 was irrelevant to current and future circumstances, was not supported. SFG failed to mention that if the pre-1990 data was not relevant, then MRP estimates based upon historical averaging over periods before 1990 (Ibbotson, Siegel, and Wright methods) would warrant some deduction to mitigate the upward bias.
- SFG's growth rate data (for the period 1990–2013) was inflated by share repurchases and a further deduction was required to obtain an EPS growth rate in the absence of repurchases in order to estimate the MRP. Therefore, the QCA's deduction of 1 per cent from the expected GDP growth rate was probably conservative because:
  - the longer-term historical Australian EPS versus GDP growth rate data suggested a dilution deduction of 1.7 per cent rather than one per cent
  - the EPS data had not been adjusted for the effect of share repurchases.

The Brattle Group

The concerns expressed by The Brattle Group to Aurizon Network about the QCA's Cornell-type estimate of the MRP were addressed by Lally, as follows:[388]

- The Brattle Group's claim that the QCA did not cite evidence in support of its deduction of 0.5 to 1.5 per cent from its estimate was not correct. The QCA cited this evidence in the form of several published papers by independent experts.
- The Brattle Group's claim that the QCA did not add share buybacks to current dividends resulting in a downward bias in the MRP estimate was correct. The gross adjustment required to mitigate this bias is an increase in the MRP estimate of about 0.5 per cent. However, this increment is probably too high and should be reduced for two reasons. First, current concerns about possible unfavourable changes to the taxation treatment of imputation credits attached to off-market repurchases imply lower repurchases than otherwise. Second, an effect of repurchases is to overstate the historical EPS growth rate as an estimator of future EPS growth rate in the Cornell calculation. Therefore, the adjustment would be materially less than 0.5 per cent. Despite these issues, any increment to the Cornell MRP estimate would not change the median MRP estimate because the Cornell estimate is the highest of those obtained using the four methodologies primarily relied upon by the QCA.

Converting between ex-imputation and with-imputation returns

SFG Consulting (SFG)

Lally responded to SFG's advice to Aurizon Network about imputation conversion, as follows:[389]

- SFG's argument that the QCA inappropriately uses one type of formula to convert between ex-imputation and with-imputation equity returns for the MRP and a different conversion formula for the cash flows was not supported.[390] The QCA makes market-wide imputation

[388] Lally 2015b, sub-section 3.2: 38–39.
[389] Lally 2015b, sub-section 2.2: 9–16.
[390] SFG appears to be arguing that the decrease in regulatory revenues from the imputation adjustment to firm taxes should be exactly offset by the increase in revenues due to the imputation adjustment within the MRP. As the QCA's adjustment for the latter is smaller relative to the former (in absolute value), SFG argued that the QCA's conversion formula is therefore biased.

adjustments for the MRP consistent with the Officer CAPM approach, while making business-specific imputation adjustments to taxation consistent with the post-tax revenue model. These two adjustments will correspond only if the business is typical of the market—that is, if it has an equity beta of one and a ratio of expected imputation credits to equity value that matches the market portfolio. These conditions are not satisfied for Aurizon Network.

- SFG's contention that the QCA should determine allowed revenues without adjustments for imputation credits in either the MRP or the cash flows was not supported. SFG's apparent view that the MRP and tax consequences of imputation should offset each other is equivalent to replacing the Officer CAPM with the standard CAPM. However, to do so would not be appropriate in this case because Aurizon Network does not correspond to the market in the relevant respects, and therefore use of the Officer CAPM to derive allowable revenue is more compatible with the Australian tax environment than the standard CAPM.
- Although SFG argued that Officer's conversion formula will hold under conditions other than the cost of equity comprising only the expected dividend yield, these additional conditions are more extensive than claimed by SFG and also are highly unrealistic. A superior approach is to use a conversion formula which follows from the definitions of the cost of equity with and without imputation credits without recourse to any assumptions, and this is the formula used by the QCA.

QCA analysis and consolidated draft decision

We have considered the concerns raised by stakeholders and their consultants on our MAR draft decision. We believe that no new evidence has been presented that demonstrates that our estimate of the MRP was inappropriate and, therefore, no issue raised by submissions has caused us to revise our conclusions about our estimate of the MRP, as determined in our MAR draft decision.

In response to Aurizon Network:

- we consider that the Siegel method is a relevant method for estimating the MRP. We note that Lally has undertaken analysis that confirms the method's validity, and Aurizon Network has not demonstrated otherwise. Further, the data used to apply the method has been corroborated. Finally, the fact that other Australian regulators do not currently apply it is not, by itself, determinative
- we do not accept Aurizon Network's proposed DGM estimate of 8.9 per cent because it does not allow for mean reversion towards a long-term growth rate for the cost of equity and makes no adjustments for dilution (due to new share issues and the formation of new companies). A range of information considered suggests that the adjustments we have made to the standard DGM methodology are reasonable and appropriate
- as noted earlier, we had regard to the point that the risk-free rate is used inconsistently in the first and second parts of the CAPM in using our judgement to determine our best estimate of the MRP
- we did estimate the Wright MRP in the process of determining a MRP estimate of 6.5 per cent in our MAR draft decision. The range of the Wright MRP was 6.2 to 8.6 per cent across the five sample periods, with an average of 7.6 per cent over the preferred sample period of 1958–2013. We note that the Wright estimate was one factor considered in arriving at the decision to change our estimate of the MRP from 6.0 per cent to 6.5 per cent

- we have considered the discrepancies between our estimates of the MRP and the SFG estimates of the MRP. However, we do not agree with SFG's proposed adjustments to our estimates. In particular,
  - the Ibbotson and Siegel methods were likely to provide better estimates of the desired long-term average MRP even though these estimates may at certain times, such as during the period affected by the GFC, not be sensitive to short-term changes in the true MRP
  - use of independent expert reports as a source of MRP data does not imply that the same risk-free rate term used in these reports should be used to determine the cost of equity. This is because our regulatory objectives are unrelated to those of commercial valuers.
  - our approach to converting between ex-imputation and with-imputation equity returns was appropriate—that is, it involved market-wide imputation adjustments for the MRP consistent with the Officer CAPM approach, together with business-specific imputation adjustments to taxation consistent with the post-tax revenue model. As a result, a number of SFG's suggested MRP estimates have imputation adjustments that are materially overstated.

We considered Aurizon Network's concerns about the lower and upper bounds of the range of 5.0 to 7.5 per cent, which guided our determination of a point estimate for the MRP. As stated in the market parameters decision, the lower and upper bounds were set marginally below and above the Siegel and Cornell estimates respectively.[391] We note that those bounds were determined as at December 2013, at which time the AER also concluded that the same range was reasonable.[392]

Also, and for clarity, we did not apply an equally-weighted mean (of our four primary methods) and round the result to the nearest half percentage point. As stated in our market parameters decision, we have examined our traditional methods and also considered a broader range of information, some of which does not lend itself readily to an averaging procedure.

Our view is that applying our judgement to assess the strengths and weaknesses of estimates obtained from several different methods, as well as assessing other relevant information to arrive at a final estimate for the MRP, was appropriate. Our determination of an overall MRP estimate included an examination of the methods of Ibbotson, Siegel, Cornell and Wright as well as other sources such as survey evidence, independent expert reports, and additional sources of information to reflect current conditions (e.g. volatility measures, corporate debt premiums, liquidity premiums on government bonds). We also took into account the relationship between the risk-free rate and the MRP.

We considered that some of these methods and sources warranted greater emphasis than others due to their perceived reliability and fitness for purpose, for the reasons documented in our market parameters decision. Arguments against use of particular methods or techniques, or for alternative methods, were not sufficiently persuasive.

In response to submissions from the QRC and Anglo American:

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[391] We note that, for the Aurizon Network averaging period of October 2013, the preferred Siegel estimate remained the same (i.e. 5.5%) while the median Cornell estimate of 7.1% was slightly higher than the 6.9% estimated for the market parameters decision (December 2013 study period). Given this difference was only very minor, we did not revise our upper bound for the range (i.e. as determined in the market parameters decision, maintaining it at 7.5%).

[392] AER, 2013, p. 93.

- we do not agree that the MRP estimate should be 6.0 per cent or less at this time. Our consideration of subsequent information (including an assessment of foreign market data), and further analysis, suggested that 6.5 per cent represented a superior estimate of the MRP under current conditions
- we have considered the potential for upward biases in the Cornell, Siegel and Ibbotson estimates. In some cases, this consideration resulted in an explicit adjustment, while in other cases, we determined that no adjustment was warranted.[393] We consider that this assessment has thus addressed concerns that the MRP estimate should be reduced, due to the possibility of such biases
- we do not agree that the MRP estimate should be lowered to reflect Aurizon Network's low risk. The MRP is a market parameter which applies equally to all risky assets, whereas Aurizon Network's systematic risk is reflected in the underlying asset beta.

Conclusion

We are not persuaded that the arguments put forward in submissions on the MAR draft decision provide sufficient grounds for changing our view that an appropriate estimate for the MRP is 6.5 per cent per annum.

In response to Aurizon Network's submission, we do not agree that incorporation of our MRP estimate in the 2014 DAU should be conditional on our adoption of an overall WACC greater or equal to 7.62 per cent per annum. Our calculation of the return on investment has followed our normal practice of applying the post-tax nominal ('vanilla') version of Officer's WACC, based on our best endeavours to obtain appropriate and consistent point estimates of constituent parameters.

We consider that our estimate for the MRP has had regard to the relevant factors set out in the QCA Act and weighted them appropriately, thereby achieving an appropriate balance between the competing interests of the various stakeholders.

Consolidated draft decision 28.7

(1) **After considering Aurizon Network's proposed market risk premium of 7.0 per cent per annum, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.**

(2) **The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to set a market risk premium of 6.5 per cent per annum.**

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

[393] For example, in our market parameters decision, we sought to address stakeholders' concerns that the Cornell estimate was upward-biased by reassessing our model and implementing two principal changes (QCA 2014a: 67–73).

28.10 Beta

In past regulatory decisions, we have used the Conine de-levering/re-levering formula to convert equity betas to asset betas and vice versa. The Conine formula requires an estimate of the debt beta. The debt beta reflects the systematic risk of a firm's debt.

28.10.1 Debt beta

We explained our approach to the debt beta in section 10.8.1 of our MAR draft decision and set out Aurizon Network's proposal. We also set out a more detailed overview of the debt beta in our market parameters decision. We have adopted that analysis for the purposes of this consolidated draft decision.

Our MAR draft decision was to approve Aurizon Network's proposed debt beta of 0.12, see draft decision 10.12:

> *10.12 We approve Aurizon Network's proposed debt beta of 0.12.*

No submissions from stakeholders or new information raised concerns with this element of the MAR draft decision. Therefore, our consolidated draft decision is to approve a debt beta of 0.12, for the reasons detailed in the MAR draft decision.

We consider that approving a debt beta of 0.12 is consistent with the application and weighting of the factors set out in section 138(2), including the pricing principles in section 168A, of the QCA Act, and appropriately balances the various competing interests of stakeholders.

Consolidated draft decision 28.8

(1) After considering Aurizon Network's proposed debt beta of 0.12, our consolidated draft decision is to approve Aurizon Network's proposal.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

28.10.2 Asset/equity beta

The asset beta (or unlevered beta) of an entity is a relative measure of the underlying business risk of the entity relative to the risk of the market as a whole.[394] The levered beta (or equity beta) reflects not only this business risk but also the financial risk borne by equity holders from the use of debt to partially fund the business.

We explained our approach to asset/equity beta in section 10.8.2 of our MAR draft decision.

Aurizon Network's proposal

In the 2014 DAU, Aurizon Network proposed an asset beta range of 0.5 to 0.6, which Aurizon Network stated converts to an equity beta range of 0.9 to 1.0, at 55 per cent gearing and with a 0.12 debt beta.[395]

[394] More formally, the asset beta is defined as the covariance of the entity's returns (in the absence of debt) with the returns on the market portfolio of all risky assets, expressed as a proportion of the variance of the returns on the market portfolio.

[395] Aurizon Network, sub. 3: 149, table 39. The Aurizon Network analysis also assumes a gamma value of 0.25. Applying this assumption as well, the asset betas of 0.50 and 0.60 convert to equity betas of 0.86 and 1.05

Aurizon Network's beta proposal is discussed in greater detail in section 10.8 of our MAR draft decision. We have adopted the discussion and analysis in our MAR draft decision for the purposes of this consolidated draft decision, subject to the comments below.

In summary, Aurizon Network:

- said it continues to have fundamental concerns with our assessment of beta for the 2010 access undertaking, particularly the:
  - decision to align Aurizon Network's beta with energy network businesses, and to reject firms in the transportation sector, including US Class 1 railroads, as relevant comparators
  - need to give more appropriate regard to estimation error
- supported its proposal with two independent expert reports:
  - SFG's empirical analysis of Aurizon Network's systematic risk
  - Synergies' assessment of Aurizon Network's commercial and regulatory risks, which Aurizon Network said extend beyond the scope of beta.

Aurizon Network's explanatory material (to the 2013 DAU) said there are fundamental differences between it and regulated electricity network businesses, meaning beta comparators should not be limited to these businesses. Instead, it said assessment of a number of key factors influencing systematic risk shows its below-rail business is similar to US Class 1 railroads.

SFG's empirical analysis assessed beta with reference to three classes of businesses: Australian-listed industrial transportation firms; US Class 1 railroads; and Australian-listed energy network businesses. Based on its analysis of the three business categories identified, and using three different estimation techniques, SFG supported an asset beta of 0.55 and a re-levered equity beta of 1.0 (with 60 per cent benchmark gearing).[396]

Synergies stated that there are a number of areas where we apply the regulatory framework differently to other regulators, including the imposition of an X-factor for productivity (in the 2010 access undertaking), a more intrusive approach to forecasting operating and maintenance cost, exposure to revenue risk in the event of failing to make the network available due to Aurizon Network's breach or negligence, and optimisation risk in the event of a material reduction in demand. It said these regulatory risks were likely to be neither systematic nor diversifiable, and they should be compensated via an adjustment to the WACC (i.e. either by selecting the point estimate from the upper bound of a range, or by adding a specific increment to the WACC estimate).

Stakeholders' initial comments

Six stakeholders commented specifically on the proposed betas or the level of systematic risk faced by Aurizon Network in their submissions on the 2013 DAU. These submissions are summarised below, but discussed in greater detail in our MAR draft decision.

The QRC proposed an equity beta range for Aurizon Network of 0.40 to 0.60 (midpoint value of 0.50) based on the view that Aurizon Network's business is very low risk. It added that Aurizon Network's exposure to risk has been significantly reduced in recent years through the

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respectively. Aurizon Network appears to have rounded these estimates to obtain its proposed range of 0.90–1.0.

[396] SFG's proposed asset beta of 0.55 converts to an equity beta of 0.96 at 55% gearing, given a debt beta of 0.12 and SFG's proposed gamma of 0.25.

introduction of various protection mechanisms into the regulatory framework. The QRC submitted that Aurizon Network's proposed equity beta can only be sustained if significant weight is given to US Class 1 railroads and Australian-listed transportation businesses (such as Aurizon Holdings Limited and Asciano). However, it considered these businesses are likely to have very different risk characteristics to Aurizon Network.

The QRC also supported its position with two independent expert reports:

- Castalia Strategic Advisors (Castalia) benchmarked Aurizon Network's risk profile and proposed equity beta against other infrastructure businesses. It said this analysis showed Aurizon Network's equity beta should be lower than 0.7 with 60 per cent gearing, or lower than 0.6 with 55 per cent gearing.
- McKenzie and Partington prepared a report that commented on Aurizon Network's proposed equity beta (as well as other WACC parameters). They noted that US Class 1 railroads have substantially higher equity betas (and lower gearing) than other railroads across the world, suggesting that US railroads might not be appropriate comparators for Aurizon Network. Excluding US railroads, they found no empirical evidence across other railroads to support a proposal for an equity beta of 1.0.

RTCA and Glencore supported the QRC's proposed equity beta range of 0.4 to 0.6, suggesting the low risk nature of Aurizon Network's business indicated a reduction in the equity beta was justified, not an increase as proposed by Aurizon Network. Peabody considered the overall WACC sought by Aurizon Network to be excessive and not aligned with its risk profile.

Anglo American said Aurizon Network is a very low-risk business, and an equity beta in the range of 0.2 to 0.3 is more appropriate. Anglo American and Vale listed a number of ancillary mechanisms they said acted to further reduce Aurizon Network's risk (Anglo American said 14 of these mechanisms applied in the 2010 AU period and another 16 were proposed by Aurizon Network in the 2014 DAU).

QCA consultant's advice

We engaged Incenta to provide independent, expert advice on an appropriate estimate for an asset/equity beta for Aurizon Network and to inform our assessment of Aurizon Network's beta proposal. Incenta's previous advice to us is discussed in detail in our MAR draft decision.

In summary, Incenta undertook a first principles analysis of Aurizon Network's systematic risk profile to determine appropriate comparator businesses. Incenta's first principles analysis found that:

- Aurizon Network's business is characterised by a regulatory framework that aligns revenue with cost at periodic intervals and minimises revenue risk
- the nature of the regulatory framework also reduces asset stranding risk
- the underlying economic aspects of Aurizon Network (e.g. certainty of demand and long-term take-or-pay contracts) imply recovery of regulated revenues
- Aurizon Network's systematic risk would be materially lower than US Class 1 railroads, which Incenta concluded are not appropriate comparators for Aurizon Network
- Australian-listed industrial transportation firms are also inappropriate comparators, noting this firm classification includes vertically integrated transport service providers (e.g. Aurizon Holdings Limited and Asciano)

- of business categories considered as potential comparators for Aurizon Network, regulated energy and water businesses represent the closest comparators, as they
  - are subject to similar regulation (e.g. cost-based regulation with regular reviews)
  - have their revenue risk buffered by the regulatory framework, with that revenue also being largely uncorrelated with the state of the economy
  - have relatively low operational cost risk and are generally subject to low stranding risk.

Incenta identified 77 regulated energy and water businesses to construct the sample for estimating the asset beta for Aurizon Network. It applied an Ordinary Least Squares (OLS) regression approach and 'simulated month' technique (to avoid the 'turn-of-the-month' effect).[397] Application of this methodology produced a point estimate for the asset beta of 0.42, which (applying the Conine formula, a debt beta of 0.12 and 55 per cent gearing) translated to an equity beta point estimate of 0.73.[398]

Incenta also identified other comparators that could be used to place a lower and upper bound on the beta estimates for Aurizon Network. The lower bound was Grant Samuel's 2010 asset beta estimate for Dalrymple Bay Coal Terminal (DBCT) of 0.35. Grant Samuel considered the asset beta of DBCT to be below the asset beta it applied to a regulated energy network (Powerco, 0.42).[399] As Incenta did not find evidence to indicate Aurizon Network's asset beta is lower than that of a regulated energy network, Incenta considered that Grant Samuel's opinion on the asset beta for DBCT should be seen as a lower bound for Aurizon Network (i.e. Aurizon Network's asset beta would be above 0.35).

The upper bound of 0.49 was the median asset beta from a sample of international and Australian toll-roads. Incenta concluded that Aurizon Network would face less risk than toll-roads because, among other things, the latter are unregulated (or are subject only to light-handed regulation) and are more subject to cyclical economic activity. Accordingly, Incenta considered Aurizon Network's beta estimate would be below the estimate for toll-roads.

While the midpoint of these bounds identified by Incenta (0.42) was the same as Incenta's empirically-derived point estimate of Aurizon Network's asset beta, Incenta noted that this outcome was a coincidence.[400] In other words, the 0.42 point estimate was empirically determined from an analysis of a large sample of businesses identified as comparators—the fact that this estimate fell exactly between the lower and upper bounds, which Incenta separately derived from market-based reference points, merely provided further confirmation that Incenta's empirical estimate was a reasonable estimate.[401]

[397] OLS is a method for estimating the unknown parameters in a linear regression model, with the goal of minimising the differences between the observed responses in some arbitrary dataset and the responses predicted by the linear approximation of the data. The 'simulated month' technique involved randomised choice of the number of days in the month to avoid the 'turn-of-the-month' effect, which empirical evidence suggests might bias estimates based on the last day of the calendar month. This issue is discussed in greater detail in our MAR draft decision and in Incenta 2014b.

[398] It also applies our draft estimate of 0.47 for gamma.

[399] Grant Samuel provided an expert opinion on the assets of prime infrastructure and applied an asset beta of 0.35 to DBCT in the process of valuing a business as part of an actual market transaction.

[400] Incenta 2014b: 84.

[401] Incenta 2014b: 84–85.

QCA MAR draft decision

Our MAR draft decision required Aurizon Network to amend its draft access undertaking to adopt our estimate of an equity beta of 0.80 on the basis of 55 per cent gearing.

The full reasoning and analysis underpinning our MAR draft decision for beta are contained in Section 10.8.2 of our MAR draft decision. We have adopted that reasoning and analysis for the purposes of this consolidated draft decision, subject to the comments below.

In summary, we considered that Incenta:

- undertook a rigorous first principles analysis that identified a large sample of international energy and water businesses as relevant comparators for Aurizon Network. We did not consider US Class 1 railroads or Australian-listed industrial transportation firms to be appropriate comparators.
- used an estimation approach, including the 'simulated month' technique to address concerns raised about a possible 'turn-of-the-month' effect, that was valid
- identified a recommended point estimate for Aurizon Network's asset beta (0.42) that was justifiable.

However, we then used our best judgement to determine an estimate of beta based on all the evidence before us. Our MAR draft decision was to maintain the 2010 undertaking asset beta of 0.45, translating to an equity beta of 0.80 at 55 per cent gearing, for the 2014 DAU. This position was based on the following points:

- Estimating betas with high precision is difficult—suggesting: (a) caution be shown in making significant changes to previous estimates; and (b) selecting a point estimate as precise as 0.73 may represent an attempt to be over-precise.
- Consideration of the need for regulatory certainty, particularly noting the 2014 DAU approval process is Aurizon Network's first regulatory reset since privatisation of its parent company.
- Our proposed asset beta of 0.45 was well within the range of 0.35 to 0.49 identified by Incenta—also noting this range is close to the 0.35 to 0.50 range used in previous decisions.
- Key changes to the regulatory arrangements, such as introduction of the revenue cap and accelerated depreciation, were already considered as part of the 2010 undertaking decision.
- Our intent to maintain an environment conducive to investment in new infrastructure, including user-funded investment.

We noted that we are permitted to take all these factors into account when having regard to the factors set out in section 138(2) of the QCA Act.

Stakeholders' comments on the MAR draft decision

Aurizon Network

In its submission in response to the MAR draft decision, Aurizon Network maintained its position that, at a minimum, an appropriate range for the equity beta is 0.90 to 1.0, and the equity beta for the 2014 DAU should be 0.90.

Aurizon Network again supported its proposal with two independent expert reports:

- SFG Consulting's commentary on the QCA's MAR draft decision analysis

- The Brattle Group's commentary on the proposed equity beta and other aspects of the WACC proposed for the 2014 DAU.

Aurizon Network's response to the MAR draft decision is summarised under the headings below.

Methodological issues

Aurizon Network and SFG both raised a fundamental point of disagreement with Incenta's approach to considering potential comparators for estimating Aurizon Network's beta. Aurizon Network and SFG considered that, as Aurizon Network has no direct comparators for systematic risk, there is a need to compare it to more than one industry. More specifically, Aurizon Network and SFG said it was inappropriate that the QCA applied no weight to any comparator in the rail sector or in the broader transportation sector.

SFG said a number of factors or dimensions are relevant when selecting comparator firms. In particular, some firms will be more comparable in one dimension (e.g. industry), while other firms will be more comparable in other dimensions (e.g. form of regulation). SFG's approach was to apply relevant weights depending on how comparable each firm might be across the range of dimensions. It said that if *any* (SFG's emphasis) material weight is assigned to any railroad or transportation firms, the result would be a higher equity beta estimate than the 0.80 provided in the MAR draft decision.

First principles issues

On the basis of this preferred methodological approach, Aurizon Network raised a number of specific concerns with certain aspects of Incenta's first principles assessment of beta. These concerns focused principally on the extent to which underlying economic factors affect its systematic risk profile and, in particular, distinguish Aurizon Network from US Class 1 and Canadian railroads. Specifically, Aurizon Network referred to the following:

- *nature of demand for the product/service*—it stated that its revenue cap does not guarantee that revenue does not fluctuate with demand. Aurizon Network supported this claim with analysis by The Brattle Group showing that Aurizon Network's revenue fluctuates more than that of US Class 1 railroads.

- *pricing structure*—while it acknowledged that US Class 1 railroads have greater pricing flexibility, and therefore, greater systematic risk, it considered that risk was not higher '...by a significant margin'—the pricing flexibility of US Class 1 railroads is dampened by regulatory oversight. Aurizon Network cited an empirical study by Christensen and Associates (2008) that suggested there were limited increases to prices for US Class 1 railroad customers that only had the choice of rail transport at their specific origin.[402]

- *duration of contracts*—it considered that we should discount Incenta's advice that US Class 1 rail contracts have a duration of only one to three years, with up to five years for coal traffic, on the basis that this advice was anecdotal and not substantiated by supporting references.

- *market power*—it rejected the contention that Aurizon Network's market power is a factor that differentiates Aurizon Network from US Class 1 railroads, as the latter have pricing flexibility and the ability to Ramsey-price across a range of goods and services. In any case, Aurizon Network considered that Incenta's conclusion—that greater market power suggests a lower beta—is not robust, based on the available academic evidence.

[402] Aurizon Network, December 2014, p. 201.

- *operating leverage*—it raised a number of concerns with Incenta's three measures of operating leverage and the inferences drawn from them, specifically:[403]
  - Incenta's first two measures of operating leverage, the inverse of EBIT measure and the sensitivity of EBIT to a change in sales measure, might be based on regulatory cash flows, which is not appropriate
  - using actual cash flows to estimate Aurizon Network's sensitivity of EBIT to a change in sales results in an estimate of 5.71, which compares to Incenta's estimate of 1.01, indicating materially higher operating leverage[404]
  - while the third measure, the opex/assets ratio (8.4 per cent) appears to be based on actual cash flows, it is unreliable unless the operating costs are predominantly fixed costs (as operating costs are a proxy for fixed costs). However, it can be compared to an average opex/assets ratio of 3.1 per cent for electricity transmission providers, which indicates that Aurizon Network has materially higher operating leverage than these firms
  - while the degree of operating leverage indicated by the first two measures is likely to be higher for US Class 1 railroads relative to Aurizon Network, they are also likely to be overstated as they do not take into account the large proportion of costs that vary with sales (e.g. fuel for train operations).
- As these points collectively indicate that Aurizon Network's and US Class 1 railroads' operating leverages are closer than determined by Incenta, Aurizon Network concluded that its proposed asset beta was justified.
- *growth options*—it submitted that Incenta's analysis of growth options was flawed because US Class 1 railroads are entering a long-term growth phase, with a significant part of their capital expenditure likely to be funded by the US Government. Conversely, as Aurizon Network is now a private entity, it no longer has a call on government funding. Therefore, it would be expected that its growth options would be riskier.[405]
- the effect of regulation on beta—
  - it rejected the contention that the presence of regulation tends to reduce beta, citing academic studies that find there is no change in beta due to regulation, or even an increase in beta due to regulation[406]
  - it noted that beta is a measure of the relationship between market returns and stock returns. Returns are a function of cash flow and the discount rate applied to them, such that, when there are shocks to discount rates, there will be changes in stock returns even if the expected cash flows are completely unchanged. Therefore, by focusing exclusively on the form of regulation, Incenta has focused only on the cash flow component of beta.

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[403] Incenta's three measures were: i) the inverse of earnings before interest and tax (EBIT) margin over revenue; ii) the sensitivity of EBIT to a change in sales (i.e. specifically, the coefficient on the natural logarithm of sales from a regression against the natural logarithm of EBIT (over the previous five years); and iii) the percentage of operating costs to total asset value, as measured by non-current assets.
[404] Aurizon Network measured EBIT sensitivity to a change in sales by calculating the percentage change in EBIT as a proportion of the percentage change in sales.
[405] Aurizon Network, December 2014, pp. 206–207.
[406] The theory that regulation reduces systematic risk by 'buffering' the firm's cash flows from shocks is known as the Peltzman 'buffering hypothesis' (based on Peltzman (1976)).

Aurizon Network also raised a concern about an inconsistency between Incenta's analysis and an earlier analysis by the Allen Consulting Group (ACG), specifically:

- previous analysis by ACG for the ERA(WA) contradicted Incenta's analysis, as ACG included transportation businesses, specifically toll-roads and US Class 1 railroads, in its comparator groups when benchmarking the betas for two Western Australian railroads (i.e. WestNet Rail and Perth's Public Transport Authority (PTA)). By implication, Incenta's analysis and conclusions are inconsistent with the earlier ACG analysis.

Technical issues

Aurizon Network also raised several technical issues regarding Incenta's analysis. In particular, Aurizon Network alleged several material errors in Incenta's empirical analysis, relating to:[407]

- *the categorisation of sample data*—Incenta allocated two firms to the wrong industry categories, which suggests that the analysis might not have been undertaken with appropriate care
- *the outputs of Incenta's simulated month estimations*—Incenta incorrectly applied its own methodology in estimating asset beta for the samples of comparators, with the result that approximately half of the sample of distributions of simulated monthly betas were bi-modal — this error resulted in an underestimate of the correct asset beta estimate
- *the de-leveraging analysis*—Incenta erred in some way when de-leveraging the comparator firms' equity beta estimates, as Aurizon Network was unable to reproduce the de-levered asset betas with the relevant data.

Given these alleged errors, Aurizon Network submitted it did not have confidence in the asset and equity beta estimates calculated by Incenta. Moreover, Aurizon Network stated that its analysis of the same data yielded materially higher (median) asset beta estimates for two of Incenta's comparator groups, specifically:

- *energy*—0.51 relative to Incenta's median estimate of 0.42
- *toll-roads*—0.54 relative to Incenta's median estimate of 0.49.

Finally, Aurizon Network also considered that the QCA should have regard to the Black CAPM[408], as the currently applied Sharpe-Lintner CAPM tends to underestimate (overestimate) the return for low (high) beta stocks.[409] Aurizon Network noted that the AER uses the Black CAPM to assist its selection of an equity beta estimate from a relevant range.

SFG Consulting's commentary

SFG concluded that an equity beta estimate of 1.0 is appropriate for Aurizon Network.

SFG said the QCA used inconsistent reasoning when deciding whether to include or exclude certain firms from the analysis. Specifically, SFG said we had:

- selected data inconsistently from the Grant Samuel report—that is, the QCA:

[407] Aurizon Network, December 2014, pp. 196–199.

[408] The Black CAPM attempts to correct for the empirical observation that the Sharpe-Lintner CAPM tends to underestimate (overestimate) the return for low (high) beta stocks. It corrects for this bias by incorporating an 'alpha' adjustment into the determination of the cost of equity.

[409] Like other Australian regulators, the QCA applies the Officer version of the Sharpe-Lintner CAPM, which takes account of the impact of imputation credits on expected returns.

  - included an asset beta estimate of 0.35, based on an independent expert's (i.e. Grant Samuel's) assessment of the beta for DBCT
  - excluded from consideration that '*the same independent expert*, in *the same report*' (SFG's emphasis) made an estimate for the equity beta for WestNet Rail (now Brookfield Rail) of 1.0 to 1.1, even though WestNet Rail shares a number of similarities with Aurizon Network[410]
- given no regard to the fact that Standard and Poor's:
  - relied upon the same WA rail network in its analysis of the CQCN, and also considered other transportation businesses
  - did not include energy networks in its analysis
- considered comparator firms in a sequential framework that produces a biased result—rail and transport businesses were excluded at the first hurdle because their regulation is considered not sufficiently comparable. SFG stated that, if industry characteristics had been considered before regulation, railroads would have been retained as the most comparable firms for Aurizon Network, resulting in a higher equity beta.

The Brattle Group's commentary

The Brattle Group made the following key comments regarding the equity beta proposed in the MAR draft decision:

- Firms with higher operating leverage have higher betas—meaning capital-intensive railroad companies are expected to have betas higher than less capital-intensive firms.
- Transurban Group should be considered an outlier relative to Aurizon Network and excluded from Incenta's toll-road sample, as it has an unusually high ratio of cash flow to capital expenditure.
- Freight railroads, 'such as Aurizon', serve predominantly industrial/commercial customers, which are less diversified and have more variable demand for service than the customers of electric or water utilities.[411]
- The MAR draft decision included limited discussion of relevant regulatory decisions on railroads:
  - ERA(WA)—in 2013 and 2014, the ERA determined an equity beta of 1.43 for Pilbara Infrastructure and an equity beta of 1.0 for Brookfield Rail
  - Canadian Transportation Agency (CTA)—like the QCA, the CTA determines the cost of equity for railroads with a single bulk commodity (i.e. grain). As a result, the equity betas of Canadian National (1.01) and Canadian Pacific (1.30) railroads are relevant and warrant some weight.
- The Brattle Group also considered that empirical analysis suggests the QCA should give some regard to the Black CAPM.

[410] SFG said the estimate for WestNet Rail assumes gearing of only 20 to 25 per cent. It said this implies an asset beta of 0.81 to 0.93, and corresponding equity beta estimates of 1.51 to 1.76 at 55% leverage.

[411] The Brattle Group, December 2014: p.5. NB: The Brattle Group refer to 'Aurizon', not to 'Aurizon Network' or 'Aurizon Holdings'. It is not clear whether this reference means the regulated business only or the vertically-integrated business.

Other stakeholders

The QRC provided two submissions on the MAR draft decision (i.e. a main submission in December 2014 and a supplementary submission that responded to some elements of Aurizon Network's submission, in March 2015). Anglo American, BMA and Vale also provided submissions on the MAR draft decision that commented on the proposed beta estimates.

Issues raised in these submissions are summarised under the headings below.

Comments on Aurizon Network's submission

Stakeholders considered that:

- additional material in relation to beta raised by Aurizon Network does not change the QRC's conclusion that the empirical evidence demonstrates that Aurizon Network's equity beta is significantly below 0.80, and most likely to be in the range 0.40 to 0.60
- Aurizon Network presented no new evidence to support its claim that it faces the same, or similar degree of, systematic risk as US Class 1 railroads or listed transportation businesses. With these firms excluded, SFG's analysis produces an asset beta of 0.35 and an equity beta of 0.59
- they do not support use of the Black CAPM when determining the cost of equity, as it is a model that has yet to gain any real acceptance among Australian regulators and is not a tool for estimating the Sharpe-Lintner CAPM equity beta.

First principles issues

Stakeholders were concerned that the QCA's estimate of the equity beta significantly overstates the degree of systematic risk faced by Aurizon Network and is not based on the available evidence. Specifically, our estimate:

- is not properly reflective of Aurizon Network's business profile, which involves revenue certainty with little volume risk and full take-or-pay contract tonnage. Further, it is well above estimates of the equity beta for other regulated businesses, many of which are more exposed to systematic risk factors than Aurizon Network (e.g. Telstra and the Sydney Desalination Plant).
- is biased upwards by the inclusion of toll-roads, which due to their much higher risk exposure, are not appropriate comparators for Aurizon Network.[412] With toll-roads excluded, Incenta's analysis produces an asset beta range of 0.35–0.42, which converts to an equity beta range of 0.59 to 0.73—the midpoint is an equity beta of 0.66.
- should be closer to Grant Samuel's estimate of the asset beta for DBCT (0.35) than to the beta for toll roads (0.49), as a more appropriate first principles assessment indicates that Aurizon Network's business profile is significantly closer to the profile of DBCT—noting they both operate within the coal industry in the Bowen Basin and have similar regulation
- also increased by the inclusion in Incenta's sample of international energy businesses, many of which are not subject to the same (or similar) form of regulation as Aurizon Network
- is significantly higher than recommended by the QCA's own consultant (Incenta).

[412] The recent history of toll-roads in Australia includes numerous operators that faced insolvency as a result of volumes being significantly less than forecast and/or construction costs exceeding estimates.

Technical issues

Stakeholders also raised concerns with aspects of the empirical approach to estimation:

- Incenta's use of the 'simulated month' estimation methodology, rather than a conventional methodology, significantly increases the estimate of beta. If a standard econometric analysis is applied to estimate the beta of Australian energy networks and if toll roads are removed from the sample, the result would be an asset beta of 0.35. This estimate converts to an equity beta of 0.59 at 55 per cent gearing, and the QRC argued that it should be the upper bound for Aurizon Network's equity beta. Anglo American said the appropriate asset beta for Aurizon Network is closer to a range of 0.20 to 0.30 based on analysis previously undertaken by the QRC's advisor, Castalia, and by Economic Insights for Anglo American.

Methodological issues

Further, stakeholders raised some concerns with our methodological approach. Stakeholders commented that

- Our approach to determining Aurizon Network's beta in the MAR draft decision suggests a tendency to 'err on the high side', which appears contrary to our stated approach of seeking the 'best' estimate of each parameter in determining the rate of return.
- We appear to have set a high threshold for departing from previously determined values for the equity beta, which in turn raises two specific concerns:
  - There does not appear to be any basis for an 'inertia principle' in determining rate of return parameters.
  - It is not clear what we would require in terms of 'solid justification' to depart from a previously determined value—beyond the advice of our commissioned expert to adopt a lower value.
- Our approach incorrectly simplified the categorisation of benchmarks; therefore, the QCA's question regarding risk reduction mechanisms was not appropriately answered—that is, we did not properly address the issue of the effects of regulatory frameworks on risk.

Consultant's advice

We engaged Incenta to prepare a report responding to issues raised in submissions on the MAR draft decision, including those related to the findings of its earlier reports. Incenta provided us with its response report in July 2015.

Incenta's main points are summarised below.

Aurizon Network

Incenta did not agree with Aurizon Network's (and SFG's) view that some weight should be placed on US Class 1 railroads and other transportation businesses as comparators for estimating Aurizon Network's beta. On the basis of its first principles analysis, Incenta did not consider these businesses to be close comparators for Aurizon Network. It stated that SFG's assignment of weights to each comparator industry is arbitrary and, by assigning weight to non-comparable firms, expected to result in an inaccurate estimate. Incenta's view is that no weight should be allocated to firms or industries that are not appropriate comparators to Aurizon Network (i.e. do not exhibit similar systematic risk characteristics).

First principles issues

Incenta responded to the first principles issues raised in Aurizon Network's submission as follows:

- *nature of demand for the product/service*—Incenta did not originally propose that, under the revenue cap, Aurizon Network's revenue would not fluctuate.[413] The issue is whether that fluctuation is systematic with the market. On this basis, The Brattle Group's volatility measure is not appropriate since it relates to total volatility. Further, it does not take into account the fact that the volatility measured reflects the increase in revenues following regulator-approved growth in assets (i.e. capital expenditure) and was not causally related to market movements.
- *pricing structure*—Incenta previously noted that US Class 1 railroads have greater pricing flexibility for the majority of their traffic due to the nature of their regulation.[414] While Aurizon Network cited a study that supported reduced pricing flexibility for coal traffic, coal traffic represents only a small proportion (around 20 per cent) of US Class 1 businesses by revenue.
- *duration of contracts*—Incenta did not rely on anecdotal evidence for North American Class 1 railroads. Incenta provided specific references for a leading market practitioner in New York who confirmed that Incenta's understanding of the typical contractual arrangements for these railroads was correct—that is, contracts for most traffic types are for one to three years, and contracts for haulage of coal are for terms of up to five years.
- *market power*—Incenta stated that Aurizon Network did not provide persuasive evidence that Aurizon Network has a similar level of market power to US Class 1 railroads. Contrary to Aurizon Network's suggestion, Incenta did not propose that market power alone would result in a lower asset beta for Aurizon Network relative to US Class 1 railroads. Rather, Incenta's conclusion on beta was that Aurizon Network has a combination of market power and a strong economic position—due to the economics of the Queensland coal industry and the essential nature of the product carried—that would result in a lower asset beta.
- *operating leverage*—Incenta did not agree that Aurizon Network's further analysis of operating leverage supported its proposed asset beta, specifically:
  - contrary to Aurizon Network's suggestion, Incenta did not agree that it used regulatory cash flows rather than real cash flows, highlighting that its estimates of EBIT aligned with those produced by Aurizon Network from its audited financial statements
  - while Aurizon Network estimated the sensitivity of EBIT to a change in sales as 5.71, Incenta noted that it did not agree with Aurizon Network's approach to estimating the EBIT sensitivity measure.[415] This was because the approach applied by Aurizon Network results in volatile year-to-year estimates and requires 'units sold', and this input is not an easily obtained, or readily understood, measure for diverse firms in the wider sample. Therefore, Incenta applied a regression methodology to measure EBIT sensitivity and

[413] The revenue cap formula will likely mean that there is some fluctuation in cash flow, as it requires future charges to be adjusted so that shortfalls or excess revenues are adjusted to provide the NPV-neutral revenue outcome.
[414] US Class 1 railroads negotiate directly with customers while subject to regulatory oversight of their rates.
[415] Aurizon Network measured EBIT sensitivity to a change in sales by calculating the percentage change in EBIT as a proportion of the percentage change in sales.

estimated an operating leverage of 1.01. As the 5.71 and 1.01 figures are derived from different methods, they cannot be directly compared

 - Incenta agreed with Aurizon Network's point that the opex/assets measure can be unreliable unless the operating cost component largely comprises fixed costs. However, for this same reason, Aurizon Network's observation that its operating leverage based on this measure (8.4 per cent) is higher than that of electricity transmission providers (3.1 per cent) is also open to the same criticism

 - Incenta also agreed that Aurizon Network's argument—that the first two measures could overstate the operating leverage of US Class 1 railroads (i.e. as the measures might not fully take into account the large proportion of costs that vary with sales)—has some merit because these types of measures are imperfect. However, Incenta noted that it relied on other measures of operating leverage as well, considering that the regression estimate for EBIT sensitivity is the most reliable of the estimates from the three approaches. Incenta noted that Aurizon Network's estimate of operating leverage using this metric (1.01) was materially lower relative to the same measure for US Class 1 and Canadian railroads (median of 1.54). Further, Incenta noted that the other two measures, while imperfect, were not inconsistent with this result.

- In any case, Incenta concluded that all of these points are secondary—even if Aurizon Network's operating leverage was the same as that of US Class 1 and Canadian railroads, it would be unlikely to impact Aurizon Network because the effect of the revenue cap on Aurizon Network's cash flows would largely neutralise any impact of operating leverage on systematic risk.

- *growth options*—while differential growth options might be a reason for the systematic risk of unregulated businesses (like US Class 1 railroads) to be higher or lower, Aurizon Network's systematic risk is unlikely to be affected by growth options because the returns from new investments are subject to regulatory control. Incenta added that Aurizon Network's submission appears to suggest that US Class 1 railroads have less risk than Aurizon Network because of the US Government's willingness to 'bankroll investment', but has provided no evidence to support this proposition.

- *the effect of regulation on beta*—

 - the academic studies cited by Aurizon Network showing an ambiguous relationship between regulation and beta are drawn from a study by Binder and Norton (1999), but Aurizon Network does not note that the results from the latest Binder and Norton study strongly support the Peltzman 'buffering hypothesis'. Further, many of the studies referenced by Aurizon Network are 'event studies', which do not examine beta relative to regulation, but instead look at whether there is a change in shareholder wealth consequent to a change in regulation. Therefore, the findings of event studies are of limited relevance to this issue.

 - Incenta agreed that beta is a measure of the relationship between market returns and equity returns and that returns are a function of both cash flows and the discount rate applied to them. However, Incenta disagreed that it focused only on the cash flow component of beta. It stated that it focused primarily on the discount rate component of beta, as it considered the cash flow component to be minimal, due to the revenue certainty provided by the cost-based form of regulation. In doing so, Incenta used regulated energy and water businesses, which are subject to similar cost-based regulation to Aurizon Network, as the comparators.

- Incenta acknowledged that the 2007 ACG report had regard to the betas of transport companies and rail operators when assessing the asset beta for WestNet Rail but highlighted that the ACG report did not undertake a first principles analysis to determine to what degree the transport/rail sector companies were appropriate comparators. In any case, Incenta is of the view that WestNet Rail is not a relevant comparator for Aurizon Network owing to differences in their fundamental characteristics—most importantly relating to the nature of the traffic carried, the contractual arrangements and the regulatory framework.
- Grant Samuel's report estimated a higher asset beta for WestNet Rail than for toll-roads, the latter of which Incenta considered to have closer resemblance to the characteristics of Aurizon Network than WestNet Rail, and also put WestNet Rail in a different sectoral category to DBCT. Incenta said the Grant Samuel report supports and illustrates the principle Incenta depended on, which is that in the absence of direct comparators it is more important to look through the physical characteristics of the operations to the economic fundamentals, and how the cash flows are likely to be influenced by systematic risk factors. This reinforced Incenta's view that WestNet Rail is not an appropriate comparator for Aurizon Network.
- Incenta disagreed with the 2007 ACG report's finding that 'mature toll-road companies' are an appropriate comparator for Perth's PTA, noting that no detailed first principles analysis of the systematic risk characteristics of the PTA and mature toll-roads was undertaken by ACG. Incenta added that, based on its own first principles analysis, it considers toll-roads are not an appropriate comparator for the PTA, as the former are not regulated on a cost-of-service basis and are more vulnerable to economic cycles than the PTA.

Technical issues

With regard to the alleged technical errors in Incenta's first set of reports, Incenta:

- said Aurizon Network is correct in noting that the raw data file provided to it misallocated two (of 107 total) firms to incorrect industries. However, Incenta said this initial misallocation was corrected before its original report was concluded. As a result, the industry estimates reported by Incenta were correct as they were based on the correct allocation of firms to industries. Further, the correct industry classification of the two firms was transparently observable from Appendix A of Incenta's original report
- acknowledged that its original data contained a bi-modality in the distribution of the simulated beta results, which was an error. This bi-modality was caused by the inclusion of a set of earlier simulation results with the correct ones. In order to correct this problem, Incenta completely rewrote its simulation routine to be significantly faster and use less computer resources. The results of this improved simulation did not differ materially from its previous results for the relevant comparator groups:
  - *energy*—the median simulated asset beta estimate reduced marginally from 0.42 to 0.41, while the average stayed approximately the same at 0.41
  - *water*—the median and average both fell marginally, from 0.40 to 0.38 and from 0.41 to 0.40 respectively
- taking both the energy and water samples together, the median asset beta also decreased slightly from 0.42 to 0.41.

However, as the revised median estimate of 0.41 for energy (and 0.49 for toll-roads) were materially below the estimates of 0.51 and 0.54 reported by Aurizon Network for these industries respectively, Incenta undertook further investigations:

- Incenta re-examined its de-leveraging analysis of estimated equity betas to underlying asset betas for both energy and toll-road businesses, specifically Incenta:
  - demonstrated how it applied the de-leveraging formula, using American Economic Power as an example (e.g. with the simulated equity beta of 0.595 de-levered to give a simulated asset beta of 0.412)
  - re-confirmed its gearing estimates for each firm in the comparator samples.
- This exercise confirmed that there were no errors in Incenta's de-leveraging analysis.
- to obtain an additional reference point, Incenta also produced standard OLS beta estimates for energy and toll-road firms on the basis of both effective and statutory tax rates to determine if different tax rates could explain the discrepancy with the beta estimates reported by Aurizon Network.[416] Using effective/statutory tax rates, the Incenta OLS median asset beta estimates for the energy industry were 0.38/0.40, while the median estimates for toll-roads were 0.47/0.48.

These estimates did not vary materially, whether based on effective or statutory tax rates, and therefore remained materially below Aurizon Network's reported estimates. As a result, Incenta also examined other evidence and concluded that several considerations also supported its estimates over Aurizon Network's estimates:

- Bloomberg raw OLS beta estimates for both energy and toll-roads supported its estimates.[417] Again using effective/statutory tax rates, the Bloomberg OLS median asset beta estimates for the energy industry were 0.35/0.36, while the median estimates for toll-roads were 0.51/0.52. While the toll-road estimates lie roughly between the Incenta estimate (0.49) and the Aurizon Network estimate (0.54), the Bloomberg estimates for energy (0.35/0.36) are much closer to the Incenta estimate (0.41) than the Aurizon Network estimate (0.51).[418]
- Less than six months prior to the publication of Incenta's original (December 2013) report, SFG released a report that estimated the equity betas of 56 international (i.e. US) and nine Australian regulated energy businesses. SFG concluded that the equity beta was 0.84 (on average, at 60 per cent gearing). Applying the Conine formula, 55 per cent gearing and a debt beta of 0.12, Incenta stated that this implied an asset beta of 0.43 (i.e. 0.02 higher than Incenta's revised estimate (0.41) and 0.02 lower than the estimate proposed in our MAR draft decision (0.45)).

Therefore, Incenta found a close correspondence between the asset beta estimates from different approaches for international regulated energy businesses and toll-roads. In summary, for the principal comparator group (energy), these results are:

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[416] Incenta used effective tax rates on a firm-by-firm basis when de-levering the equity betas of the sample firms, as the objective of de-levering is to strip out all effects of the underlying systematic component. Incenta estimated long-term effective tax rates for each firm in its sample. However, practitioners often use the statutory rate as a proxy for the effective rate.

[417] The Bloomberg standard (i.e. raw) OLS beta estimates do not include dividend payments as part of the total monthly return on share ownership. Incenta's beta estimates do include these payments, which reflect the correct definition of returns. Nonetheless, the Bloomberg raw betas are another reference point in terms of investigating the discrepancy between beta estimates.

[418] As previously discussed, toll-roads were not considered primary comparators by Incenta but used as an upper bound on the possible beta for Aurizon Network. Incenta's analysis here focuses on toll-roads (and energy) because Aurizon Network raised concerns with estimated betas for these two comparator groups.

- 0.38/0.40 (median) based on Incenta's OLS estimates using both effective/statutory tax rates[419]
- 0.41 (median) for energy based on applying Incenta's (revised) simulated beta methodology, using effective tax rates
- 0.35/0.36 (median) based on Bloomberg's OLS estimates using both effective/statutory tax rates[420]
- 0.43 estimated by SFG Consulting in its June 2013 report.

Incenta concluded that, since all of these estimates were in the range 0.35 to 0.43, it is confident that the asset beta point estimate of 0.41 (using the simulated month approach) is appropriate for Aurizon Network.

Incenta considered that Aurizon Network's simulated asset beta estimates for the energy sample (median of 0.51) and toll-road sample (median of 0.54) are likely to be the products of methodological error.

SFG Consulting

Incenta responded to SFG's commentary as follows:

- SFG appears to be under the misconception that Incenta's inclusion of Grant Samuel's estimate of DBCT's asset beta (0.35) as a lower bound, and the empirically-derived asset beta of toll-roads (0.49) as an upper bound, were dominating influences in Incenta's determination of an asset beta of 0.42 for Aurizon Network. However, Incenta stated that this was not the case—instead its estimate was principally based on empirical estimates from a large group of regulated energy and water sector businesses, which it identified using a comprehensive first principles analysis as the best comparators for Aurizon Network. The fact that its estimate of 0.42 (revised now to 0.41) was the mid-point of the range determined by the lower and upper bounds (i.e. DBCT and toll-roads) was coincidental.
- Grant Samuel's estimate of DBCT's asset beta was based on the view that the most important characteristic of the business was its regulation and the certainty of its cash flows. Incenta stated that the Grant Samuel report supports and illustrates the principle Incenta depended on, which is that in the absence of direct comparators it is more important to 'look through' the physical characteristics of the operations to the economic fundamentals, and how the cash flows are likely to be influenced by systematic risk factors.
- Contrary to SFG's claim, Incenta did consider Grant Samuel's assessment of the asset beta of WestNet Rail but concluded that WestNet Rail is not a relevant comparator for Aurizon Network. While Grant Samuel grouped DBCT (regulated coal port) and Powerco (regulated energy) into the same sectoral category ('Utilities'), Grant Samuel placed WestNet Rail in a separate sector ('Fee for Service–Australasia'). This distinction suggests that Grant Samuel believed that WestNet Rail was not a relevant comparator for DBCT and Powerco. Also, Grant Samuel assigned a higher asset beta to WestNet Rail than to toll-roads, which indicates Grant Samuel believed WestNet Rail to have higher risk than toll-roads. Incenta considered toll-roads to more closely match the characteristics of Aurizon Network than WestNet Rail.

[419] The mean estimates were 0.39/0.40 using effective/statutory tax rates.
[420] The mean estimates were 0.38/0.39 using effective/statutory tax rates.

- Standard and Poor's analysis of the CQCN is focussed on credit risk, not systematic risk. Incenta stated that credit risk does not necessarily translate to greater beta risk if the factors underlying it are not systematic in relation to market returns. Incenta stated that it has not seen evidence that the factors that could undermine the competitiveness of the Queensland coal industry are systematically related to the performance of the Australian market.
- Incenta rejected SFG's claim that the arbitrary and sequential manner in which it considered information on comparators produces a biased result. Specifically, Incenta did not consider the regulation characteristic first, and then automatically reject all comparators that were not regulated businesses. Instead, it considered a number of industries with some characteristics in common with Aurizon Network, including:
  - regulated—energy networks, water
  - infrastructure—energy, water, toll-road, US Class 1 railroads
  - network—energy networks, water, US Class 1 railroads
  - mining—coal mining.

It compared the characteristics of firms in these sectors to Aurizon Network, paying particular attention to US Class 1 railroads. On the basis of this analysis, it concluded that only the regulated energy and water businesses had systematic risk characteristics that were sufficiently similar to Aurizon Network to justify including them as comparators.

The Brattle Group

Incenta responded to the Brattle Group's comments as follows:

- Incenta agreed that revenue cap regulation does not mean Aurizon Network's revenue will not fluctuate, but the issue for beta analysis is whether revenue fluctuation is systematic with the market/economy. Incenta showed that Aurizon Network's revenue increased during the GFC and the European sovereign debt crisis, which effectively implies negative co-variability with market returns. By contrast, the revenue response of the US Class 1 railroads was to move (co-vary) in the same direction as the market, which indicates higher betas relative to Aurizon Network.
- Incenta did not consider Transurban to be sufficiently different from other toll-roads to exclude it from the sample. While accepting that Transurban had the highest operating cash flow/capital expenditure ratio in the sample, Incenta noted that it was only slightly higher than Gruppe Eurotunnel SA (GET). More importantly, Incenta said the operating cash flow/capital expenditure ratio can be misleading where other investment activity is being undertaken by the business that is not classified as capital expenditure. For this reason, the operating cash flow/cash flow from investing activities ratio is considered more meaningful—and on this ratio, Transurban sits near the middle of the sample. Incenta added that, in any case, exclusion of Transurban would only make a marginal difference to the median asset beta of the toll-roads' sample (an increase from 0.49 to 0.50)—which would not change its asset beta recommendation for Aurizon Network.
- Incenta did not consider Canadian railroads to be relevant comparators for Aurizon Network, as revenue-type regulation applies only to the carriage of one commodity (grain), and grain is not a significant proportion of the Canadian railroads' traffic by revenues (about 27 per cent for Canadian Pacific and 20 per cent for Canadian National).[421] However, as the majority

[421] Grant Samuel 2010.

of traffic carried by the Canadian railroads is not regulated and subject to volatile movements in demand (e.g. automobile shipments declined by 31.2 per cent during the GFC), Incenta concluded they are not appropriate comparators for Aurizon Network.

Other stakeholders

Incenta responded to comments made by other stakeholders as follows:

- a number of stakeholders (the QRC, Vale and Anglo American) seem to believe that Incenta simply averaged the lower and upper bound estimates—the Grant Samuel asset beta for DBCT (0.35) and the asset beta estimate for toll-roads (0.49)—to derive an asset beta estimate for Aurizon Network. However, while its analysis was framed by these two 'lower' and 'upper' bound reference points, Incenta emphasised that it did not simply average these—rather, its estimate of Aurizon Network's asset beta was primarily based on the mean and median asset beta estimates for 77 regulated energy and water businesses, which it considered had the closest systematic risk characteristics to Aurizon Network.
- Incenta agreed with the QRC that toll-roads are likely to have higher systematic risk exposure than Aurizon Network, which is why it considered the estimated asset beta of toll-roads to be an 'upper bound'. Incenta stated that it did not give specific weight to toll-roads when estimating the asset beta of Aurizon Network, but expected Aurizon Network's asset beta to lie below the asset beta of toll-roads.
- Incenta acknowledged the QRC's point that the simulated months methodology resulted in an increase in the asset beta estimates of energy and water businesses. However, Incenta noted that the revised (median) estimates range from 0.38 to 0.41, which is only marginally above the estimates (medians) from the OLS methodology (0.35 to 0.38). Further, Incenta considered that, as the simulated month approach eliminates the turn-of-the-month effect, it has greater confidence in the resulting (simulated beta) estimates. Finally, Incenta noted that applying simulated beta estimation does not necessarily imply higher beta estimates from such a process—simulated beta estimation can result in estimates that are either higher or lower than conventionally estimated betas.
- in relation to Anglo American's concern that Incenta's approach over-simplified the categorisation of types of regulation and, therefore, the QCA's question regarding risk reduction mechanisms was not appropriately answered, Incenta said the regulatory approaches that it categorised were designed to test whether the asset betas of alternative forms of cost-based regulation could be distinguished. It said the extent of categorisation already resulted in groupings that were relatively small, making it difficult to discern material differences in asset betas. Therefore, any finer categorisation would have meant smaller groupings still, and even less chance of finding such differences, as the sample sizes would be too small to enable proper analysis.

Conclusion

Incenta concluded that, on the basis of its revised analysis, 0.41 is an appropriate point estimate of Aurizon Network's asset beta. It concluded that Aurizon Network, SFG and The Brattle Group did not provide new evidence demonstrating that its first principles assessment of Aurizon Network's systematic risk was incorrect in identifying regulated energy and water businesses as the most relevant comparators. Neither did Incenta consider it appropriate to provide weight to rail and other transport firms whose systematic risk fundamentals are materially and substantially different to those of Aurizon Network. Further, Incenta stated that the provision of any weight to the beta estimate of an inappropriate comparator would distort Aurizon Network's asset beta estimate.

QCA analysis and consolidated draft decision

We have reviewed and responded to the concerns raised by stakeholders and their consultants on our MAR draft decision. Our view is that no new evidence has been presented that persuades us that Aurizon Network's estimates of the asset and equity beta are appropriate. Similarly, no new evidence has been presented that persuades us that our estimates of the asset and equity beta were incorrect or inappropriate. Therefore, no issue raised by stakeholders has caused us to revise our decision to refuse to approve Aurizon Network's proposal or to revise our conclusions about our estimate of the asset and equity beta.

Our consolidated draft decision is to maintain an asset beta for Aurizon Network of 0.45, which converts to an equity beta of 0.80 at 55 per cent gearing.[422] In reaching this decision, we have accepted Incenta's amended recommendation of a point estimate of 0.41 for the asset beta, based on a comprehensive first principles assessment and associated empirical analysis, and then applied our judgment. Our reasons for maintaining our MAR draft decision asset and equity beta estimates are set out in the remainder of this section.

Key considerations

We have reviewed and carefully considered all of the material before us, from Incenta and from stakeholders, on the issue of an appropriate value for the asset beta. Clearly, there are fundamental differences of opinion between Aurizon Network (and SFG) and Incenta on the appropriate approach to apply for determining beta. Aurizon Network and SFG supported an approach that applies a series of different weights to estimates from a range of comparators, some of which are more comparable to Aurizon Network than others, based on certain characteristics. Alternatively, Incenta proposed an approach where it applies a range of criteria to identify the closest group of comparators based on the similarities between the underlying economic fundamentals of those firms and Aurizon Network; then Incenta bases its estimate on the identified group(s).

We consider that Incenta's approach is the superior approach. A key reason is that, in the absence of direct comparators, it emphasises the need to 'look through' the physical characteristics of the operations to the economic fundamentals and, in particular, how the firm's cash flows are likely to be affected by systematic risk. By using this approach, it identifies firms that most closely match Aurizon Network on the basis of similar systematic risk. We note that Incenta's approach is not novel. It is consistent with the approach taken by a leading market practitioner (Grant Samuel) which, when estimating the asset beta for DBCT, placed no weight on the substantially higher asset betas of general cargo ports, which (among other factors) are not regulated in the same manner as DBCT.

For these reasons, we do not accept SFG's approach of placing varying weights on different types of businesses, including US Class 1 railroads and other transportation businesses, when these businesses are not appropriate comparators for Aurizon Network based on the underlying economic fundamentals. Placing weights on such companies will result in an inaccurate estimate of beta. SFG's approach is analogous to placing some weight on the (observable) beta of a luxury goods retailer in order to estimate the (unobservable) beta of a regulated electricity retailer, simply because both firms are in the retail industry. Clearly, this approach would result in an inaccurate estimate, as the underlying systematic risk profiles of these companies fundamentally differ.

[422] Applying the Conine levering formula, an asset beta of 0.45 converts to an equity beta of 0.80, assuming benchmark 55% gearing, a debt beta of 0.12, and a gamma of 0.47.

As a result, we do not consider that US Class 1 railroads and Canadian railroads are relevant comparators for Aurizon Network. Aurizon Network is fundamentally different from these companies with respect to the most important economic characteristics that affect the covariance of returns with the market, including in particular: uncorrelated demand, long-term take-or-pay contractual arrangements and cost-based regulation. In this regard, we note that the revenue trend of US Class 1 and Canadian railroads was in the direction of the market during both the GFC (2008–2009) and the European sovereign debt crisis (2011–2013), while the revenue trend of Aurizon Network was moving neutrally or against the direction of the market. These revenue profiles reflect very different relationships to market movements.

We also do not consider WestNet Rail (now Brookfield Rail) to be an appropriate comparator for Aurizon Network for similar reasons—due to the nature of traffic that is carried, the contractual arrangements and the regulatory framework. Also, we do not agree with SFG that excluding Grant Samuel's estimate of WestNet Rail's asset beta from the comparator group, while at the same time referencing Grant Samuel's estimate for DBCT, constitutes bias on our part. While we considered both estimates, we determined that one comparator (DBCT) was appropriate, but the other comparator (WestNet Rail) was not—simply because both businesses were referenced in the same report (Grant Samuel) is not relevant.

We accept Incenta's conclusion, based on a comprehensive first principles analysis, that regulated energy and water utilities provide the closest comparators for Aurizon Network in the context of systematic risk. Incenta has acknowledged that it made an error in the data used in its original simulation. We are satisfied that Incenta has appropriately addressed this issue. Further, we note that Aurizon Network has not demonstrated any errors in Incenta's categorisation of sample data and de-leveraging analysis. We note that Incenta's revised results do not differ materially from the previous results. We are therefore satisfied that Incenta's recommendation of an asset beta for Aurizon Network of 0.41 represents the best empirical estimate available at this time.

We have additional confidence in this estimate, as it lies between two reference beta estimates that Incenta identified as likely lower and upper bounds (Grant Samuel's estimate for DBCT and the estimate for toll-roads respectively). However, we reiterate the point made in our MAR draft decision that Incenta's recommended asset beta estimate is based on its empirical analysis of a large sample of regulated energy and water businesses—the fact that it fell exactly between the asset beta estimates of the lower and upper bounds was only a coincidence—Incenta did not, as some stakeholders appear to believe, choose the midpoint of that range as its recommended estimate.

The Black CAPM

We do not consider that it is appropriate for us to have regard to the Black CAPM at this time, as suggested by Aurizon Network and The Brattle Group.

The Black CAPM is a tool that some analysts have argued should be used to correct for the view that the Sharpe-Lintner CAPM tends to underestimate (overestimate) the return for low (high) beta stocks. The Black CAPM does this by incorporating an 'alpha' adjustment into the determination of the cost of equity. The Brattle Group said academic literature has estimated a wide range of alpha parameters, ranging from one per cent to as much as seven per cent when using short-term government bonds. Aurizon Network said that application of a conservative alpha factor of three per cent means the equity beta of 0.80 in the Sharpe-Lintner CAPM should be adjusted to 0.89 to generate the same return as predicted by the Black CAPM.

As noted earlier, the QRC did not support use of the Black CAPM when determining the cost of equity, as the QRC considered the Black CAPM to be a model that has yet to gain any real acceptance among Australian regulators and to not be a tool for estimating the Sharpe-Lintner CAPM equity beta.

We note that, while the AER has adopted the Sharpe-Lintner CAPM as its foundation model for determining the cost of equity, it has also said with regard to the Black CAPM that it will 'use the theory of the model to inform the selection of the equity beta point estimate.' At the same time, the AER has also recognised a number of clear deficiencies with the Black CAPM, including that:

- the model requires estimation of the market portfolio, the return on the zero beta portfolio and the equity beta—with the first two of these being complex
- the model is highly sensitive to these inputs
- expected returns on zero beta portfolios are not observable, and no generally accepted empirical measurement of the zero beta portfolio exists
- estimation of the Black CAPM requires an exact identification of the market portfolio, with the use of a portfolio that is not the market portfolio potentially leading to parameter estimates that are outside the bounds prescribed by the underlying theoretical model
- to the AER's knowledge, the Black CAPM is not used by other regulators (either domestically or internationally), academics or market practitioners to estimate the return on equity
- the empirical support for the Black CAPM is inconclusive
- the robustness of the parameter estimates is poor.

Subsequently, the AER commissioned McKenzie and Partington and Handley to provide reports on its approach to determining the return on equity for energy network service providers. Both reports commented specifically on the relevance of the Black CAPM and identified additional deficiencies with the model. The ERA(WA) has also recently identified significant deficiencies with the Black CAPM.

On balance, we consider that the deficiencies with the Black CAPM identified by the AER, McKenzie and Partington, Handley and the ERA(WA) are sufficient to indicate that it is not appropriate to have regard to it in estimating the equity beta and cost of equity for Aurizon Network for its 2014 DAU.

QCA's judgement

While we consider Incenta's recommended asset and equity beta values for Aurizon Network to be justifiable, we have considered additional matters and applied our best judgement to all the relevant information in making our consolidated draft decision. In doing so, we have decided to maintain the position proposed in the MAR draft decision—that is, to refuse to approve Aurizon Network's proposal and to determine that an appropriate asset beta for Aurizon Network is 0.45, and an appropriate equity beta is 0.80 (at 55 per cent gearing).

As noted in the MAR draft decision, these values are the same as those approved in Aurizon Network's 2010 access undertaking. In approving that undertaking, we considered the beta values were appropriate as they:

- were consistent with the observed betas for a relevant comparator group of energy businesses (noting we rejected coal companies and railroads as appropriate comparators)

- reflected the limited exposure of Aurizon Network to risks related to short-term coal demand shocks, given the revenue cap mechanism's ability to correct for volume volatility
- would provide an environment conducive to investment in new infrastructure, when considered in conjunction with the package of other arrangements approved in the 2010 undertaking (e.g. accelerated depreciation)
- represented an appropriate reduction to the asset and equity betas approved in the 2006 undertaking (0.50 and 0.90 respectively). In approving that undertaking, we accepted that an asset beta of 0.45 would be reasonable, within a range of 0.35 to 0.50. However, we settled on an asset beta of 0.50 to ensure there was sufficient incentive for timely investment in major new infrastructure. In approving the 2010 undertaking, we considered an uplift to the asset beta was no longer appropriate, as the regulatory arrangements had subsequently changed (including through introduction of the revenue cap arrangements).

We reiterate the points made in the MAR draft decision in support of our decision to maintain the 2010 access undertaking beta values:

- Estimating beta with a high degree of precision is inherently difficult—suggesting: (a) some caution should be shown in making significant changes to previous estimates; and (b) selecting an asset beta point estimate as precise as 0.41 may represent an attempt to be over-precise.
- Consideration of the need for regulatory certainty, particularly noting the 2014 DAU approval process is Aurizon Network's first regulatory reset since the privatisation of its parent company. We consider that, in the context of the WACC, section 138(2)(h) of the QCA Act (which requires us to have regard to any other issues we consider relevant) includes the need to ensure the WACC framework is stable and predictable. This means changes to predetermined parameters require solid justification.
- Our proposed asset beta of 0.45 is well within the bounds of 0.35 and 0.49 identified by Incenta—also noting this range is very close to the 0.35 to 0.50 range identified in decisions on previous undertakings.
- Key changes to earlier regulatory arrangements, such as the introduction of the revenue cap and accelerated depreciation, were already considered as part of the decision to approve the 2010 AU.
- Our intent to maintain an environment conducive to investment in new infrastructure, including user-funded investment (for which regulated returns are likely to apply, in accordance with any approved standard user funding agreement (SUFA)).

As noted in the MAR draft decision, we are permitted to take all these factors into account when having regard to the factors set out in section 138(2) of the QCA Act.

We have also considered the additional views put forward by the QRC, Anglo American, Vale and BMA, in particular that our approach:

- places too much weight on toll-roads as comparators and insufficient weight on DBCT
- inappropriately sets an asset beta at the higher end of the identified range
- suggests a tendency to 'err on the high side', which appears contrary to our stated approach to estimation of the rate of return
- involves regulatory 'inertia'—that is, starting with previously determined values and only departing from those values where there is solid justification, which differs from the

approach taken to other parameters such as the MRP. It is also not clear what would constitute 'solid justification', given the QCA commissioned expert advice and that advice was to adopt a lower value.

The key information we have had regard to in determining our estimate for the asset and equity beta includes the matters raised by stakeholders, and discussed earlier in this chapter, Incenta's analysis and the matters referred to in support of our decision to maintain the 2010 AU values for beta.

We are satisfied that the asset betas for DBCT and toll-roads represent relevant reference points for the asset beta estimate of Aurizon Network. Our view is that:

- Grant Samuel’s estimate of DBCT's asset beta represents an expert opinion of the systematic risk for a regulated infrastructure asset in the same coal supply chain as Aurizon Network, but which is unlikely to be above Aurizon Network's asset beta
- the estimated asset beta for Incenta's group of toll-roads represents an estimate for a group of businesses that share some systematic risk characteristics with Aurizon Network, but for which the asset beta is unlikely to be below that of Aurizon Network. We have noted the concerns of the QRC and other stakeholders that toll-roads may not be relevant comparators for Aurizon Network, particularly the point that the recent history of toll-roads in Australia includes numerous operators that faced insolvency as a result of volumes being significantly less than forecast and/or construction costs exceeding estimates. However, our view is that this comment relates to toll-roads in the investment and start-up phases, where traffic and cost projections have often proved to be unreliable. It does not apply to the mature, operating toll-roads included in Incenta's sample—which have relatively stable traffic flows and revenues but with regulation that does not generally incorporate periodic cost reviews.

With these lower and upper bounds identified, we note again that Incenta did not determine a range and then choose the midpoint of that range in making its recommendation. Rather, it used a first principles analysis to identify an appropriate comparator group of businesses (i.e. a large group of international and Australian energy and water businesses) and assessed the asset beta for this group of businesses as being 0.41. It then reasoned that an appropriate cross-check on this estimate would be the Grant Samuel DBCT estimate, which it was confident would be below Aurizon Network's asset beta, and the asset beta for toll-roads, which it was confident would be above Aurizon Network's asset beta.

Our view is that Incenta's recommendation reflects the most appropriate empirical estimate of Aurizon Network's beta at this time. However, our best estimate must also be informed by our judgement, taking into account all relevant information. We consider our decision on the beta values is consistent with an appropriate consideration, and weighting of, all of the factors we must have regard to in accordance with section 138(2) of the QCA Act.

Further, in determining our preferred estimate for the asset beta, we do not consider that we have 'erred on the high side' or inappropriately set an asset beta at the higher end of a range. In determining an asset beta for Aurizon Network's 2014 DAU of 0.45 (an equity beta of 0.80) we have considered all relevant information and used our judgement to determine a best estimate. This is a similar approach to how we have determined estimates for other WACC parameters, including for example the debt risk premium and the MRP.

In our MAR draft decision, we stated that we do not consider it appropriate to estimate WACC at the upper end of a range. We explained that our approach is to apply the best estimate for each WACC parameter, rather than to err on the high side. We added that we consider this approach best achieves a weighting of the factors set out in section 138(2) of the QCA Act that

achieves an appropriate balance between the competing interests of the various stakeholders. We remain of that opinion.

On balance, we consider our estimate of Aurizon Network's asset beta represents our best estimate made using our judgement of all relevant information. The cross-check provided by the identified lower and upper bounds provides us with further comfort that our estimate is appropriate.

Conclusion

Taking account of all the above factors, we have decided to maintain our position that we will refuse to approve Aurizon Network's proposal. Rather, we consider it appropriate to maintain an asset beta for Aurizon Network of 0.45, and an equity beta of 0.80 (with 55 per cent gearing).

As noted in our MAR draft decision, strict application of the Conine formula to the asset beta of 0.45, with 55 per cent gearing and a debt beta of 0.12 and our gamma value of 0.47, produces an equity beta value of approximately 0.79. However, in the interests of maintaining regulatory certainty, we consider it is reasonable to round our estimate of the equity beta to 0.8, which is the value that was approved in the 2010 access undertaking.

We consider that this value has regard to the factors set out in section 138(2) of the QCA Act, taking into consideration the specific points we have identified above, and weights them appropriately in the manner previously indicated in this chapter, achieving an appropriate balance between the competing interests of the various stakeholders.

Consolidated draft decision 28.9

(1) After considering Aurizon Network's proposed equity beta range of 0.90 to 1.0, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

(2) The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to reflect our estimate of an equity beta of 0.80.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

28.11 Gamma

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.

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—the rate at which shareholders actually use the distributed credits for tax purposes.

We identified the background to gamma in section 10.9 of the MAR draft decision. We also set out a more detailed overview of gamma in section 5 and appendix D of our market parameters decision. We have adopted that analysis for the purposes of this consolidated draft decision.

Aurizon Network's proposal

In the 2014 DAU, Aurizon Network proposed an estimated range for gamma of 0.0 to 0.25 calculated using an estimated distribution rate of 0.70 (based on studies using Australian Taxation Office (ATO) data) and an estimated range for the utilisation rate of 0.0 to 0.35 (based on a dividend drop-off study).

Aurizon Network's consultant, SFG Consulting, submitted that our estimate of 0.8 for the distribution rate was too high given the available evidence, and our estimate of 0.625 for the utilisation rate was both internally inconsistent with our use of the CAPM, and outdated.

Stakeholders' initial comments

QRC disagreed with Aurizon Network's proposed gamma estimate because the estimate of the utilisation rate was based on a single study and evidence from several other studies did not support reducing gamma from our prior estimate. QRC instead proposed a gamma of 0.50 comprising estimates of 0.70 for the distribution rate and 0.70 for the utilisation rate.

QCA MAR draft decision

Our MAR draft decision refused to approve Aurizon Network's proposed gamma range of 0.0 to 0.25 and required Aurizon Network to amend its DAU to reflect our gamma estimate of 0.47.

Our full analysis and reasoning is contained in section 10.9 of the MAR draft decision. We adopt that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

Our MAR draft decision was as follows:

> *10.15 We refuse to approve Aurizon Network's proposed gamma between 0.0 and 0.25.*
>
> *10.16 We consider it appropriate for Aurizon Network to amend its draft access undertaking to set a gamma of 0.47.*

In summary:

- Our estimate of 0.84 for the distribution rate was obtained based on Lally's approach of using data sourced directly from companies' financial statements in their annual reports (i.e. 'annual report' approach). We considered Lally's approach to be superior to the studies based on ATO data relied upon by Aurizon Network.
- Our overall estimate of 0.56 for the utilisation rate was obtained by assessing the strengths and weaknesses of the following estimates obtained using several methods:
  - dividend drop-off studies (0.35)—these studies compare stock prices before and after dividends are distributed to shareholders. Econometric analysis is used to infer the value of the imputation credits from the stock price changes following dividend distributions. The supposition is that the pre and post-distribution share price difference reflects the value of imputation credits to investors.
  - redemption approach (0.53)—this approach uses tax statistics to estimate the proportion of imputation credits redeemed by all investors with the ATO
  - equity ownership approach (0.56)—this approach calculates the shares of domestic and foreign equity ownership and assumes utilisation rates for these two classes of investors of one and zero, respectively
  - practitioner behaviour (0.75)—the extent to which analysts and valuers recognise the value of imputation credits

  - Lally conceptual test (at or close to one)—the test estimates the Australian cost of equity under complete segmentation (i.e. no international investors), and complete integration, of national equity and world equity markets. Estimates of the cost of equity that lie outside estimates from the two extreme scenarios would be unreasonable, and Lally concluded that a utilisation rate of one (or close to one) produces a cost of equity that is reasonable (i.e. the result lies within the bounds).

Stakeholders' comments on the MAR draft decision

Aurizon Network

Aurizon Network disagreed with the QCA's MAR draft decision on gamma. In particular, Aurizon Network argued that the QCA's estimates of the distribution rate and the utilisation rate were both in error.

Distribution rate

Aurizon Network submitted that:

- there are robust empirical grounds for a distribution rate estimate of 0.70 based on
  - NERA's conclusion that ATO tax statistics supported a dividend payout ratio of no more than 0.70
  - Hathaway's estimate for the distribution rate of 0.71 using data from ATO franking account balances, which he considered reasonable
- Lally's 'ASX annual report' approach had several technical problems, including
  - the definitions of the distribution rate used by Lally and the QCA are inconsistent
  - Lally's assumption that there is a strong positive association between the equity values of Australian companies and their tax payments to the ATO is questionable
  - Lally's sample of firms is likely to result in an upward bias in the distribution rate as smaller firms not included in the sample tend to have lower distribution rates
- Australian regulatory precedent, including the 2010 decision by the Australian Competition Tribunal, supports the use of an estimate of 0.70 for the distribution rate
- despite being consistently rejected by the QCA in past decisions, including in the QCA's market parameters decision, Lally's approach was nevertheless adopted in the MAR draft decision even though the use of an increased sample size had only a marginal effect on the distribution rate.

Utilisation rate

Aurizon Network raised a number of key issues with respect to the appropriate conceptual definition of the utilisation rate, and submitted that:

- the definition of the utilisation rate should reflect the value of imputation credits in the hands of equity holders (i.e. a market value) rather than the proportion of imputation credits redeemed, as used by the QCA (the 'redemption rate'). This is because, if equity holders value imputation credits at less than face value, a gamma based on face value will under-compensate them
- the redemption approach used by the QCA is contrary to the common theoretical understanding of gamma based on the value of imputation credits. Both Handley and the

Australian Competition Tribunal stated that redemption rates will not produce appropriate estimates of gamma

- the redemption approach is inconsistent with:
  - section 168A of the QCA Act because under-compensation results in revenues that do not cover efficient costs, including an appropriate return on investment
  - the object of Part 5 of the QCA Act because under-compensating shareholders will not promote economically efficient investment in infrastructure
  - the regulatory frameworks in the National Gas Rules (NGR) and National Electricity Rules (NER), which both define gamma as the value of imputation credits
- therefore, to be consistent with the value definition, the utilisation rate should be estimated using market value studies such as dividend drop-off analysis. ATO tax data and equity ownership approaches estimate the redemption rate, rather than a market value. Aurizon Network highlighted the importance of further analysis by its consultant, SFG, supporting the merits of dividend drop-off studies.

Aurizon Network also made a number of criticisms relating to aspects of the QCA's approach to estimating the utilisation rate:

- The nature and quantum of the weights applied to the approaches used by the QCA to estimate the utilisation rate were not transparent. In particular, the QCA did not explain why the equity ownership approach received the most weight.
- The QCA's estimates of the utilisation rate from two of its preferred approaches were overestimated because
  - the estimate obtained using the redemption approach (0.53) was based, in part, on an estimate derived from unreliable franked dividend data (0.62). As the 0.62 estimate is unreliable, it should be disregarded. This would reduce the QCA's estimate using this approach from 0.53 to 0.44.
  - in addition, the associated distribution rate from the franked dividend data is 0.47, which is substantially lower than the QCA's proposed estimate of 0.84. As a matter of logic, if the QCA does not view the 0.47 estimate of the distribution rate as being reasonable, the QCA should therefore not place any weight on an estimate of the utilisation rate (i.e. 0.62) based on the same data.
  - the estimate obtained using the equity ownership approach (0.56) can be refined further by taking into account the types of equity most relevant to the benchmark entity and the specific classes of investors. When this is done, the equity ownership estimate of the utilisation rate varies between 0.38 and 0.46, which is consistent with the estimate from the taxation and franking account balance data.
- the QCA uses the equity ownership approach—which recognises the integration of national and world equity markets—to estimate the utilisation rate to apply in a CAPM which, in contrast, assumes complete segregation of these markets. As recognised by Lally, this practice is inconsistent.
- no weight should be applied to Lally's conceptual test as:
  - it is inconsistent with the assumptions and empirical basis used for estimating other CAPM parameters

– no other Australian regulator uses a value for the utilisation rate based on Lally's conceptual test and, in particular, the AER explicitly rejected this test in its recent draft decision on the ACT and NSW energy businesses.[423]

Aurizon Network's submission also contained a report from SFG on the value of gamma proposed in the MAR draft decision. Responses to the issues raised in that report are provided below.

Other stakeholders

The QRC submitted that the QCA's estimate of gamma is reasonable (noting that the QCA's estimate of 0.47 is slightly below the QRC's proposed estimate of 0.50).

Anglo American submitted that it:

- broadly supported the QCA's estimate of 0.84 for the distribution rate, although it preferred the rate of 0.85 proposed by Lally. Anglo American saw no reason to reassess the data for smaller companies (as suggested by Aurizon Network) because that would not replicate Aurizon Network's ability to use imputation credits and further, the 0.85 estimate of the distribution rate better reflected Aurizon Network's size and structure
- supported Lally's recommendation of 1.0 for the utilisation rate as opposed to the QCA's estimate of 0.56, or the estimate provided by SFG on behalf of Aurizon Network (0.35), on the basis that Lally's estimate is more consistent with the definition of the utilisation rate and the CAPM version used
- supported a gamma estimate of 0.85 (based on a distribution rate of 0.85 and a utilisation rate of 1.0), which is significantly higher than the 0.47 value proposed in the MAR draft decision.

Consultant's advice

We commissioned Lally to comment on stakeholders' submissions on our MAR draft decision, including the advice provided to Aurizon Network by SFG. Lally's detailed comments are set out in Lally 2015a. However, the main points are summarised below.

SFG Consulting

Distribution rate

Lally responded to SFG's advice to Aurizon Network about the distribution rate as follows:[424]

- It was not sufficient to reject the QCA's methodology for estimating the distribution rate merely because it differs from the practice followed by other Australian regulators. The QCA's methodology should be assessed on its own merits.[425]
- SFG did not adequately address the QCA's concerns about the reliability of NERA's estimate of 0.70. Based on ATO data, NERA estimated the distribution rate using two methods that should have yielded the same result. However, these methods produced significantly

[423] Aurizon Network, December 2014: p. 226.

[424] Lally 2015a, sub-section 2.1: 4–7.

[425] By way of analogy, Lally noted that SFG supported the trailing average cost of debt at a time when no regulator supported such an approach. Naturally, SFG supported the trailing average based on its perceived merits. The QCA is applying the same principle as SFG (i.e. assessment on the basis of merit) with respect to the distribution rate (Lally 2015a: 4). While the practice of other regulators is a consideration, by itself, it is not determinative.

different results (0.70 and 0.53), which brings into question the ATO data used. Moreover, if SFG is correct in arguing that the points raised by NERA are immaterial, then other factors need to be identified to explain the discrepancy between the figures of 0.70 and 0.53 and this has not been done. This raises concerns with the credibility of both NERA's estimates.

- SFG did not address the advantages of using financial statement data to obtain the QCA's estimate of 0.84 as previously pointed out by Lally. These advantages include that
  - the financial statement data is audited
  - it is possible to personally identify data for particular firms rather than relying on ATO data, which is aggregated and therefore subject to double-counting and other aggregation problems
  - there are no unexplained discrepancies in the financial statement data whereas the ATO data contains major inconsistencies.
- SFG's claim that the definitions of the distribution rate used by the QCA and Lally are different, was incorrect. The two definitions are equivalent if company tax paid is defined, consistent with Officer's model, as payments to the ATO only (which equates to franking credits created), rather than payments to both the ATO and foreign tax authorities.
- SFG's claim that Lally's advice to the AER—that 0.70 was within the reasonable range for the distribution rate—followed his advice to the QCA that 0.85 was an appropriate estimate, was incorrect. Lally's advice to the AER predated his advice to the QCA, the latter of which was based on subsequent, more detailed analysis. An updated estimate of 0.84 was later submitted to the QCA following still further analysis.

Utilisation rate

Definitional issues

Lally responded to SFG's contention that the utilisation rate was a market-value concept as follows:[426]

- It is not possible to determine with certainty how gamma is defined in Officer (1994) because Officer uses ambiguous wording and more importantly, he provides no formal derivation of gamma. However, published papers by Monkhouse (1993) and Lally and van Zijl (2003) provide rigorous derivations of the Officer model, and they define gamma as the product of a distribution rate and a utilisation rate, where the latter is a weighted average of the utilisation rates of individual investors[427]—this latter definition is a market-wide, but not a market-value, concept.
- SFG incorrectly claimed Lally's equation for equity value shows that imputation credits reflected a market value, rather than the extent to which investors were entitled to the credits or actually redeemed them—which is the definition of utilisation rate actually used in Lally's analysis.[428]
- Reports by other parties referred to by SFG did not provide convincing support for SFG's contention that the utilisation rate was a market-value concept:

[426] Lally 2015a, sub-section 2.2: 7–15.
[427] The utilisation rate of an individual investor is the extent to which imputation credits can be redeemed with the ATO.
[428] The same error in interpretation was made when SFG derived an equation of equity value (which is a special case of Lally's equation) consistent with the work of Officer.

  - McKenzie and Partington, after reviewing Officer, were ambivalent on whether the utilisation rate was defined in market value or redemption rate terms. However, they did not review the published papers by Monkhouse (1993) and Lally and van Zijl (2003) that provided formal derivations of the Officer model. These are consistent with the utilisation rate being defined as a weighted average over the utilisation rates of individual investors.[429]
  - Handley defined gamma in value terms based on work by Brennan (1970). However, Brennan (1970) did not analyse a dividend imputation regime, and Handley did not link his definition of gamma to any formal derivation of the Officer model, including the derivations provided by Monkhouse (1993) and Lally and van Zijl (2003).
  - Hathaway and Officer presented the results of a dividend drop-off study which implied a market value interpretation of imputation credits. However, an appropriate definition of the utilisation rate is one consistent with a rigorous derivation of the Officer model.
- Some (but not all) of SFG's claims that the market value of imputation credits was less than the empirical redemption rate were correct. However, this does not mean that market value is the better estimator of a weighted-average utilisation rate. As both the empirical redemption rate and market value are simply two approaches to estimating the weighted average utilisation rate, the correct comparison is between each of these estimators and the weighted average utilisation rate—SFG did not undertake such a comparison.
- As a result, several issues raised by SFG are not relevant and serve only to highlight deficiencies in the Officer CAPM that give rise to the market value being less than the redemption rate. For example, the Officer CAPM does not take into account the different taxation treatment of dividends and capital gains; it does not allow for investment in foreign assets; it does not model the delays in receiving the benefit of imputation credits; and it uses (like most models) assumptions abstracted from reality (e.g. it does not allow for administrative costs).
- SFG's claim that the weighted-average of investors' utilisation rates is the estimator and the market value of imputation credits is the object to be estimated is incorrect—the opposite is the case. Under realistic conditions, if the market value of credits did not agree with the utilisation rate parameter in the Officer model to be estimated, the deficiency was in using the market value as an estimator of the parameter in the model.
- Although Lally agreed that the equity ownership approach (which includes foreign investors) was inconsistent with the use of the domestic CAPM (which assumes complete market segmentation for risky assets and therefore excludes foreign investors), this problem also exists for the market value approach.

The conceptual test

Lally responded to SFG's comments on his 'conceptual test' as follows:[430]

- The QCA did not act inconsistently in adopting a utilisation rate outside of the bounds established by Lally's conceptual test while giving weight to that test. Lally argued that he did not establish numerical bounds for his conceptual test, and the QCA weighed estimates of the utilisation rate obtained using several methods to arrive at its estimate of 0.56—that

[429] Both market values and empirical redemption rates are estimators of the utilisation rate defined as a weighted average of the utilisation rates of individual investors.
[430] Lally 2015a, sub-section 2.3: 15–18.

is, dividend drop-off studies (0.35); redemption rates (0.53); equity ownership (0.56); practitioner behaviour (0.75); and Lally's conceptual test (at or close to one).

- The exclusion of Lally's conceptual test estimate would have little or no impact on the QCA's estimate because the QCA had applied a low weight to Lally's test.
- Contrary to SFG's claim, it is not impossible to estimate values of beta and the MRP required for Lally's conceptual test because these estimates rely on normal regression analysis against appropriate market portfolios in the case of beta, and empirical evidence and some plausible assumptions in the case of the MRP. Although the range of estimates provided by Lally may be debatable, SFG did not offer any alternatives for consideration.
- In relation to estimation error in converting real-world to theoretical-world estimates, SFG—in contrast to its claims—recognised that estimation errors were taken into account. In relation to model error, the onus was on SFG to present alternative, plausible models, and to assess their implications for the conceptual test. However, SFG did not do so.
- The QCA did not act inconsistently in rejecting Merton MRP estimates while placing some weight on Lally's conceptual test which also relies on Merton's method, because the QCA placed low weight on both uses of the Merton methodology. Moreover, there was no inconsistency in Lally using the Merton methodology for the conceptual test while not using it for estimating the absolute value of the Australian MRP. This is because Lally considered that better methods are available to estimate the absolute value of the MRP. In contrast, the conceptual test only requires estimating the differences in MRPs under the three scenarios analysed (not their absolute values), and better methods than Merton for this purpose are not apparent.
- The conceptual test is not inherently contradictory and unfit for purpose as the result of CAPM assumptions that the market for government bonds is completely integrated whereas the market for risky assets is completely segmented. The CAPM assumes only that the market for risky assets is completely segmented, and no assumption is made about the risk-free asset. Moreover, the conceptual test is concerned only with risk premiums, and questions relating to the risk-free rate are, therefore, irrelevant.

Estimates from dividend drop-off studies

Lally responded as follows to SFG's claim that SFG had addressed the concerns raised by the QCA about estimates of the utilisation rate using dividend drop-off studies:[431]

- SFG had not adequately addressed the potential effect of increases in trading volume around ex-dividend dates—in particular, the possibility that the inclusion of unrepresentative investors (e.g. tax arbitrageurs) could distort the estimate of a value-weighted average of the utilisation rate across the market. SFG's argument that the effect of tax arbitrageurs would be to raise the dividend drop-off estimate of the utilisation rate above the estimates from other empirical techniques—that is, an upward bias—was not supported by the evidence. Even if correct, the presence of upward bias was not the point at issue, and moreover, the upward bias supported the QCA's concerns about the reliability of the results.
- SFG had not addressed Lally's subsequent arguments against SFG's earlier views on the following matters:
  - use of a constant term in the regressions

[431] Lally 2015a, sub-section 2.4: 18–20.

  - interaction between the value of cash dividends and the value of imputation credits
  - deletion of small-cap companies.
- SFG's views on the following matters were not located in the references that SFG cited:
  - reliability of the estimates from the regressions
  - comparison between the ERA and SFG studies.
- SFG claimed that evidence of unreliability in the estimates of Vo, Gellard and Mero (2013) could not be extended to its own work because of differences in the models examined. However, Lally was not satisfied that SFG's claim was supported by its analysis. Although SFG did rerun Vo et al's sensitivity tests on SFG's preferred model with ex-dividend returns adjusted for market movements, SFG used generalised least squares (GLS), rather than robust, regression; progressively deleted only the 20 most extreme observations, rather than 30; and did not examine the sensitivity of its results to the tuning coefficient.

Other issues

Lally responded to other issues raised by SFG as follows:[432]

- SFG's claim that the QCA did not explain why it rejected a utilisation rate of one based on the conceptual test was incorrect. The QCA did not give high weight to this estimate because of the uncertainty about the bounds of that test.
- SFG's contention that the QCA did not comment on SFG's earlier claims about market practice was incorrect. Lally (2013, p. 50) provided contrary arguments which have not been addressed by SFG.
- SFG's argument that the existence of imputation funds demonstrated that gamma must be less than one did not contradict the views either of the QCA or Lally. First, the QCA concluded that the utilisation rate should be 0.56. Second, SFG's argument concerns the utilisation rate that is reflected in market prices, rather than gamma. It is sufficient for the existence of such funds that some investors believe that this utilisation rate is less than one. Lally has argued that the utilisation rate should be one for consistency with the use of a domestic CAPM. The utilisation rate reflected in market prices is likely to be less than 1 because of the presence of foreign investors in the Australian equity market.

Aurizon Network

In addition to SFG's arguments, Aurizon Network raised some additional matters in its submission. Lally addressed these matters, as follows:[433]

- Lally provided empirical evidence for a strong positive association between the equity values of Australian companies and their tax payments to the ATO in response to Aurizon Network's claim that little analysis had been provided to support this relationship.
- Lally rejected the claim that excluding 38 per cent of companies (by ASX200 market value) would materially lower the estimate of the distribution rate as the (omitted) companies have lower dividend payout rates. First, Lally noted that the effect of doubling the sample size from 10 to 20 companies resulted in an immaterial reduction in the estimated distribution rate from 0.85 to 0.84. Second, Lally noted that it is not efficient to include every ASX200 company in the sample, but provided a rough estimate that suggested a market-

[432] Lally 2015a, sub-section 2.5: 21.
[433] Lally 2015a, section 3: 21–29.

wide distribution rate of around 0.79 if these remaining companies were included in the sample. Lally noted that this estimate is closer to his estimate of 0.84 than to the generally applied estimate of 0.70, and moreover, that the 0.79 was based on conservative assumptions.

- Lally rejected Aurizon Network's argument that the QCA should estimate the redemption rate from ATO taxation data only (0.44) and place no weight on the estimate of the utilisation rate based on ATO dividend data (0.62) because the QCA rejected estimates of the distribution rate from the same ATO dividend data. However, the QCA rejected all estimates of the distribution rate based on ATO data in favour of estimates based on financial statement data and, therefore, there are no implied grounds for favouring one estimate of the utilisation rate based on ATO data over the other. Moreover, the reduction in the redemption rate estimate based on ATO taxation data only to 0.44 would not affect the median estimate of 0.56.
- in relation to the AER's estimate of 42 per cent for local ownership of Australian listed equity (compared with the QCA's estimate of 56 per cent), Lally did not agree that the AER should remove public sector entities and all investment funds from the calculation. To assume that public sector entities cannot use imputation credits leads to distortions in estimates of the cost of capital of regulated entities, and the inclusion of certain investment funds does not result in double-counting of assets. On the other hand, Lally agreed with the removal of Australian corporate owners of Australian private sector equity, as including these entities does involve double-counting of assets. Lally estimated that these adjustments could result in a reduction in the QCA estimate for local ownership of Australian listed equity to 50 per cent. However, Lally continued to regard the QCA's estimate of 56 per cent as likely to be 'conservative', as it does not include unlisted equity.

Anglo American

Lally responded to issues raised by Anglo American as follows:[434]

- Anglo American's contention that a distribution rate estimate of 0.85 was to be preferred on the grounds that Aurizon Network was a large company similar to those included in Lally's sample was not supported. Evidence was not provided by Anglo American to show that size is a factor in determining a firm's distribution rate, and Lally preferred the market-wide estimate of 0.84 for reasons previously provided in Lally 2013.
- Anglo American's view that the utilisation rate for Aurizon Network should be higher than the QCA's estimate of 0.56 because Aurizon Network is a highly diversified business was not supported. The utilisation rate is a market-wide parameter in the Officer CAPM and therefore firm-specific characteristics of Aurizon Network are irrelevant to its estimation.
- Lally agreed with Anglo American that the utilisation rate should be one for reasons previously provided in Lally 2013.

QCA analysis and consolidated draft decision

We have considered the concerns raised by stakeholders and their consultants on our MAR draft decision. We believe that no new evidence has been presented that demonstrates that our estimate of gamma was inappropriate and, therefore, no issue raised by submissions has caused us to revise our conclusions about our estimate of gamma.

[434] Lally 2015a, section 4: 29.

In particular, for the distribution rate:

- we do not agree with Aurizon Network that a robust estimate of the distribution rate can be obtained from the ATO data. We consider that there are major, unexplained discrepancies in that data, which cast doubt upon the reliability of that data. Our view is that these discrepancies have not been adequately addressed by stakeholders
- the empirical approach used by Lally to estimate the distribution rate (based on annual report data) is superior to those relied on by Aurizon Network (based on tax data). In particular
  - Lally provided empirical support for his view that there is a strong positive association between the equity values of Australian listed companies and their tax payments to the ATO
  - there are strong advantages of using annual report data over ATO tax data to estimate the distribution rate, and these reasons are set out in the MAR draft decision and the Market Parameters Decision—they have not been adequately addressed or refuted by stakeholders or their consultants
  - a further increase in the number of ASX200 companies is unlikely to result in a significant change to the distribution rate estimate
- our definition of the distribution rate is consistent with that used by Lally because, in both cases, company tax paid is defined as the tax paid only to the ATO, rather than the tax paid to both the ATO and foreign tax authorities
- Lally's annual report approach was adopted in our Market Parameters Decision, not rejected, as claimed by Aurizon Network
- Anglo American's submissions that Aurizon Network's size and degree of diversification justify a higher distribution rate are not supported because these contentions lack evidence and are firm-specific, whereas a market-wide estimate of the distribution rate is preferable
- we note that, since the AER released its Rate of Return Guideline, it has considered additional arguments and evidence on the distribution rate and now applies a range of 0.70–0.80, where the 0.80 estimate is based on listed equity.[435] Likewise, the ERA has adopted a similar analytical approach.[436] The 0.80 applied by the AER and ERA when considering listed equity is substantially closer to the QCA's preferred estimate of 0.84 than to Aurizon Network's proposed estimate of 0.70
- in relation to Aurizon Network's view that Australian regulatory precedent, including the 2010 decision by the Australian Competition Tribunal, supports the use of an estimate of 0.70 for the distribution rate, we note that
  - there is no conceptual or practical consensus on the estimate of the distribution rate among Australian regulators[437]
  - in its 2010 decision, the Australian Competition Tribunal stated that there was no empirical evidence currently available supporting a distribution ratio higher than 0.70. However, the Australian Competition Tribunal also noted that estimation of a parameter

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[435] AER (2015), Attachment 4, Table 4-2, p. 418.
[436] ERA (2015), pp. 411–414.
[437] AER (2015), Attachment 4, Table 4-4, p. 4-32–4-33.

such as gamma is an ongoing intellectual and empirical endeavour and its decisions are based on the case evidence before it.[438] Consistent with this view, we have based our estimate of the distribution rate on the merits of the evidence before us

  - since 2010, the Australian Competition Tribunal has considered the value of imputation credits in several proceedings.[439] Although the Australian Competition Tribunal expressed views in these proceedings on appropriate estimates, the merits of different evidence, and the appropriate exercise of discretion by regulators, the Australian Competition Tribunal's comments in each case referred to the lack of expert consensus regarding the value of imputation credits and the scope that existed for future assessments of the evidence[440]

- our methodology should not be rejected solely because it differs from the practice of some Australian regulators, particularly when the practice of other regulators may involve limitations, as discussed in our market parameters decision.

We have also considered Aurizon Network's concern that we did not adopt the annual reports approach in our previous cost of capital review (2004–2005) and that, adopting it in our most recent review reflects an inconsistency. However, since that time, we note two relevant developments. First, a number of discrepancies with the ATO data have been identified, and they remain unresolved. Second, and given this concern, progressively more work has been undertaken by Lally on his approach, which includes materially increasing the sample size.

Finally, and as explained in detail in our reasoning in both the market parameters decision and the MAR draft decision, the financial statement data has strong advantages over the ATO data—stakeholders have not sought to refute this point.

In our view, the arguments put forward in submissions do not provide sufficient grounds for changing our MAR draft decision to refuse to approve Aurizon Network's proposal and to determine that an appropriate estimate for the distribution rate is 0.84.

For the utilisation rate:

- we do not accept the contention that the utilisation rate is defined as a market-value concept. Rigorous derivations of the Officer CAPM unambiguously define the utilisation rate as the weighted average of the utilisation rates of individual investors (i.e. the extent to which imputation credits can be redeemed with the ATO). Therefore, dividend drop-off studies have limited relevance for estimating the utilisation rate
- several of our primary concerns about drop-off estimates have not been adequately addressed in submissions, including the effect of increases in trading volume around ex-dividend dates; the use of a constant term in the regressions and the reliability of regression estimates; the interaction between the value of cash dividends and the value of imputation credits; the deletion of small cap companies; and the comparison between the studies by ERA and SFG
- a number of other contentions about the utilisation rate were incorrect. In particular:

[438] Application by Energex Limited (Gamma) (No 5) [2011] ACompT 9, May 2011.

[439] Application by Energex Limited (No 2) [2010] ACompT 7, October 2010; Application by Energex Limited (Distribution Ratio (Gamma)) (No 3) [2010] ACompT 9; Application by Energex Limited (Gamma) (No 5) [2011] ACompT 9, May 2011; Application by WA Gas Networks Pty Ltd (No 3) [2012] ACompT 12, June 2012; Application by DBNGP (WA) Transmission Pty Ltd (No 3) [2012] ACompT 14, July 2012

[440] AER (2015), Attachment 4, Table 4-5, pp. 4-35–4-37.

  - contrary to SFG's claim, we explained that we applied a low weight to a utilisation rate of one based on the conceptual test because of the uncertainty about the range of estimates of that test
  - contrary arguments were provided by Lally about market practice, but these have not been addressed by SFG
  - the existence of imputation funds is not inconsistent with our views or those of Lally
- we acted consistently in our application of Lally's conceptual test. Although we considered the test to have some merit in evaluating the reasonableness of a particular utilisation rate, the test was given lower weight because of the uncertainty about what the range of estimates should be.

However, for the reasons set out in our market parameters decision, we do not support the view of Lally and Anglo American that the utilisation rate should be 1.

In response to additional issues raised by Aurizon Network, we do not agree that:

- the redemption approach is inconsistent with the object of Part 5 of the QCA Act in relation to revenue adequacy and investment incentives
- the redemption approach is inconsistent with the NGR and NER.[441] These rules define gamma as the value of imputation credits, not the market value. As shown by Lally, the appropriate definition of gamma is the weighted average of the utilisation rates of individual investors—a market-wide, but not a market-value, concept
- no weight should be applied to Lally's conceptual test because it is inconsistent with the assumptions and empirical basis used for estimating other CAPM parameters
- it is inconsistent for us to use the equity ownership approach because the domestic CAPM assumes complete segmentation of capital markets.

As set out in our market parameters decision and the MAR draft decision, we have adopted an estimate of 0.56 for the utilisation rate following a considered evaluation of several estimation methods, including an appropriate weighing of the conceptual and practical issues involved.

Most emphasis was given to the equity ownership approach as it is based on the correct conceptual concept—a weighted average of utilisation rates across investors with weights reflecting ownership shares in Australian listed companies. It is also transparent, based on reliable data and relatively easy to estimate. Of the methods analysed, we believe the equity ownership approach provides the most robust and reliable estimate of the utilisation rate at this time.

As discussed in the MAR draft decision, we have also had regard to the relevant factors set out in the QCA Act.

We therefore believe that we have achieved an appropriate balance between the competing interests of the various stakeholders.

In our view, the arguments put forward in submissions do not provide sufficient grounds for changing our MAR draft decision to refuse to approve Aurizon Network's proposal and to determine that an appropriate estimate for the utilisation rate is 0.56.

The product of the distribution rate of 0.84 and the utilisation rate of 0.56 is a gamma of 0.47.

[441] National Gas Rules (rule 87A), and National Electricity Rules (clauses 6.5.3 and 6A.6.4)

In reaching our decision that this estimate of gamma is appropriate for Aurizon Network, we have noted that it sits within the range of gamma estimates (0.25–0.50) established by Australian regulators (Table 93). Specifically, our estimate is marginally above the median estimate.

Table 93 Regulatory estimates of gamma

Regulator	*Gamma*
AER	0.40
ACCC	0.45
ERA (WA)	0.40
ESC (Vic)	0.50
IPART (NSW)	0.25
QCA	0.47
Median	**0.43**

The outlier of these estimates is the value of 0.25 presently applied by IPART; otherwise, the range is 0.40–0.50. In this regard, we note that the divergence in IPART's estimate (and likewise Aurizon Network's estimate) from the other regulatory estimates is primarily due to the apparent, exclusive reliance on a single piece of evidence (i.e. the SFG dividend drop-off study) to determine an estimate of 0.35 for the utilisation rate. In contrast, all other regulators, including the QCA, give that estimate materially lower weight in arriving at a final estimate of the utilisation rate (and therefore, of gamma).

Conclusion

We acknowledge that there are alternative views and interpretations for estimating gamma and its components—the distribution and utilisation rates. However, we are not persuaded that the arguments put forward in submissions on the MAR draft decision provide sufficient grounds for changing our view that a reasonable estimate for gamma is 0.47, comprising a distribution rate of 0.84 and a utilisation rate of 0.56.

We consider that our estimate for gamma has regard to the relevant factors set out in the QCA Act and weights them appropriately, thereby achieving an appropriate balance between the competing interests of the various stakeholders.

Consolidated draft decision 28.10

(1) After considering Aurizon Network's proposed gamma of 0.25, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

(2) The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to set a gamma of 0.47.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

28.12 Conclusion

Based on the parameter estimates discussed in this chapter, we consider an appropriate post-tax nominal (vanilla) WACC for Aurizon Network is 7.17 per cent. This figure incorporates a cost of debt of 6.15 per cent, and a cost of equity of 8.41 per cent, and is based on 55 per cent gearing.

Values for all parameter estimates, as compared to the 2010 access undertaking, Aurizon Network's proposal (lower and upper bound), Aurizon Network's revised positions (as presented in its submission on our MAR Draft Decision) and the QRC's position, are contained below.

Table 94 WACC parameter estimates

Parameter	*2010 access undertaking*	*Aurizon Network proposal (lower bound)*	*Aurizon Network proposal (upper bound)*	*Aurizon Network (submission on MAR draft decision)*	*QRC*	*QCA's consolidated draft decision*
Credit rating	BBB+	BBB+	BBB+	BBB+	BBB+	BBB+
Risk-free rate	5.19%	3.15%	3.15%	3.21%	2.98%	3.21%
Market risk premium	6.0%	6.0%	7.0%	6.5%	5.0%-6.0%	6.5%
Asset beta	0.45	0.5	0.6	0.5	NA	0.45
Debt Beta	0.12	0.12	0.12	0.12	NA	0.12
Debt to value	55%	55%	55%	55%	55%	55%
Equity beta	0.8	0.9	1.0	0.9	0.4-0.6	0.8
Gamma	0.5	0.25	0.25	0.25	0.5	0.47
Equity margin	4.8%	5.4%	7.0%	5.85%	2.75%	5.2%
Cost of equity	9.99%	8.55%	10.15%	9.06%	5.73%	8.41%
Debt risk premium (raw)	4.45% (incl. credit default swaps)	2.94%	3.28%	3.0%	2.6%	2.72%
Debt transaction costs	0.125%	0.125%	0.125%	0.108%	0.0%	0.108%
Interest rate swap costs	0.175%	NA	NA	0.113%	NA	0.113%
Debt risk premium (total)	4.75%	3.065%	3.405%	3.23%	2.6%	2.94%
Cost of debt	9.94%	6.22%	6.56%	6.44%	5.58%	6.15%
WACC margin	4.77%	4.12%	5.03%	4.41%	2.67%	3.96%

Parameter	*2010 access undertaking*	*Aurizon Network proposal (lower bound)*	*Aurizon Network proposal (upper bound)*	*Aurizon Network (submission on MAR draft decision)*	*QRC*	*QCA's consolidated draft decision*
WACC	9.96%	7.27%	8.18%	7.62%	5.65%	7.17%

Consolidated draft decision 28.11

(1) After considering Aurizon Network's proposed post-tax nominal (vanilla) WACC of 8.18 per cent per annum, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

(2) The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to set a post-tax nominal (vanilla) WACC for the 2014 DAU of 7.17 per cent per annum, incorporating:

(a) a cost of equity of 8.41 per cent per annum

(b) a cost of debt of 6.15 per cent per annum

(c) benchmark gearing of 55 per cent.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the reasons set out in our analysis above.

29 APPROACH TO MODELLING

Aurizon Network's said that its submitted model is based on the AER's post-tax revenue model (PTRM). One of the model's assumptions in the form submitted by Aurizon Network is that revenue is received at the end of the financial year. In our MAR draft decision we accepted the use of the PTRM as the structural framework for 2014 DAU modelling. We did not include a working capital allowance or a return on inventory, as we found that the application of the 'end-of-year' timing assumption provides Aurizon Network with revenues that are more than sufficient to provide a working capital requirement.

Our analysis for this consolidated draft decision shows that Aurizon Network's submitted model varies from the AER's PTRM. Accordingly, we have considered whether the individual components of the proposed modelling approach are appropriate.

We consider that there is a material benefit to Aurizon Network from receiving revenue throughout the year and that the modelling approach should recognise this benefit. Aurizon Network's PTRM 'end-of-year' cash flow timing assumption increases the MAR by $88 million over the UT4 regulatory period when compared to a mid-year modelling approach.

We consider that a mid-year modelling assumption better reflects efficient costs. Our consolidated draft decision is therefore to refuse to approve Aurizon Network's 'end-of-year' timing assumption. We consider it appropriate that Aurizon Network retain a mid-year revenue assumption (as per UT3) and include a working capital allowance of $12 million over the UT4 regulatory period. These adjustments reduce the MAR by $76 million over UT4.

As this is a significant change since the MAR draft decision, we welcome comments on these matters.

29.1 Legislative framework

In forming a view on the appropriateness of Aurizon Network's proposed modelling approach for the 2014 DAU, we must have regard to the factors in section 138(2) of the QCA Act and give them an appropriate level of weighting.

Against this background, we consider:

- the factors listed in sections 138(2)(a), (b), (d), (e), (g) and (h) should be given more weight, as identified below
- section 138(2)(g) refers to the pricing principles mentioned in section 168A, of which we consider the factors listed in sections 168A(a), (c) and (d) should be given more weight, as identified below
- the factors listed in sections 138(2)(c), 138(2)(f) and 168A(b) should be given less weight, as they are not practically relevant to our assessment.

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 services are provided.

Sections 138(2)(g) and 168A(a) of the QCA Act 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.

Aurizon Network's legitimate business interests can encompass a range of things depending on the activity. However, in broad terms, we consider that Aurizon Network's business interests will be satisfied if Aurizon Network is permitted to recover at least its efficient costs. Regard should be had for both the timing of these costs and the associated recovery of these costs through prices.

Conversely, sections 138(2)(e) and (d) of the QCA Act require us to have regard to the interests of access seekers and the public interest. We also consider that the rights of existing access holders are relevant under section 138(2)(h), to the extent they are no longer 'access seekers' under section 138(2)(e). As identified earlier, consideration of all of these interests leads to a conclusion that Aurizon Network should be permitted to recover no more than efficient costs.

Collectively, these factors suggest that Aurizon Network's proposed modelling approach should reflect efficient costs.

Another factor relevant to our assessment of Aurizon Network's proposal is that, where possible, an approach should be adopted which provides for regulatory certainty. We have had regard to this factor pursuant to section 138(2)(h) of the QCA Act. We consider it appropriate to provide a stable and predictable regulatory environment for Aurizon Network; an environment in which there are changes to methodology only where there is a clear case for such changes.

Efficient allocation of costs

In considering the allocation of costs, in addition to section 138(2) of the QCA Act, we have also had regard to section 137(1A)(b). 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, via the access price, costs that are not reasonably attributable to the provision of the service.

29.2 Introduction

Aurizon Network submitted a model that is based on the AER's PTRM.[442]

According to Aurizon Network, the most prominent regulatory revenue model in Australia is the PTRM that was originally developed by the Australian Competition and Consumer Commission (ACCC) and initiated for the electricity industry in October 2001.[443] This is now maintained by the AER for the revenue regulation of all of the electricity and gas network businesses under its jurisdiction.[444]

Aurizon Network submitted that use of a regulatory financial model which more closely aligns to the AER’s PTRM is consistent with the objective of a consistent national approach to economic regulation of infrastructure.[445]

[442] Aurizon Network, 2013 DAU, sub. 3: 273–277.
[443] AER, Post Tax Revenue Handbook.
[444] Aurizon Network, 2013 DAU, sub. 3: 274.
[445] Aurizon Network, 2013 DAU, sub. 3: 274.

In the MAR draft decision, we accepted Aurizon Network's proposed adoption of the PTRM as a structural framework for its 2014 DAU inputs and revenue models. However, we did not accept all aspects of its proposed modelling approach. For example, we refused to approve Aurizon Network's proposal to commence depreciation at the beginning of the year after commissioning (discussed below).

Further, we note that the model submitted by Aurizon Network is not identical to the AER's PTRM. For example, Aurizon Network's model changed the timing of capital expenditure relative to the AER's PTRM.

We are not assessing the PTRM itself. Rather, we are assessing the material assumptions in Aurizon Network's model, including the absence of intra-year cash flow adjustments (that is, the end-of-year approach).

We set out in Chapter 2 and Chapter 20 our approach to the statutory factors, specifically in relation to sections 138(2)(b) and (g) and 168A(a) of the QCA Act. These discussions are relevant to this chapter.

29.3 Timing of the cash flows

UT3

Aurizon Network submitted that the UT3 model discounted the free cash flow (or post-tax revenue) by the WACC for half a year based on the assumption that revenue is recovered uniformly across the year and is therefore available for reinvestment. A working capital allowance was also included in the MAR.

Aurizon Network's proposal

Aurizon Network's submitted model assumes that revenue is received on the last day of the year and there is no intra-year adjustment. Aurizon Network contended that this 'end-of-year' approach is appropriate as the mid-year approach has specific economic flaws:

(1) Payments to lenders (debt service payments) are made on a monthly basis throughout the year, rather than as a bullet payment at year-end. It is therefore not considered appropriate to apply intra-year discounting here (as the revenues that are being applied to these debt service payments are not available for reinvestment).[446]

(2) Under the dividend imputation assumptions all remaining cash flows would be paid out to equity holders in the form of semi-annual dividends. Discounting retained earnings after debt servicing by half of the WACC does not reflect the dividends paid at half-year. That is, the firm does not obtain the benefit of reinvesting the income for the remainder of the year. If discounting is therefore to be applied to the cash flows to equity holders, it should only be at a quarter of the WACC to recognise that the first of the two assumed dividend payments would have to be made half-way through the year.[447]

Submissions from other stakeholders

BMA said it is unclear why Aurizon Network should be provided with revenue uplift through the PTRM's 'end-of-year' assumption, given it primarily benefits Aurizon Network.[448]

[446] Aurizon Network, 2013 DAU, sub. no. 3: 275.
[447] Aurizon Network, 2013 DAU, sub. 3: 275.
[448] QRC, 2013 DAU, sub. 84: 43–44.

The QRC said intra-year cash flow discounting should be retained because:[449]

- the intra-year cash flow discount is designed to reflect the difference between the timing assumption of cash flow modelling and the actual cash flows Aurizon Network receives and pays
- its own preliminary modelling suggests the exclusion of intra-year cash flow discounting increases the MAR by more than 1.5 per cent, which is materially significant in both dollar and percentage terms.

Other jurisdictions

Aurizon Network has used the same approach of not applying an intra-year cash flow adjustment as the AER. This approach has been subject to criticism by users and other regulators.

The AER's approach to calculating the revenue requirement is based on an end-of-year assumption. We note that the AER (or the ACCC as it then was) commissioned Allen Consulting Group (ACG) in March 2002 to advise whether it would be appropriate for the ACCC to include an explicit (additional) allowance in respect of working capital in the cash flow assumptions that guide its assessment of reference tariffs. As part of that advice, ACG considered the (end-of-year) timing assumptions behind the PTRM. The ACG found that working capital was not necessary and also that the PTRM’s timing assumptions tended to overcompensate service providers. ACG commented, for example, in March 2002:[450]

> *As shown in Appendix A, this particular formula makes the following assumptions about the timing of cash flow within a particular year:*
>
> *- the share of revenue in respect of capital-related costs (that is, both the return on assets and depreciation elements) is received at the end of the year;*
>
> *- capital expenditure is incurred at the end of each year; and*
>
> *- the timing of the share of revenue in respect of operating and maintenance costs is aligned with the timing of these costs.*
>
> *Clearly, these assumptions are unlikely to reflect a service provider’s actual timing of cash flow.*
>
> *and*
>
> *For most regulated utilities, as between 60 and 70 per cent of revenue reflects the capital-related components (and most of which is the ‘return on assets’ component), intuition would suggest this target revenue formula would be more likely to overstate (rather than understate) required revenue.*

ACG found in the context of the 'real-world' application of end-of-year approach contained in the PTRM for the Moomba to Sydney Pipeline at that time, for example:[451]

> *it was found that the simple target revenue formula used in the PTRM overstates the revenue required by about 1.8 per cent (which can be interpreted as the extent to which average prices are higher under the PTRM approach than required). While the results showed that there would be a financing cost associated with operating activities, it is swamped by the favourable timing assumptions with respect to the share of revenue associated with capital costs.*

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[449] BMA, 2013 DAU, sub. 41: 3.

[450] The Allen Consulting Group, March 2002, Report to the ACCC, Working Capital: Relevance for the Assessment of Reference Tariffs.

[451] The Allen Consulting Group, March 2002, Report to the ACCC, Working Capital: Relevance for the Assessment of Reference Tariffs.

Since the ACG report, the PTRM adopted by the AER for transmission has been modified to recognise capital expenditure mid-year with an additional half-year return.

During 2007, the AER consulted on the first PTRM proposed under the National Electricity Rules (NER). As part of that consultation process, the AER expressly considered the timing of cash flows arising in the context of the PTRM. In September 2007, the AER published its final decision and commented as follows on the timing issues (and has maintained the same position to date):[452]

> *The AER has decided not to change the current approach to the timing of cash flows in the PTRM. Without further consideration and sufficient data to assess the effects of timing of cash flows, it is unclear what the costs and benefits to TNSPs and users would be of changing the cash flow timing. The AER reserves its right to consider this issue again at a later time following a further analysis of the costs and benefits of such a change, including the feasibility of developing a benchmark timing adjustment of the cash flows for TNSPs.*
>
> *AER decision*
>
> *The AER is not proposing any immediate changes in the current treatment of cash flows in the PTRM. However, it intends to further consider this issue in the future and as a result may refine the timing assumption of cash flows in the PTRM. Any such changes would be required to be considered under the guideline amendment processes under clause 6A.20 of the NER."*

In a separate consultation process undertaken by the AER at the same time, the AER further explained its conclusion in the following terms, recognising that the timing assumptions in the PTRM are internally inconsistent. The AER commented in an Issues Paper of November 2007:[453]

> *The PTRM for transmission models revenues and expenditures on an annual basis, and revenues and expenditures (with the exception of capex) are assumed to occur on the last day of the regulatory year. Capex is recognised in the middle of each year and earns a half-year return which is capitalised before being rolled into the RAB. This particular timing assumption recognises that capex can occur evenly throughout the year, which is approximated by the middle of the year assumption.*
>
> *These timing assumptions are internally inconsistent as they make no allowance for the time value of intra-year cash flows, most notably revenues and opex, which are also likely to occur evenly throughout the year. Specifically, the PTRM does not provide compensation to businesses for the opportunity cost of funding opex throughout the year, nor does it recover the time value of cash benefits given that businesses also receive revenues throughout the year.*
>
> *In addressing this inconsistency, and in assessing the appropriateness of these timing assumptions in general, the AER has considered the competing objectives of achieving greater accuracy in modelling revenue requirements and making the PTRM simple and transparent. In commenting on the transmission PTRM, service providers found the existing assumptions to be pragmatic while users expressed concern over a potential bias in favour of service providers.*
>
> *In considering these issues, several jurisdictional regulators have recognised working capital allowances to account for cash-flow timings. In 2002 the ACCC engaged Allen Consulting Group (ACG) to consider the need to incorporate working capital into the PTRM. The ACG found that working capital was not necessary and also that the PTRM's timing assumptions tended to overcompensate service providers. Since this report, the PTRM adopted by the AER for transmission has been modified to recognise capex midyear with an additional half year return, which has been to the benefit of service providers.*

The AER concluded that:

[452] AER, September 2007, Post-tax revenue model—September 2007 amendment.

[453] Australian Energy Regulator, 2007, Issues paper: guidelines, models and schemes for electricity distribution network service providers, p. 11.

> *When considered in total, the cash flow timing assumptions implemented in the PTRM result in the service provider being over-compensated.*

Despite criticisms of the AER's approach, the AER has continued to use the end-of-year assumption.

The timing assumptions of the AER have not necessarily always been followed by other Australian regulators. In November 2009 (and more recently in July 2012), IPART published an Information Paper that compared the PTRM used by the AER with the approach to the building block model used by IPART. IPART highlighted that the NER prescribes to a significant degree how the AER must undertake building block calculations and set prices, but IPART's regulatory framework is less prescriptive. IPART considered the AER's modelling approach, but continued to prefer to adopt mid-year values in the building block revenue requirement and include a return on working capital in the MAR.[454] IPART's paper concluded that there are differences between regulators, and that those differences often reflect the types of incentives that regulators or policy makers wish to give to the regulated entities in question (e.g. incentives to improve efficiency).[455]

QCA analysis and consolidated draft decision

The QCA acknowledges that applying an end-of-year revenue timing assumption with no other adjustments (e.g. a working capital allowance) has some attractive properties. It reduces complexity to some extent, and it is reasonably transparent. However, an important consideration is whether implementing such an approach creates a material bias in revenues either in favour of, or against, the regulated business. The QCA has therefore considered Aurizon Network's proposal with this perspective in mind.

In particular, the absence of an intra-year adjustment means that the benchmark timing of revenue with respect to capital-related costs (i.e. return on, and of, capital) is aligned with the last day of the year. Specifically, all revenue with respect to these costs is assumed to be received on the last day of the year.

However, capital-related revenue would be expected to be received over the course of the year for a typical infrastructure service provider. As a result, the modelling assumption that this revenue is received at the end of the year would undervalue this revenue received by the service provider. This effect would provide a bias in favour of the service provider, all else equal. As capital-related revenues are a very significant proportion of allowed revenues, this bias is likely to be material.

Importantly, we consider that benchmark regulation is appropriate where possible. This creates the incentive for Aurizon Network to out-perform the benchmark. We consider that a benchmark infrastructure service provider will receive revenue on a relatively even basis throughout the year. Half of the revenue will be received in the first half of the year, and then half of the revenue will be received in the second half of the year. Assuming that all revenues are received at the midpoint approximates this revenue profile.

Given these considerations, we have assessed the allowed revenues under Aurizon Network's 'end-of-year' revenue timing proposal and the alternative, mid-year revenue timing benchmark. We have estimated that the end-of-year approach (with no intra-year adjustment) proposed by Aurizon Network increases the MAR by approximately $88 million (2.2% of the MAR) compared to the mid-year approach. We consider that this would materially exceed efficient costs but

[454] IPART, July 2012, Comparison of financial models—IPART and the Australia Energy Regulator.

[455] IPART, July 2012, Comparison of financial models—IPART and the Australia Energy Regulator, p. 2.

would be partially offset by a working capital allowance (refer below). The net impact is $76 million.

In response to Aurizon Network's specific claims:

(1) We agree that debt service payments are made throughout the year. Therefore, it is inappropriate for the modelling to assume that these payments occur at the end of the year. Monthly payments would result in a lower total amount of interest paid, than if interest was paid only at the end of the year. Reduced interest payments in turn would result in a reduction to the MAR. We consider that the benefits of revenues earned through the year should be incorporated in the calculation of the MAR.

(2) Aurizon Network argued that mid-year discounting is inappropriate for all remaining cash flows, as dividends are paid twice annually. Aurizon Network said it does not obtain the benefit of reinvesting the income for the remainder of the year.

We have undertaken our analysis for a benchmark firm and have not taken Aurizon Network's particular dividend policy into account.

However, if a dividend is paid then the equity holder (shareholder) gets the benefit of the distribution from the time that the dividend is paid. Due to the time value of money, two half-year dividend payments can be less than an end-of-year dividend payment but still provide the same amount in present value terms to the equity holder, because cash distribution can be re-invested. Under an end-of-year modelling approach, once the dividend has been paid, the entity continues to accrue a return on equity on the dividend payment. This constitutes double counting, as the entity and equity holder are both accruing the (same) benefit of the dividend payment. An intra-year adjustment removes the double counting.

We note that other regulators and users have concerns that the end-of-year approach provides a material revenue bias in favour of the service provider and as a result, typically apply an intra-year adjustment. It was also a concern expressed by QRC and BMA in its submissions.

We do not consider that Aurizon Network should adopt a modelling assumption that results in material over-compensation relative to a benchmark entity. This outcome is not consistent with our application of section 138(2) of the QCA Act as set out in Section 29.1 of this volume, as well as our analysis in Chapter 2 (Legislative framework) of this consolidated draft decision. On this basis, we refuse to approve the use of end-of-year revenue timing and consider that a mid-year adjustment is appropriate to adjust revenues. This is consistent with the approach for UT3.

The QCA has applied a mid-year approach in other regulatory approval processes as well. For example, the QCA adopted a mid-year approach for its most recent decisions on Queensland Rail, Seqwater and Dalrymple Bay Coal Terminal.

Working capital allowance

Aurizon Network's proposal

Aurizon Network submitted that a working capital allowance is provided in recognition of the need to manage the cash flow impacts of the intra-year discounting assumption. As Aurizon Network is not proposing an intra-year adjustment, Aurizon Network submitted that no working capital allowance is required.[456]

[456] Aurizon Network, 2013 DAU, sub. 3: 275.

Aurizon Network cited the ACCC[457] to justify this approach:

> *The Commission's cash flow modelling errs on the side of the service provider by providing for total revenue that exceeds that which is calculated in a more precise and explicit model. Explicit compensation for working capital in conjunction with the adoption of the PTRM cash flow modelling approach would double count the working capital cost in addition to erring on the side of the service provider.*

According to Aurizon Network, the determination of accurate working capital requirements is inherently complex as the timing of cash flows needs to be considered, thereby imposing administration and compliance costs. Aurizon Network said that such cash items include tax flows and imputation credits, cost pass-throughs, return of capital, interest income, interest payments and dividend payments.

Although not seeking a working capital allowance, Aurizon Network submitted that a return on inventory is needed as inventory is held for periods in excess of one month.

Costs paid to external suppliers of inventory include a return on the cost of inventory held by those suppliers prior to delivery (or, in the case of larger items such as turnouts, their construction). These costs are included in the direct maintenance cost allowance which the QCA has proposed to accept. Consistent with this principle, Aurizon Network said it is reasonable to expect that it should also be compensated for the indirect holding cost of these assets.

Aurizon Network said that if the QCA's final decision is to reject a return on inventory amount, it would be incentivised to consolidate all inventory holdings with one or more external suppliers until immediately prior to use. Aurizon Network believed that holding some inventory is a more efficient outcome, not only from a cost perspective but also for the timely delivery of reactive and preventative maintenance.

Submissions from stakeholders

QRC submitted that the combination of an intra-year cash flow adjustment and a well-specified working capital allowance is technically superior [to the end of year approach] from a methodological perspective and that a working capital allowance can be tailored to Aurizon Network's cash flows.[458]

QCA analysis and consolidated draft decision

After considering submissions received on the MAR draft decision, and assessing comments having regard to the factors listed in section 138(2) of the QCA Act, we consider it appropriate to accept a working capital allowance. However, for the reasons given below, we do not consider that a return of inventory allowance is appropriate.

The intra-year adjustment seeks to adjust the revenue profile to reflect when revenue accrued (that is, when the service is provided and the expense incurred). However, in practice, revenues are typically received after they are accrued, as invoices are typically sent out in arrears and then customers have a fixed period by which to pay. Working capital is required to fund the timing difference, as an entity typically needs to pay its suppliers and staff before it receives revenue from its customers.

As we do not consider that the end-of-year modelling approach is appropriate, we have also considered whether a working capital allowance is appropriate.

[457] Aurizon Network, 2013 DAU, sub. 3: 275.
[458] QRC, 2013 DAU, sub. 84: 43–44.

We do not consider that the calculation of a working capital allowance is inherently or necessarily complex, or that it results in additional administration or compliance costs. For UT3, Queensland Rail (now Aurizon Network) submitted a working capital allowance of 0.75 per cent of direct labour costs, which is simple to calculate.

The QCA has previously calculated a working capital allowance for QR, DBCT, SunWater and Seqwater. For some entities, the QCA has previously calculated an entity-specific working capital allowance based on the actual net debtor days and inventory levels. This approach is suitable in some circumstances.

For Aurizon Network, we consider that Aurizon Network should have an incentive to reduce its working capital and inventory costs. Treating these costs as a pass-through will not create this incentive. Therefore, we consider that a benchmark working capital allowance is appropriate. This will provide an incentive for Aurizon Network to reduce its net debtor days and inventory levels as Aurizon will capture the benefit in the corresponding decrease in costs.

A benchmark approach is consistent with previous decisions for Queensland Rail and DBCT. We consider that the 0.3 per cent benchmark applied in the recent Queensland Rail draft decision[459] is appropriate. Consequently, we consider that a working capital allowance of 0.3 per cent applied to the sum of the return on capital, return of capital, less inflation, and the operating and maintenance allowance is appropriate.[460]

Our analysis shows that this amount would allow Aurizon Network to fund an average gap between spending the money and recovering the associated revenues from its customers of approximately 16 days. The customer agreements specify that customers are to be invoiced monthly with 14 days payment terms. On average, Aurizon Network will recover its costs one month after the costs are incurred.

However, it is standard practice for payment to suppliers to be made in arrears. Payments made to suppliers in arrears reduce the amount of working capital required as the gap between revenue received and payments made decreases.

We have considered a working capital allowance is appropriate and have had regard to the factors in section 138(2) of the QCA Act. This allowance has regard to Aurizon Network's legitimate business interests and is at least enough to meet its efficient costs. Accordingly, as a 0.3 per cent benchmark working capital allowance is not inconsistent with Aurizon Network's actual contractual arrangements, and is appropriate in light of the factors in section 138(2), we consider a benchmark allowance is appropriate. Our consolidated draft decision is therefore to include such an allowance.

Whether it is appropriately in Aurizon Network's legitimate interests to receive a return of inventory allowance, when having regard to the factors set out in section 138(2) of the QCA Act, is another matter. Having determined that a working capital allowance is appropriate, we do not consider it appropriate that Aurizon Network obtains a separate return of inventory allowance. To do so would overcompensate Aurizon Network and it would fail to create the necessary incentives to promote the object of the Part 5 of the QCA Act. That is, we have included the cost of materials that form inventories in the operating and maintenance costs and we have included operating and maintenance costs in the calculation of the working capital allowance.

[459] QCA October 2015. Queensland Rail's 2015 Draft Access Undertaking.

[460] This is total MAR minus tax and imputation credits. These are not included in the calculation as tax is paid after the revenue is earned.

Revenue smoothing

Aurizon Network's proposal

According to Aurizon Network, revenue smoothing is typically applied by regulated energy network businesses to manage any price shocks to end customers (many of which are households) arising from 'lumpy' network investments. Aurizon Network's proposed model allows the regulated business to determine the revenue profile through the selection of appropriate revenue escalators. Aurizon Network submitted that it is appropriate to have some flexibility in setting the revenue profile over the course of the regulatory period.

QCA analysis and consolidated draft decision

The smoothing of revenues is not a unique feature of the PTRM (it can be applied to any model). In any case, it is preferable that Aurizon Network recover its costs in the year that they are incurred. This produces the most efficient price signal as customers are paying for the cost of the service in that year. If a customer's demand is variable over the period, then a smoothed price will result in a divergence between the efficient cost and the revenue paid over UT4.

We have investigated the variability of prices and do not consider the variability akin to a 'price shock'. Therefore, we have not smoothed revenue or prices.[461]

Calculation of tax

Aurizon Network's proposal

Aurizon Network's submitted model calculates tax separately as part of the 'raw' (or unsmoothed) building block revenues. This makes the tax allowance more transparent and materially reduces complexity in the model. Importantly, this will also assist Aurizon Network in attributing revenues to mine-specific infrastructure assets that are subject to a rebate agreement, as well as managing any future arrangements entered into under a SUFA (where funding users are required to obtain the imputation-adjusted tax benefits accruing to that infrastructure).

QCA analysis and consolidated draft decision

Given that we have not applied revenue or price smoothing in our consolidated draft decision, a single-step process (as proposed by Aurizon Network in its modelling approach) is appropriate for calculating tax.

Timing of inclusion of capital expenditure costs

Aurizon Network's proposal

Aurizon Network proposed to commence recovery of depreciation costs at the beginning of the year after it is commissioned, with no depreciation in the year of commissioning. According to Aurizon Network, this option achieves a full year's return on assets and is likely to generate revenues proportional to a mid-year write-in date as currently applies. The return on assets also monetises the interest during construction (IDC) costs that would otherwise be included in the RAB (IDC would only be calculated up to the start of the year of commissioning as opposed to the middle of the year as is current practice). The variation in first-year cash flows between the UT3 and the proposed UT4 approaches is dependent on the assumed asset life and rate of return.

[461] We have adjusted the profile of revenues associated with WIRP and Rolleston electric assets to reflect the timing of new expected volumes.

This approach however does provide a greater degree of flexibility than the AER's PTRM model in that, if the first year revenue is too high relative to the timing of the commencement of the applicable trains services and the volume profile, it is possible to capitalise a proportion of the first-year return on assets into the opening RAB value for the following year to achieve a required target revenue. As the model does not include part-year depreciation, it maintains consistency in the discounting of cash flows to achieve the required NPV and IRR outcomes.

Summary of the MAR draft decision

Our MAR draft decision was to refuse to approve Aurizon Network's proposal to change the timing of the commencement of regulatory depreciation to the year after an asset is commissioned. We considered that the reduction in the economic value of rail assets should commence in the year the assets start being used, and there was no reason why access holders using the asset in the year of commissioning should not pay depreciation in that year.

We also considered delaying the regulatory depreciation for a year would allow Aurizon Network to earn an additional return on the asset. Delaying the commencement of regulatory depreciation for a twelve-month period could also give rise to cash-flow issues for Aurizon Network, particularly when large infrastructure projects are commissioned.

Specifically, we stated in our MAR draft decision (at MAR draft decision 9.3):

> *We refuse to approve Aurizon Network's proposal to commence regulatory depreciation, in its Post Tax Revenue Model, the year after an asset is commissioned. We consider it is appropriate for Aurizon Network to amend its Post Tax Revenue Model to ensure that regulatory depreciation commences in the year in which an asset is commissioned.*

Our full analysis and reasoning are contained in section 9.6 of the MAR draft decision. We have adopted that analysis and reasoning for the purposes of this consolidated draft decision, subject to the comments below.

Aurizon Network's comments on the MAR draft decision

Aurizon Network accepted our MAR draft decision to commence depreciation in the year of asset commissioning.[462]

Aurizon Network said in accepting this recommendation it should not be assumed it acceded to our claim that its proposal is biased in the interests of the access provider. Aurizon Network said the MAR is measured so the NPV of cash flows is zero and there is no scope to earn an extra return when calculating MAR.

Stakeholders' comments on the MAR draft decision

The QRC said it had a preference for Aurizon Network's proposed method for the commencement of depreciation, i.e. to commence in the year after an asset is commissioned. The QRC made a number of observations about the year of commissioning, specifically:

> *(Deferral) is more likely to align the costs and benefits of the use of new assets, particularly in the case of significant expansions. This is because (i) the asset may be in service for only part of the year in which it is commissioned and (ii) the use of the asset by expanding mines is likely to follow a ramp-up profile, rather than stepping up to full utilisation immediately.*
>
> *Applying depreciation in the year of commissioning, when expansion tonnage is unlikely to be at full volumes, increases the risk that the project will cause tariffs to increase, and therefore increases the likelihood that an Expansion Tariff will be required (based on UT4 pricing principles). ..*

[462] Aurizon Network, 2014 DAU, sub. 59: 161.

> *If the QCA prefers to retain the existing approach, the issue should be considered separately in relation to each major project as these occur ...and the QCA should assess... the extent to which commencing depreciation in the year of commissioning will result in a mismatch between charges and the benefits received from the use of the assets and should consider a deferred start date for depreciation where the mismatch is significant.* [463]

Asciano said changes to depreciation arrangements and methodologies should not be allowed.[464]

QCA analysis and consolidated draft decision

Our consolidated draft decision is to refuse to approve Aurizon Network's proposal to commence regulatory depreciation the year after an asset is commissioned. In reaching this view, we note that Aurizon Network accepted this aspect of our MAR draft decision (which reached the same conclusion).

We have considered the QRC's concern about commencing depreciation in the year of commissioning where the asset is either used only for part of the year in which it is commissioned or where the use of the asset follows a ramp-up profile. The QRC proposed that we should consider commencement of depreciation for expansion assets on a case-by-case basis.

We consider that the QRC's view has some merit. We note for the GAPE project Aurizon Network proposed deferral of depreciation for the UT3 period to address concerns about a full cost tariff as tonnes ramped up on the system. We supported this proposal as we considered:

> *the cost allocation approach for calculating the GAPE tariff is acceptable and suits the current circumstances by... deferring a full cost tariff until the tonnages ramp up, such as key cost components in the GAPE tariff costs (e.g. depreciation).. Accordingly, the Authority's draft decision accepts that this approach is, on balance, reasonable in this instance. This, however, does not imply the Authority's acceptance of such approaches to allocating capital costs ... in the future.*[465]

Overall, for the same reasons as our MAR draft decision, our consolidated draft decision is to refuse to approve Aurizon Network's 2014 DAU proposal to commence regulatory depreciation in the year after an asset is commissioned. We consider it is appropriate for Aurizon Network to amend its model to bring forward the commencement of regulatory depreciation to the first day of the year in which an asset is commissioned and to adopt this as a baseline position. We note that bringing forward depreciation does not change the present value of the MAR over the life of the asset, but will increase the MAR over UT4.

Likewise, we include all new capital expenditure in the RAB on the first day of the year of commissioning. This is to ensure consistent treatment to calculate return on and of capital.

Notwithstanding this, we do consider there is merit in a case-by-case consideration of the appropriate depreciation profile for significant projects where there is likely to be a delay between asset commissioning and full volumes being achieved. The approach for such cases will depend on the pertinent issues given the environment prevailing at the time. We are of the view that these matters could conceivably be considered as part of an expansion tariff pricing proposal.

We are of the view that this achieves an appropriate balancing of the factors set out in section 138(2) of the QCA Act because it sets a transparent methodological baseline position. We have

[463] QRC, 2014 DAU, sub. 62: 20.
[464] Asciano, 2014 DAU, sub. 52: 8.
[465] QCA (July 2013), Goonyella to Abbot Point Expansion draft decision, p. 14.

described above how transparency and predictability are considerations that arise under section 138(2)(h), and mentioned that we consider these important considerations. Our proposal, which Aurizon Network accepts, appropriately balances Aurizon Network's legitimate interests with the interests of having a transparent methodology.

Significant projects will be considered on a case-by-case basis as and when relevant via an expansion tariff pricing proposal. This, in our view, will promote the objective of Part 5 of the Act by providing appropriate incentives for Aurizon Network and relevant stakeholders.

29.4 Conclusion

We conclude that Aurizon Network's proposal to change its modelling approach from UT3 to one which models end-of-year cash flows will result in a material bias in favour of Aurizon Network.

The NER (unlike the QCA Act) prescribes the elements of cost and price setting and these therefore do not need to be informed by the AER's PTRM model (which is the context in which the AER PTRM model is applied). In the context of the QCA Act, section 138(2) alone guides the appropriateness of the assumption in the PTRM model. In considering the factors in section 138(2) we have given weight to our various earlier conclusions, based on the application of the statutory factors, that we should only approve a MAR that reflects efficient costs. The way to do so is to adopt mid-year revenue modelling.

Further, where possible, an approach should be adopted which provides for regulatory certainty. We have had regard to this factor pursuant to section 138(2)(h) of the QCA Act. We do not consider that there are sufficient grounds to change from the UT3 methodology, and for reasons of regulatory certainty, the UT3 approach of mid-year revenue modelling should be retained.

We consider that this requires an inclusion of a working capital allowance. We have also brought forward the inclusion of capital expenditure by 12 months for the purposes of calculating depreciation, compared to Aurizon Network's submission.

A summary of modelling assumptions is shown below.

Table 95 Modelling assumptions

Assumption	***Aurizon Network proposal***	***QCA MAR draft decision***	***QCA consolidated draft decision***
Capital Expenditure	Start of year after commissioning	Start of year of commissioning	Start of year of commissioning
Revenue timing	End of year	End of year	Mid-year
Working capital allowance	No	No	Yes
Return on inventory	Yes	No	Included in working capital

Consolidated draft decision 29.1

(1) After considering Aurizon Network's proposed modelling approach, our consolidated draft decision is to refuse to approve Aurizon Network's proposal.

(2) The way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to amend the Post Tax Revenue Model to ensure that revenues are adjusted to a mid-year basis and to include a working capital allowance.

(3) We consider that commencing depreciation in the year an asset is commissioned as per Aurizon Network's December 2014 submission is appropriate. Therefore, the way in which we consider it appropriate that Aurizon Network amend its draft access undertaking is to amend the Post Tax Revenue Model to ensure that regulatory depreciation commences in the year in which an asset is commissioned.

(4) We consider there is merit in a case-by-case consideration of the appropriate depreciation profile for significant projects where there is likely to be a delay between asset commissioning and full volumes being achieved. Such considerations could form part of an expansion tariff pricing proposal.

We consider it appropriate to make this consolidated draft decision having regard to each of the matters set out in section 138(2) of the QCA Act for the above reasons.

APPENDIX A: MAXIMUM ALLOWABLE REVENUE

This appendix provides information on our proposed MAR, disaggregated into non-electric and electric and categorised by system.

This information is based on a regulatory asset base (with related UT3 capital expenditure carryover account adjustments) that includes Aurizon Network's proposed 201213 capital expenditure values. The UT3 capital expenditure carryover account adjustment values are smoothed using a 4.5% escalation factor and applied across the 2014 DAU regulatory period. Some tables may not sum due to rounding.

CQCN MAR (non–electric and electric)

Table 96 QCA proposed 2014 DAU MAR for the CQCN, non–electric assets ($'000, nominal)

Building Block	***2013–14***	***2014–15***	***2015–16***	***2016–17***
Return on Capital	305,874	314,979	364,134	373,037
Return of Capital	225,094	238,097	286,152	307,764
Inflation	(137,818)	(67,131)	(127,594)	(130,742)
Working Capital Allowance	2,083	2,406	2,499	2,623
Maintenance Expenditure	182,691	196,384	184,475	195,591
Operating Expenditure	118,427	119,832	125,827	128,774
Tax	33,137	60,010	55,875	67,544
Value of Imputation Credits	(15,574)	(28,205)	(26,261)	(31,746)
Total (Unsmoothed) Revenue	**713,914**	**836,374**	**865,107**	**912,845**
UT3 CAPEX Carryover Account Adjustments	(14,535)	(15,189)	(15,872)	(16,586)
(Adjusted) Total Revenue	**699,379**	**821,185**	**849,235**	**896,259**

Table 97 QCA proposed 2014 DAU MAR for the CQCN, electric assets ($'000, nominal)

Building Block	***2013–14***	***2014–15***	***2015–16***	***2016–17***
Return on Capital	37,656	45,516	47,280	44,497
Return of Capital	48,692	56,363	59,397	46,794
Inflation	(16,912)	(9,602)	(16,489)	(15,518)
Working Capital Allowance	449	524	559	511
Maintenance Expenditure	9,986	10,192	10,447	10,721
Operating Expenditure	70,404	72,337	85,620	83,722
Tax	12,249	16,308	13,021	7,134
Value of Imputation Credits	-5,757	-7,665	-6,120	-3,353
Total (Unsmoothed) Revenue	**156,768**	**183,973**	**193,716**	**174,507**
UT3 CAPEX Carryover Account Adjustments	(11,078)	(11,577)	(12,098)	(12,642)
(Adjusted) Total Revenue	**145,690**	**172,397**	**181,618**	**161,865**

Blackwater System MAR (non–electric and electric)

Table 98 QCA proposed 2014 DAU Blackwater system MAR, non–electric assets ($'000, nominal)

Building Block	***2013–14***	***2014–15***	***2015–16***	***2016–17***
Return on Capital	102,299	106,856	151,975	152,510
Return of Capital	77,476	83,130	120,249	127,047
Inflation	(45,944)	(22,542)	(53,000)	(53,187)
Working Capital Allowance	769	843	1,028	1,069
Maintenance Expenditure	87,206	76,921	83,585	88,743
Operating Expenditure	35,274	36,535	39,697	41,282
Tax	14,809	23,749	23,400	27,328
Value of Imputation Credits	(6,960)	(11,162)	(10,998)	(12,844)
Total (Unsmoothed) Revenue	**264,928**	**294,329**	**355,935**	**371,947**
UT3 CAPEX Carryover Account Adjustments	(2,365)	(2,471)	(2,582)	(2,698)
Adjusted Total Revenue	**262,564**	**291,858**	**353,353**	**369,249**

Table 99 QCA proposed 2014 DAU Blackwater system MAR, electric assets ($'000, nominal)

Building Block	***2013–14***	***2014–15***	***2015–16***	***2016–17***
Return on Capital	20,023	28,253	31,126	29,392
Return of Capital	27,522	34,577	36,929	23,652
Inflation	(8,993)	(5,960)	(10,855)	(10,250)
Working Capital Allowance	243	302	313	267
Maintenance Expenditure	3,653	3,733	3,828	3,930
Operating Expenditure	38,856	39,965	43,380	42,161
Tax	6,969	10,194	7,574	2,231
Value of Imputation Credits	(3,276)	(4,791)	(3,560)	(1,049)
Total (Unsmoothed) Revenue	**84,998**	**106,272**	**108,736**	**90,333**
UT3 CAPEX Carryover Account Adjustments	(7,808)	(8,160)	(8,527)	(8,910)
Adjusted Total Revenue	**77,190**	**98,113**	**100,209**	**81,423**

Goonyella System MAR (non–electric and electric)

Table 100 QCA proposed 2014 DAU Goonyella System MAR, non–electric assets ($'000, nominal)

Building Block	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Return on Capital	105,526	109,218	111,344	112,297
Return of Capital	80,607	85,698	91,135	95,578
Inflation	(47,393)	(23,041)	(38,831)	(39,163)
Working Capital Allowance	789	951	882	912
Maintenance Expenditure	66,874	88,316	71,447	75,992
Operating Expenditure	57,263	56,807	58,958	59,239
Tax	12,407	20,534	19,123	22,429
Value of Imputation Credits	(5,831)	(9,651)	(8,988)	(10,541)
Total (Unsmoothed) Revenue	**270,241**	**328,831**	**305,070**	**316,742**
UT3 CAPEX Carryover Account Adjustments	(13,009)	(13,595)	(14,207)	(14,846)
Adjusted Total Revenue	**257,231**	**315,236**	**290,863**	**301,896**

Table 101 QCA proposed 2014 DAU Goonyella System MAR, electric assets ($'000, nominal)

Building Block	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Return on Capital	17,327	16,963	15,865	14,825
Return of Capital	20,950	21,562	22,238	22,907
Inflation	(7,782)	(3,579)	(5,533)	(5,170)
Working Capital Allowance	205	221	244	243
Maintenance Expenditure	6,333	6,459	6,619	6,791
Operating Expenditure	31,549	32,372	42,240	41,561
Tax	5,279	6,114	5,448	4,898
Value of Imputation Credits	(2,481)	(2,873)	(2,560)	(2,302)
Total (Unsmoothed) Revenue	**71,379**	**77,239**	**84,561**	**83,752**
UT3 CAPEX Carryover Account Adjustments	(3,270)	(3,417)	(3,571)	(3,732)
Adjusted Total Revenue	**68,109**	**73,822**	**80,990**	**80,021**

Moura System MAR (non–electric)

Table 102 QCA proposed 2014 DAU Moura System MAR, non–electric assets ($'000, nominal)

Building Block	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Return on Capital	17,642	17,861	22,234	22,308
Return of Capital	9,983	10,367	14,067	14,794
Inflation	(7,924)	(3,768)	(7,754)	(7,780)
Working Capital Allowance	109	131	133	138
Maintenance Expenditure	9,471	12,039	9,088	9,766
Operating Expenditure	7,154	7,056	6,686	6,946
Tax	2,476	3,812	3,347	4,020
Value of Imputation Credits	(1,164)	(1,792)	(1,573)	(1,889)
Total (Unsmoothed) Revenue	37,747	45,706	46,228	48,303
UT3 CAPEX Carryover Account Adjustments	(820)	(857)	(895)	(936)
Adjusted Total Revenue	36,927	44,850	45,332	47,368

Newlands System MAR (non–electric)

Table 103 QCA proposed 2014 DAU Newlands System MAR, non–electric assets ($'000, nominal)

Building Block	*2013–14*	*2014–15*	*2015–16*	*2016–17*
Return on Capital	13,419	13,501	13,534	13,545
Return of Capital	9,265	9,148	9,702	10,208
Inflation	(6,027)	(2,848)	(4,720)	(4,724)
Working Capital Allowance	96	106	97	100
Maintenance Expenditure	7,435	7,755	5,855	6,227
Operating Expenditure	7,910	7,713	7,840	8,239
Tax	2,752	3,584	3,264	3,555
Value of Imputation Credits	(1,294)	(1,684)	(1,534)	(1,671)
Total (Unsmoothed) Revenue	33,556	37,274	34,038	35,480
UT3 CAPEX Carryover Account Adjustments	(1,676)	(1,751)	(1,830)	(1,912)
Adjusted Total Revenue	31,881	35,523	32,208	33,567

Goonyella to Abbot Point System MAR (non–electric)

Table 104 QCA proposed 2014 DAU Goonyella to Abbot Point System MAR, non–electric assets ($'000, nominal)

Building Block	***2013–14***	***2014–15***	***2015–16***	***2016–17***
Return on Capital	67,294	67,844	65,336	72,656
Return of Capital	47,985	49,978	51,228	60,373
Inflation	(30,668)	(14,995)	(23,389)	(25,986)
Working Capital Allowance	321	378	361	405
Maintenance Expenditure	11,705	11,353	14,500	14,863
Operating Expenditure	10,827	11,721	12,646	13,068
Tax	692	8,331	6,742	10,217
Value of Imputation Credits	(325)	(3,915)	(3,169)	(4,802)
Total (Unsmoothed) Revenue	107,832	130,695	124,255	140,795
UT3 CAPEX Carryover Account Adjustments	3,335	3,485	3,642	3,806
Adjusted Total Revenue	111,167	134,180	127,897	144,600

Note: Goonyella to Abbot Point System's revenues include GSE (GAPE) electric assets derived revenues.

APPENDIX B: OPENING ASSET BASE SUPPORTING TABLES

Regulatory Asset Base - RAB Roll Forward

Table 105 Roll-forward of RAB by system 2009-10 to 2012-13 (non-electric assets) ($'000, nominal)

	UT3 Roll-forward				*Opening value UT4*[4]
	2009–10	*2010–11*	*2011–12*	*2012–13*	*2013–14*
Blackwater					
Opening value	1,030,584	1,078,565	1,083,466	1,082,823	1,103,347
Plus capex	57,030	9,949	37,504	49,892	
Plus inflation	33,899	41,555	10,178	22,043	
Less depreciation	(42,948)	(46,603)	(48,326)	(51,410)	
Closing value	1,078,565	1,083,466	1,082,823	1,103,347	
Rolleston					
Opening value	242,769	238,756	235,676	225,503	225,339
Plus capex	–	–	–	8,068	
Plus inflation	7,772	9,157	2,176	4,567	
Less depreciation	(11,785)	(12,237)	(12,350)	(12,799)	
Closing value	238,756	235,676	225,503	225,339	
Minerva[1]					
Opening value	74,988	74,338	74,021	71,507	69,669
Plus capex	–	–	–	–	
Plus inflation	2,401	2,851	684	1,423	
Less depreciation	(3,051)	(3,168)	(3,197)	(3,261)	
Closing value	74,338	74,021	71,507	69,669	
Goonyella					
Opening value	1,079,389	1,234,720	1,313,591	1,300,032	1,315,228
Plus capex	166,627	87,743	36,664	54,692	
Plus inflation	37,202	49,022	12,299	26,413	
Less depreciation	(48,498)	(57,894)	(62,522)	(65,909)	
Closing value	1,234,720	1,313,591	1,300,032	1,315,228	
Vermont					
Opening value	45,438	48,132	47,627	45,320	43,421
Plus capex	3,684	354	–	–	
Plus inflation	1,513	1,853	440	902	
Less depreciation	(2,503)	(2,712)	(2,747)	(2,801)	
Closing value	48,132	47,627	45,320	43,421	

	UT3 Roll-forward				*Opening value UT4*[4]
GAPE[2]					
Opening value				971,981	**1,058,906**
Plus capex			863,263	59,178	
Plus inflation			8,718	27,747	
Less depreciation			–	–	
Closing value			971,981	1,058,906	
Moura					
Opening value	253,911	255,442	256,684	251,472	251,089
Plus capex	2,200	687	1,810	4,295	
Plus inflation	8,164	9,810	2,379	5,047	
Less depreciation	(8,833)	(9,255)	(9,400)	(9,726)	
Closing value	255,442	256,684	251,472	251,089	
Newlands[3]					
Opening value	165,277	164,203	164,645	286,398	316,598
Plus capex	750	1,600	122,697	23,821	
Plus inflation	5,303	6,328	6,963	15,287	
Less depreciation	(7,126)	(7,487)	(7,906)	(8,908)	
Closing value	164,203	164,645	286,398	316,598	
Total Non-Electric Assets					
Opening value	2,928,710	3,134,132	3,219,669	4,235,036	4,383,597
Plus capex	230,292	100,334	1,117,981	199,947	
Plus inflation	99,875	124,559	43,4835	103,428	
Less depreciation	(124,744)	(139,356)	(130,636)	(154,814)	
Closing value	3,134,132	3,219,669	4,235,036	4,383,597	

Notes:

1. Includes the entire value of the Minerva assets.

2. Includes the entire value of the GAPE assets (Goonyella System Enhancements (GSE) and Byerwen (GAPE).

3. Newlands includes Newlands to Abbot Point Expansion (NAPE) customers and Byerwen (NAPE).

4. The opening RAB values for UT4 above will differ from Aurizon Network's submitted amounts (and the RAB for pricing purposes) as:

a. adjustments for approved capital expenditure to 2012-13 and recent CPI adjustments are reflected on the above amounts but not in Aurizon Network's submitted figures

b. the value used for pricing purposes is different because some of the RAB value is allocated to non-coal traffics

c. the RAB value used for pricing purposes is different because some of the RAB value is deferred to 2015–16 due to the postponement of Byerwen (NAPE) service.

d. Newlands closing values include closing values for NAPE and Byerwen NAPE which, for pricing purposes, will be deferred until the commencement of railing. $30.3 million previously allocated to NAPE Deed customers has been allocated to NAPE and GAPE Deed customers according to their contract tonnages.

Table 106 Roll-forward of RAB by system 2009-10 to 2012-13 (electric assets) ($'000, nominal)

	UT3 Roll-forward				*Opening value UT4#*
	2009–10	*2010–11*	*2011–12*	*2012–13*	*2013–14*
Blackwater Electric					
Opening value	146,085	140,732	129,351	291,605	284,040
Plus capex	6,132	268	182,008	13,726	
Plus inflation	4,774	5,403	2,033	5,939	
Less depreciation	(16,260)	(17,052)	(21,787)	(27,230)	
Closing value	140,732	129,351	291,605	284,040	
Goonyella Electric					
Opening value	199,769	236,527	246,554	233,754	227,084
Plus capex	45,660	18,921	3,985	8,369	
Plus inflation	7,121	9,431	2,295	4,735	
Less depreciation	(16,024)	(18,325)	(19,080)	(19,773)	
Closing value	236,527	246,554	233,754	227,084	
Vermont Electric					
Opening value	8,862	8,803	8,646	8,228	7,883
Plus capex	128	–	–	–	
Plus inflation	286	338	80	164	
Less depreciation	(472)	(494)	(499)	(509)	
Closing value	8,803	8,646	8,228	7,883	
GAPE Electric[1]					
Opening value				–	**4,421**
Plus capex				4,377	
Plus inflation				43	
Less depreciation				0	
Closing value				4,421	
Total Electric Assets					
Opening value	354,717	386,061	384,552	533,587	523,428
Plus capex	51,920	19,190	185,994	26,472	
Plus inflation	12,180	15,171	4,408	10,881	
Less depreciation	(32,756)	(35,870)	(41,366)	(47,512)	
Closing value	386,061	384,552	533,587	523,428	

Notes: 1. GAPE Electric includes Goonyella System Enhancements (GSE).

APPENDIX C: CAPITAL EXPENDITURE - SUPPORTING TABLES

Aurizon Network's proposed capital indicator, original April 2013 and December 2013

Table 107 Capital indicator by system ($ million) as at April 2013

	2013–14	*2014–15*	*2015–16*	*2016–17*	*UT4 Total*
Blackwater	97.56	1,070.15	96.09	71.42	1,335.22
Goonyella	191.20	109.58	99.98	69.50	470.26
Moura	12.35	61.63	11.30	8.08	93.36
Newlands	10.23	6.65	9.36	6.69	32.93
GAPE	19.81	–	–	–	19.81
Total	**331.15**	**1,248.01**	**216.73**	**155.69**	**1,951.58**

Source: Aurizon Network, 2013 DAU, sub. no. 3: 184. Note: The above figures are start-of-year values and do not include return on capital.

Table 108 Revised capital indicator by system ($ million) as at December 2013

	2013–14	*2014–15*	*2015–16*	*2016–17*	*Total UT4*
Blackwater	101.47	261.72	99.94	71.36	534.50
Goonyella	198.87	113.97	103.98	72.28	489.10
Moura	12.85	8.35	891.02	8.40	920.61
Newlands	10.64	6.92	9.74	6.96	34.26
WIRP	0.00	0.00	70.42	–	70.42
GAPE	20.60	–	–	–	20.60
Total	**344.43**	**390.96**	**1,175.10**	**159.00**	**2,069.49**

Source: Source: Aurizon Network December 2013 Financial Model. Note: The above figures are mid-year values and do not include return on capital.

Table 109 QCA approved capital indicator by system ($ million)

	2013–14	***2014–15***	***2015–16***	***2016–17***	***Total UT4***
Blackwater	105.67	236.75	785.42	79.29	1,207.13
Goonyella	180.52	96.50	98.34	70.17	445.53
Moura	3.69	5.29	69.97	7.61	86.57
Newlands	7.92	4.54	7.00	5.33	24.78
GAPE	17.79	25.86	0.00	0.00	43.65
Total	315.59	368.94	960.73	162.40	1,807.66