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30 September 2014

Dr Malcolm Roberts
Chairman
Queensland Competition Authority
PO Box 2257
BRISBANE QLD 4001

Dear Malcolm

Aurizon Network Pty Ltd – FY2014 Revenue Adjustment Amounts and Increments

Aurizon Network is pleased to provide this submission to the Queensland Competition Authority (QCA) for approval, in accordance with Aurizon Network's 2010 Access Undertaking regarding proposed Revenue Adjustment Amounts and Increments for FY2014.

The Revenue Adjustment Amounts and Increments will be applied as part of the QCA's final determination of Reference Tariffs for FY2016 or as part of the finalisation of Aurizon Network's 2014 Access Undertaking, and as such both are subject to QCA approval.

This is the first year since FY2007, when the revenue cap process was first applied, that significant over-recoveries have arisen, with $71.1 million being returned to Access Holders in the Blackwater and Goonyella systems during September. This is attributed to the fact that in FY2014, over 200 million tonnes were railed across Aurizon Network's Central Queensland coal network.

Aurizon Network's activities and initiatives conducted prior to and during FY2014 contributed to this outcome. In recognition, Aurizon Network has included within this submission a claim for Increments for the Blackwater and Goonyella systems.

The submission document and attachments (but not the financial model) are suitable for publication, should the QCA elect to do so.

Please contact Cissy Ma on (07) 3019 5548 or cissy.ma@aurizon.com.au should you have any queries regarding the submission.

Yours sincerely

Lana Stockman
Vice President Regulation

AURIZON

30 September 2014

Aurizon Network 2010 Access Undertaking (2010AU)

Explanatory Memorandum

FY2014 Revenue Adjustment Amounts and Increments

Table of Contents

1 Executive Summary

1.1 Introduction

Aurizon Network is pleased to provide this submission (the FY2014 submission) to the Queensland Competition Authority (QCA) for approval, detailing the Revenue Adjustment Amounts and the associated Increments for FY2014.

This submission has been prepared in accordance with the provisions detailed in Schedule F of Aurizon Network's 2010 Access Undertaking (2010AU)[1].

Under the terms of the 2010AU, Aurizon Network is able to:

- recover from (or return to) Access Holders Revenue Adjustment Amounts, comprising the difference between revenues earned (Total Actual Revenues) and revenues allowed (System Allowable Revenues) for the relevant Reference Tariff components; and
- claim for Increments to the extent that any positive differences above are directly attributable (wholly or partly) to its (or its contractors') activities or initiatives.

This submission provides the required information to substantiate Aurizon Network's claim for Revenue Adjustment Amounts and Increments for FY2014.

1.2 Revenue Adjustment Amounts

The Revenue Adjustment Amounts include the:

- AT_{2-4} Reference Tariff components for Blackwater, Goonyella, Moura, Newlands and Goonyella to Abbot Point (GAPE) systems; and
- AT_5 and EC Reference Tariff components for the Blackwater and Goonyella systems.

This submission details the recoveries for the Blackwater and Goonyella systems only, and is not seeking a recovery or refund from the Moura, Newlands and GAPE systems for FY2014.

The Revenue Adjustment Amounts for the Blackwater and Goonyella systems are summarised in table 1 below[2], with further detail provided in section 3, 4 and 5 and within Attachment A.

System	AT_{2-4} $m	AT_5 $m	Total $m
Blackwater	8.5	(1.2)	7.3
Goonyella	7.0[3]	(7.3)	(0.3)
Total	**15.5**	**(8.5)**	**7.0**

Table 1 FY2014 Revenue Adjustment Amounts

This submission is closely aligned with the QCA-approved FY2014 Adjustment Charges submission[4], with differences between:

- electric energy (EC) revenues and actual electricity energy costs (refer section 3.4) - a net return to Access Holders of $9 million affects AT_5 System Allowable Revenues only; and

[1] Clause 3.2 in respect of the Revenue Adjustment Amounts and clause 3.3 in respect of the Increments
[2] Positive amounts represent a recovery from Access Holders, negative amounts represent a return to Access Holders
[3] Slight errors in this and subsequent tables due to rounding
[4] The FY2014 Adjustment Charges submission covered adjustments for cross system, Take-or-Pay and transfer fees

- actual and regulatory forecast tonnages for mines with a rebate (refer section 3.3) - a net recovery from Access Holders of $16 million is included in Total Actual Revenue, and affects both AT_{2-4} System Allowable Revenues (by $15.5 million) and AT_5 System Allowable Revenues (by $0.5 million).

The total of the AT_5 Revenue Adjustment Amounts of $8.5 million (table 1) represents the net sum of the EC adjustment and the rebate adjustment.

This submission does not seek adjustments for the Maintenance Cost Index (MCI), the Consumer Price Index (CPI) or connection costs as these are being considered as part of the 2014DAU. In addition, we are not seeking approval of a small Revenue Adjustment Amount for Newlands (around $9,000).

1.3 Increments

In FY2014, actual volumes significantly exceeded QCA-approved System Forecasts in the Blackwater and Goonyella systems, resulting in a significant over-recovery of System Allowable Revenues. For the first time, over 200 million tonnes were railed across the Central Queensland Coal Region (CQCR). This achievement reflected the sustained effort and aligned planning by all supply chain participants including mines, ports, Train Operators and Aurizon Network.

The improvement in system performance has partly arisen as a direct result of activities, initiatives and capital projects undertaken by Aurizon Network's Network Operations and Network Assets divisions alone, or in partnership with other supply chain participants. The initiatives and capital projects include:

- operation of longer trains;
- an integrated planning framework;
- multiple consist stowage (utilising long track sections to stow up to three train consists within a single track section);
- alternative testing procedures, such as ground penetrating radar (GPR), to assess the condition of ballast and rail;
- an asset renewal program for overhead line equipment (OHLE) to reduce de-wirements, earth-wire faults and traction faults;
- over-height detectors at two level crossings in the Blackwater system to reduce the risks to the OHLE at level crossings; and
- the construction of the Gracemere Overpass to eliminate near misses at this location.

With respect to the above, Aurizon Network is seeking approval from the QCA of Increments of $8.9 million, equal to 2% of the total AT_{2-4} System Allowable Revenue for these systems (the maximum allowed under the 2010AU)[5] and around 15% of the total value of the FY2014 Adjustment Charges attributable to AT_{2-4}.

The Increment claim represents recoveries from Access Holders, and is summarised in table 2 below, with further detail provided in section 5 and Attachment B.

System	AT_{2-4} System Allowable Revenue $m	Increment Claim @2% $m
Blackwater	215	4.3
Goonyella	230	4.6
Total	**445**	**8.9**

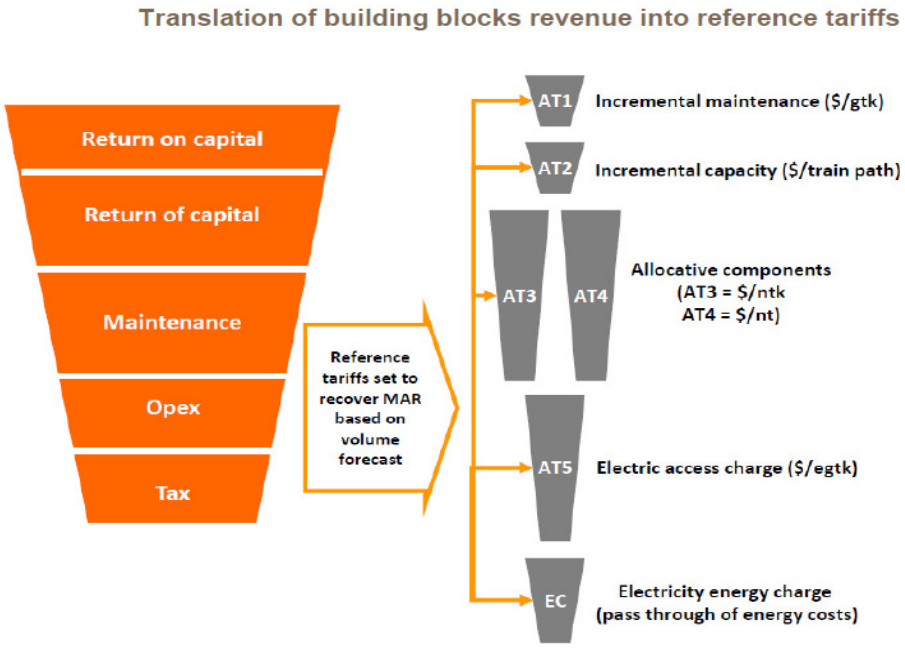
Table 2 FY2014 Increments

[5] There is no Increment in respect of AT_5 System Allowable Revenue

2 Basis of Submission

2.1 2010AU Regulated Revenues

Aurizon Network's regulated revenues are derived using a traditional regulatory 'building blocks' approach where capital and operating costs are aggregated into a Maximum Allowable Revenue (MAR) for each system. The approved MAR is then translated into Reference Tariffs based on approved volume forecasts using expected railings.

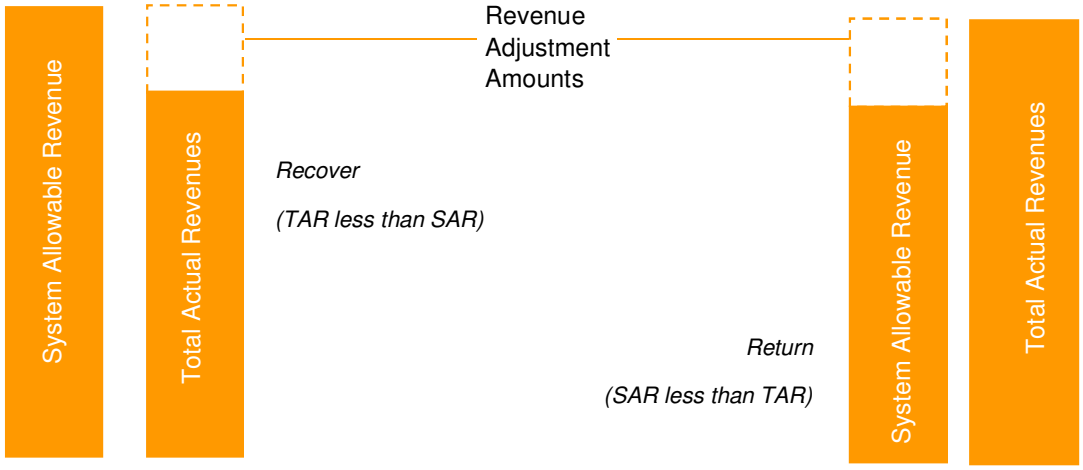


Schedule F of the 2010 Access Undertaking (2010AU) details:

- the basis on which Aurizon Network recovers revenues from Access Holders, i.e. primarily from Reference Tariffs charged for trains operated; and
- the guidelines on Take or Pay, Adjustment Charges and revenue cap to enable Aurizon Network to earn the MAR in each system in the same or subsequent years.

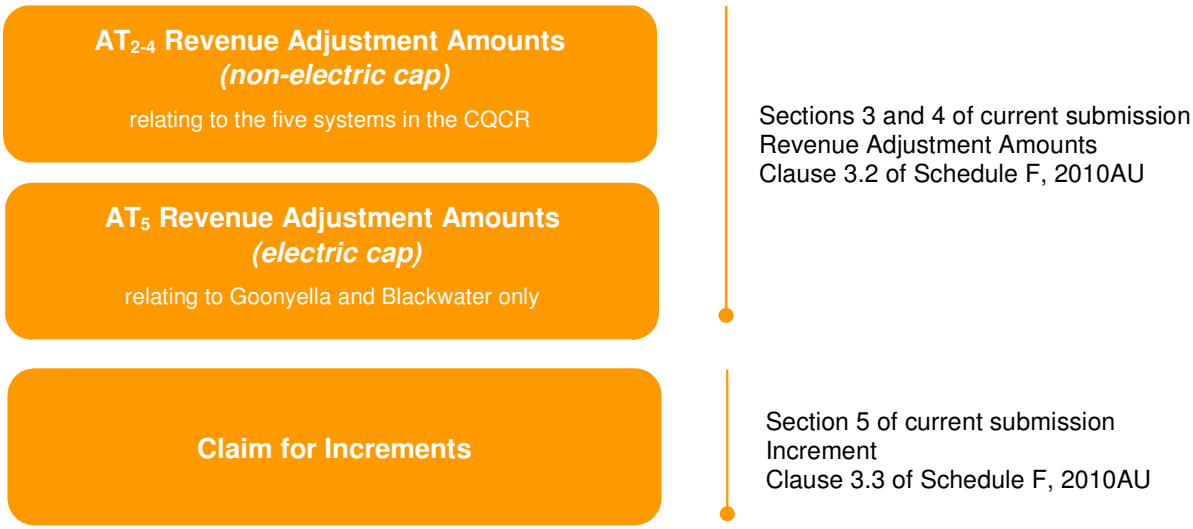
2.2 Revenue Cap Framework

Aurizon Network is able to recover from (or return to) Access Holders the Revenue Adjustment Amounts, being the difference between revenues earned (Total Actual Revenues - TAR) and revenues allowed (System Allowable Revenues - SAR) for the relevant Reference Tariff components.



There are seven revenue caps, a 'non-electric' revenue cap (AT_{2-4}) for each of the five systems plus two 'electric' revenue caps (AT_5), one each for Blackwater and Goonyella.

The following must be addressed by Aurizon Network for each system by way of a submission to the QCA by 30 September following the relevant year:



Within the AT_{2-4} and AT_5 Revenue Adjustment Amounts, there are six areas of allowable adjustments to SARs, provided for under Schedule F of the 2010AU.

Maintenance Costs	• Clause 3.2.2(a)(i) • Adjustment to reflect actual cost of maintaining branch lines for new loading facilities
MCI	• Clause 3.2.2(a)(ii) • Adjustment to reflect the difference between actual and forecast MCI, less an approved X factor
Electric Traction Costs	• Clause 3.2.2(b)(i) • Adjustment to reflect the difference between actual energy costs and EC collected
Connection to an electricity transmission or distribution network	• Clause 3.2.2(b)(ii) • Adjustment to reflect the difference between actual and forecast electricity connection costs incurred
Operating Costs	• Clause 3.2.2(c) • Adjustment to reflect the difference between actual and forecast CPI, less an approved X factor
Rebate adjustment	• Clause 3.2.3(c) and Clause 3.2.5(b) • Adjustment to SAR for AT_{2-4} and AT_5 in relation to assets under a rebate agreement, less any rebates paid

In addition, Clause 3.2 of Schedule F of 2010AU allows Aurizon Network to claim an Increment if:

- the TAR for AT_{2-4} is greater than the SAR for AT_{2-4} for the relevant system; and
- the difference is the direct result of improved Below Rail network efficiency, in part or in whole, by Aurizon Network (or its contractors).

The QCA will need to be "reasonably satisfied" of Aurizon Network's rationale for the claim before allowing an Increment not exceeding 2% of the relevant SAR.

Once the Revenue Adjustment Amounts and Increments have been approved, and unless otherwise approved by the QCA, amounts must be recovered or returned to Access Holders in the second year following the relevant year via an adjustment to the relevant SAR.

2.3 The Extension Draft Amending Access Undertakings (Extension DAAUs)

During the QCA's deliberation of the 2013DAU, and in order to provide pricing, revenue and cost certainty for Aurizon Network and coal industry customers for FY2014 and FY2015, Aurizon Network provided Extension Draft Amending Access Undertakings (2013 Extension DAAU and 2014 Extension DAAU, respectively) to the QCA for approval.

These Extension DAAUs included a set of 'transitional' Reference Tariffs for Goonyella, Blackwater, Moura and Newlands and have extended the 2010AU until such time as the new set of Reference Tariffs outlined within the 2013DAU (superseded by the 2014DAU) is approved.

2.4 Financial Model

The financial model provided to the QCA in support of the FY2014 submission includes:

- calculations of the EC and rebate adjustments; and
- calculations of the revenue adjustments which align with the FY2014 Adjustment Charges submission.

As the financial model contains specific information on individual Train Services and billing information on electricity costs, Aurizon Network claims confidentiality and requests that this model is not published.

3 Revenue Adjustment Amounts for FY2014

3.1 Adjusted System Allowable Revenues for FY2014

This Revenue Adjustment Claim for FY2014 is limited to two of the six allowable areas, with the remaining adjustments to be confirmed under the 2014DAU process.

Further detail is located within Attachment A and is detailed in the financial model accompanying this submission.

The total Revenue Adjustment Amounts for AT_{2-4} and AT_5 for each system in the CQCR is summarised below[6]:

System	AT_{2-4} Adjustment $m	AT_5 Adjustment $m	Total Adjustment $m
Blackwater	8.5	(1.2)	7.3
Goonyella	7.0	(7.3)	(0.3)
Moura	-	n/a	-
Newlands	-	n/a	-
Sub-Total	**15.5**	**(8.5)**	**7.0**
GAPE	-	n/a	-
Total	**15.5**	**(8.5)**	**7.0**

Table 3 Total Revenue Adjustment Amounts – FY2014

These amounts compare with Revenue Adjustment Amounts (excluding cost of capital adjustments) for previous submissions and are presented below[7]:

Year	AT_{2-4} Adjustment $m	AT_5 Adjustment $m	Total Adjustment $m
2007	15.7	10.1	25.8
2008	27.8	15.8	43.6
2009	4.6	28.3	32.9
2010	(6.1)	6.0	(0.1)
2011	19.2	30.0	49.2
2012	2.7	11.2	13.9
2013	28.2	10.9	39.1
2014	15.5	(8.5)	7.0

Table 4 Total Revenue Adjustment Amounts – FY2007 to FY2013

[6] Positive amounts represent a recovery from Access Holders, negative amounts represent a return to Access Holders
[7] 2010 net return to Access Holders, 2012 excludes GAPE

3.2 Electric Traction Costs

Aurizon Network has calculated a net return to Access Holders of $9.0 million for EC costs from the difference between:

- amounts paid to Origin Energy Limited for the consumption of EC as per invoices; and
- EC revenues for FY2014 for Goonyella and Blackwater[8].

The over-recovery in both systems is due to actual electric volumes (egtks) exceeding the System Forecast. While the extent of over-railing across the two systems is constant (at around 110% of the System Forecast adjusted for Cross System Train Services), the over-recovery of AT_5 System Allowable Revenues is proportionately smaller in the Blackwater system, as energy costs are less variable due to a higher proportion of diesel operators.

System	AT_5 System Allowable Revenue Per Schedule F $m	Adjustment $m	Adjusted AT_5 System Allowable Revenue $m
Blackwater	72.6	(1.2)	71.4
Goonyella	92.2	(7.8)	84.4
Total	**164.8**	**(9.0)**	**155.8**

Table 5 Adjusted System Allowable Revenues – AT_5

3.3 Total Access Revenues

The FY2013 submission applied the following methodology to determine total access revenues for AT_{2-4} and AT_5:

- determine access revenues (excluding Take or Pay, transfer fees and Relinquishment Fees) extracted from Aurizon Network's billing system;
- make various adjustments to these revenues for:
  - Cross System Train Services;
  - Train Services with a capacity (diesel) multiplier; and
  - Train Services with non-Reference Tariffs Access Charges (for example, coal services operated in the Newlands system by the Bulk East Division of Aurizon Operations Pty Ltd (Aurizon Operations);
- add revenues from any Take or Pay, transfer fees and Relinquishment Fees which are calculated outside Aurizon Network's billing system.

For FY2014, these calculations were included in the FY2014 Adjustment Charges submission. The calculations have been summarised at Attachment A and are detailed in the financial model accompanying the FY2014 submission.

3.4 Rebate Adjustments

The Total Actual Revenues may include the System Allowable Revenue for AT_{2-4} and AT_5 for assets under a rebate agreement, less any rebates paid under that agreement. The rebate agreement includes an arrangement under an Access Facilitation Deed (AFD).

[8] As per the FY2013 submission, Blackwater EC revenue includes revenue collected from QR Passenger Pty Ltd for electric 'Tilt Train' services on the North Coast Line, for which the comparable costs are reflected in the amounts paid to Origin.

An adjustment may be required to the extent that the rebateable revenues within System Allowable Revenues vary from the rebates paid under the AFD. The adjustments are equivalent to the difference between actual and regulatory forecast tonnages for the mine covered by the AFD, multiplied by the relevant rebate rate per tonne.

The adjustments for rebates represents a net recovery from Access Holders of $16 million:

- $15.5 million for non-electric assets (AT_{2-4}), split between Blackwater ($8.5 million) and Goonyella ($7.0 million); and
- $0.5 million for electric assets (AT_5) in Goonyella only.

We are not seeking approval for a small adjustment for Newlands. This adjustment is due to the difference in calculating the Take or Pay 'system cap' between the UT2 and UT3 Standard Access Agreements, and was discussed in the FY2014 Adjustment Charges submission.

There are no rebate arrangements covering mines in the Moura and GAPE systems and for electric infrastructure in the Blackwater system.

AT_{2-4}

System	Access Revenues $m	Rebate Adjustment $m	Total Actual Revenues $m
Blackwater	215.2	(8.5)	206.7
Goonyella	229.8	(7.0)	222.8
Moura	31.4	n/a	31.4
Newlands	37.7	-	37.7
Sub-Total	**514.1**	**(15.5)**	**498.6**
GAPE	124.2	n/a	124.2
Total	**638.3**	**(15.5)**	**622.8**

Table 6 Total Actual Revenues – AT_{2-4}

AT_5

System	Access Revenues $m	Rebate Adjustment $m	Total Actual Revenues $m
Blackwater	72.6	-	72.6
Goonyella	92.2	(0.5)	91.7
Total	**164.8**	**(0.5)**	**164.3**

Table 7 Total Actual Revenues – AT_5

4 Revenue Adjustment Amounts for FY2014

The Revenue Adjustment Amounts for 'non-electric' and 'electric' are reconciled to the System Allowable Revenues and Total Allowable Revenues as outlined below:

AT_{2-4}

System	Adjusted System Allowable Revenues $m	Total Actual Revenues $m	Revenue Adjustment Amounts $m
Blackwater	215.2	206.7	8.5
Goonyella	229.8	222.8	7.0
Moura	31.4	31.4	-
Newlands	37.7	37.7	-
Sub-Total	**514.1**	**498.6**	**15.5**
GAPE	124.2	124.2	-
Total	**638.3**	**622.8**	**15.5**

Table 8 Revenue Adjustment Amounts – AT_{2-4}

AT_5

System	Adjusted System Allowable Revenues $m	Total Actual Revenues $m	Revenue Adjustment Amounts $m
Blackwater	71.4	72.6	(1.2)
Goonyella	84.4	91.7	(7.3)
Total	**155.8**	**164.3**	**(8.5)**

Table 9 Revenue Adjustment Amounts – AT_5

5 Claim for Increments

5.1 2010AU Claim for Increments

Aurizon Network's approved 2010DAU[9] states that where, for an individual system:

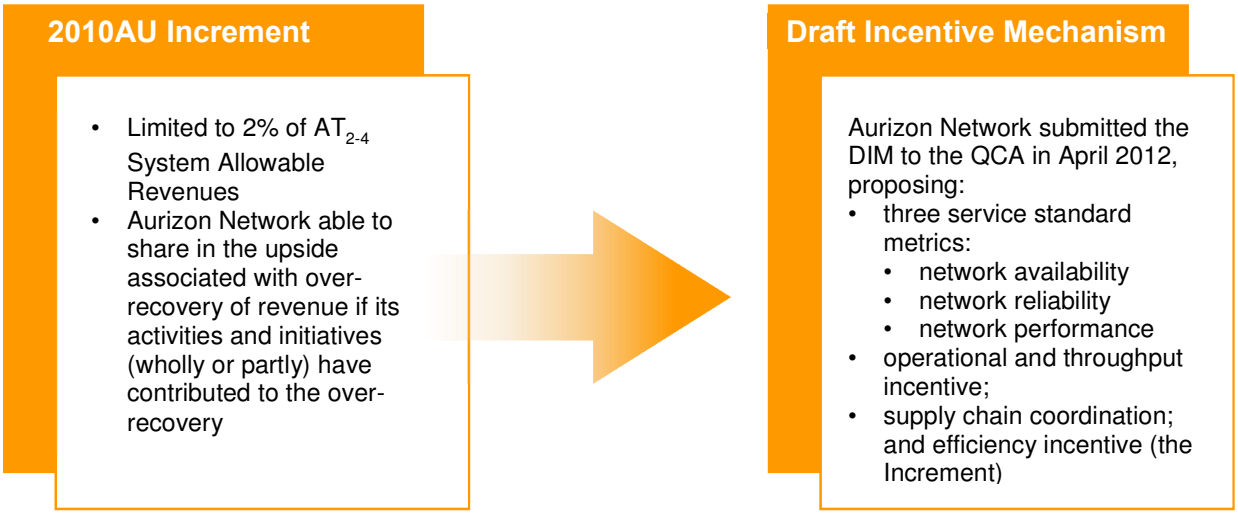
- the Total Actual Revenue (TAR) for AT_{2-4} is greater than the System Allowable Revenue (SAR) for AT_{2-4} for the relevant system; and
- Aurizon Network is required to submit a variation of relevant Reference Tariffs to the QCA,

the QCA will need to be reasonably satisfied before allowing an Increment, not exceeding 2% of relevant System Allowable Revenue, that the difference is the direct result of improved Below Rail network efficiency by Aurizon Network (or its contractors).

As part of the finalisation of the 2010DAU, and in recognition of the limited incentives available, the QCA requested that Aurizon Network (after an appropriate consultation process) submit a Draft Amending Access Undertaking within one year to vary the revenue cap arrangements in Schedule F to provide an incentive framework that:

"…provides QR (Aurizon) Network with an incentive to operate, and invest in, the Rail Infrastructure efficiently and to do so in a way that promotes efficiency of a coal supply chain."[10]

In April 2012, Aurizon Network submitted a proposal for a Draft Incentive Mechanism (DIM) for QCA approval. The submission was published by the QCA in May 2012. Aurizon Network acknowledges that the DIM was not supported by most respondents to the QCA's consultation, and the QCA has neither approved nor rejected the DIM. As a result, the Increment remains one of a few stand-alone incentives in the 2010AU for Aurizon Network to improve performance in the CQCR.



[9] Clause 3.3
[10] Clause 2.6

5.2 Basis of Increment Claim for FY2014

In FY2014, actual volumes significantly exceeded the System Forecasts in Blackwater and Goonyella, resulting in a significant over-recovery of AT_{2-4} System Allowable Revenues.

For the first time, over 200 million tonnes were railed across the CQCR. This achievement reflected the sustained effort and aligned planning by all supply chain participants, including Aurizon Network, mines, ports and Train Operators.

The significant improvement in Blackwater and Goonyella system performance in FY2014 is directly attributable to three factors:

1. **Increased Demand**
2. **Improved Efficiency**
3. **Below Rail Effectiveness**

The FY2014 Increment claim relates to improved supply chain effectiveness in the Goonyella and Blackwater systems only

As a direct result of the over-railings in these systems, the total value of the Adjustment Charges for Blackwater and Goonyella was $69.9 million excluding interest ($71.1 million including interest). $54.9 million, excluding interest, was attributable to AT_{2-4}.

The FY2014 tonnages are a significant improvement over prior years, as indicated in chart 1 below.

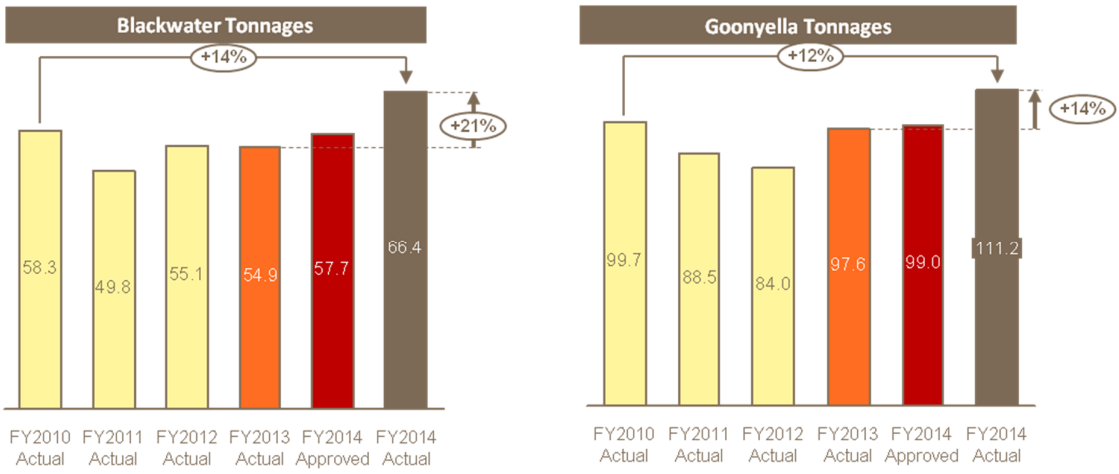


Chart 1 Blackwater and Goonyella tonnage outperformance

In addition:

- monthly (seasonal) records were set in Blackwater (in three out of twelve months) and in Goonyella (in seven out of twelve months);
- tonnages railed across the CQCR were 90% of contract or better in seven months in Blackwater and four months in Goonyella including 95% of contract or better in three months in Blackwater and one month in Goonyella;
- daily, weekly and monthly all-time throughput records were set in FY2014, including:
  - in Blackwater, a monthly record of 5.9mt set in January 2014;
  - in Goonyella, a monthly record of 10.3mt set in May 2014; and

- across the CQCR, a daily record of 735,000 tonnes set in June 2014, a weekly record of 4.7mt set in April 2014 and monthly record of 19.3mt set in May 2014.

The variance between the approved forecast (in tonnes) and actual tonnages is summarised below:

System	FY2014 Approved Volume[11] mt	FY2014 Actual Volume mt	Difference mt
Blackwater[12]	57.7	66.4	8.7
Goonyella	99.0	111.2	12.2
Moura	13.5	12.4	(1.1)
Newlands	15.8	12.0	(4.2)
Sub-Total	**186.0**	**202.0**	**15.6**
GAPE	20.6	12.5	(8.1)
Total	**206.6**	**214.5**	**7.5**

Table 10 FY2014 Actual v Approved Tonnages

The tonnage improvements are directly attributed to activities and initiatives in both systems, resulting in increases of 21% and 14% in the Blackwater and Goonyella systems respectively

The difference in the throughput of the Blackwater and Goonyella systems accounts in FY2014 is around 21 million tonnes, or around 13% of the total tonnage associated with the relevant System Forecasts[13]. As a result of these record railings, volumes in Blackwater and Goonyella significantly exceeded the forecasts approved by the QCA for FY2014.

In recognition of our contribution to the supply chain's performance during FY2014, Aurizon Network is seeking approval from the QCA of the maximum allowed Increments of $8.9 million, equal to 2% of the total AT_{2-4} System Allowable Revenue for these systems and around 15% of the total value of the FY2014 Adjustment Charges attributable to AT_{2-4} (being $54.9 million excluding interest).

The proposed Increments are set out in table 11 below.

System	AT_{2-4} System Allowable Revenue $m	Increment Claim @ 2% $m[14]
Blackwater	215.2	4.3
Goonyella	229.8	4.6
Total	**445.0**	**8.9**

Table 11 Proposed Increments - FY2014

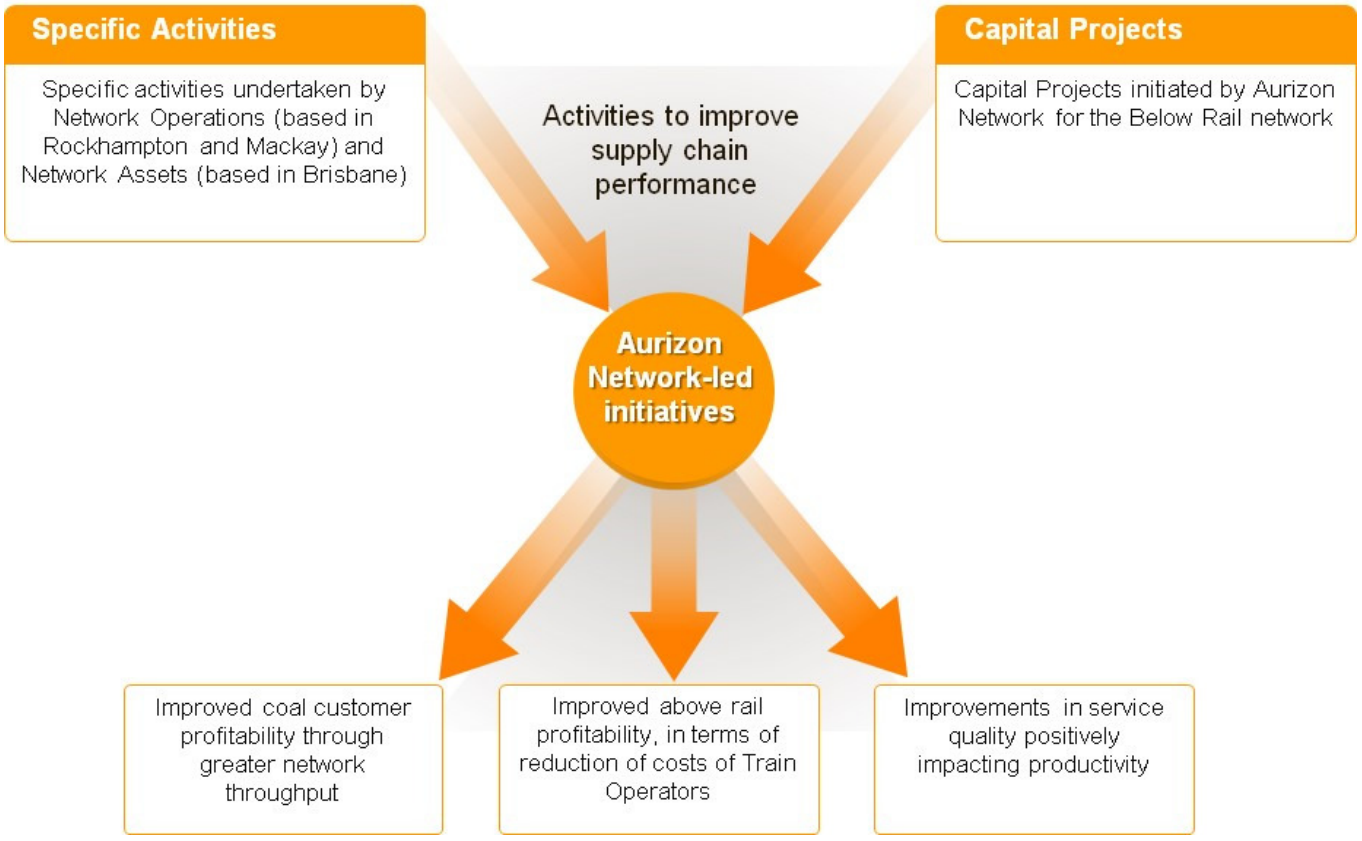
If approved, the Increments will be applied either in FY2016 consistent with the revenue cap arrangements in the 2010AU or as part of the finalisation of the 2014DAU.

[11] Per FY2014 Extension DAAU approved by the QCA in June 2014
[12] Includes Cross System Train Services ex Goonyella System
[13] The difference in percentage increases in tonnages (13%) relative to revenues (12% per p.18) reflects a slight change in the mix of Train Services, relative to the System Forecasts, from longer to shorter hauls
[14] Claims are rounded to the nearest $10,000

5.3 Aurizon Network's Activities and Initiatives

Aurizon Network's specific activities and capital projects conducted prior to and during FY2014 directly contributed to the improved supply chain performance.

These activities and initiatives were undertaken either independently, by Aurizon Network's Network Operations and Network Assets divisions, or with Train Operators, coal industry customers and parties outside the coal supply chain, as depicted below:



The following specific activities and capital projects have led to direct improvements positively influencing supply chain performance.

5.4 Specific Activities

Aurizon Network undertook certain activities which directly improved the performance of the Capricornia and Northern Bowen Basin supply chains in FY2014. These activities required both the allocation of existing resources away from business-as-usual activities and the procurement of additional services. Due to the revenue cap framework, benefits accrued substantially to other supply chain participants (predominantly Train Operators and coal industry customers) rather than Aurizon Network.

Specific activities that have contributed to supply chain performance are summarised below and discussed in further detail at Attachment B. A quantification of the benefits is provided at section 5.6.

Longer Trains

- Network Operations and Network Assets divisions have worked with Aurizon Operations and BMA Rail to trial extensions to the operating length of trains in Blackwater and Goonyella.
- In Goonyella, trains have been extended by four wagons (from 120 to 124) and in Blackwater by four wagons on electric consists (from 100 to 104) and by two wagons on diesel consists (from 98 to 100).
- Aurizon Network led a number of activities to ensure the safe and effective operation of the longer trains on the existing network and at loading and unloading facilities.

Benefits

- Improved above-rail profitability through a Train Operator efficiency
- Improvements in network availability
- Additional Capacity

Integrated Planning Framework

- Network Operations has developed an integrated planning framework to address a number of issues which were negatively affecting network availability and reliability.
- The framework involved co-ordination of the relevant areas of Aurizon Network, Train Operators, coal industry customers and port operators.

Benefits

- Improved network availability and reliability
- Improved supply chain profitability
- Above-rail improvements

Multiple Consist Stowage

- Network Operations conducted a 'multiple stowage' trial in FY2014.
- Multiple stowage utilises long track sections to stow up to three train consists within a single track section.
- Ten successful trials were conducted at five locations in eight system closures, the initiative has since been implemented across all systems in the CQCR.
- Non-capital costs of around $0.8 million were incurred by Aurizon Network in ensuring that the selected locations were suitable for multiple stowage.

Benefits

- Efficient deployment of train crew and maintenance staff
- Increased ability to plan maintenance effectively
- Reduction in additional stowage construction costs

- Network Assets has developed alternative testing procedures to assess the condition of ballast and rail, instead of manually-intensive activities such as track inspections and destructive testing (extraction of ballast for examination).
- Rail testing is now completed using ultrasonic equipment, with testing for ballast fouling being completed using ground penetrating radar (GPR).
- Testing devices are attached to on-track vehicles, and data collected is transferred instantly to track engineers.

Benefits

- Improvements in network performance
- Improvements in network availability

Ultrasonic and Non-Destructive Testing

5.5 Capital Projects

Certain of Aurizon Network capital projects conducted prior to and during FY2014 also directly contributed to improved supply chain performance chain. Due to the revenue cap framework, Aurizon Network will only earn a regulated return on the value of these project (subject to QCA approval of the capital expenditure claim), yet substantial benefits have accrued to other supply chain participants through improvements in network efficiency.

These projects are summarised below and discussed in further detail at Attachment B. A quantification of the benefits is provided at section 5.6.

Benefits

- Improvements in network performance
- Improvements in network availability

- Network Assets has implemented an overhead line equipment (OHLE) asset renewal program across the Goonyella and Blackwater system to reduce de-wirements, earth-wire faults and traction faults in response to life-expired components.
- Significant improvements in network performance (reduction in de-wirements, earth-wire faults and traction faults) have resulted from this program.

Overhead Line Equipment Asset Renewal

Benefits

- Improvements in network reliability
- Improvements in network performance

- In FY2013, construction of the Gracemere Overpass was completed, resulting in the closure of at-grade level crossings at Somerset Road and Malchi-Nine Mile Road, Gracemere.
- Construction was led by the Department of Transport and Main Roads and supported by Aurizon Network.
- Aurizon Network provided assistance not only in terms of logistical and planning support (construction of the bridge was concurrent with duplication of the Blackwater mainline as part of the Wiggins Island Rail Project) and made a capital contribution of $10 million.

Gracemere Overpass

Benefits

- Improvements in network performance
- Improvements in network availability

- Network Assets has implemented a rail safety project to reduce the risks to OHLE at level crossings. Impacts with road vehicles cause OHLE damage and/or de-wirements as well as damage to the vehicles themselves and to their occupants.
- Two priority sites were selected – Ardurard Road, Blackwater and Normanby Street (Fitzroy Development Road), Dingo, both in the Blackwater system. These locations have accounted for an average five OHLE incidents per annum since 2007.
- The introduction of the detectors resulted in the number of OHLE incidents at these level crossings reducing to two each.

Over-height Detectors

5.6 Benefit Quantification

Quantification of the benefits for the specific activities and capital projects undertaken by Aurizon Network are summarised below and discussed in further detail at Attachment B.

Project Name	Cost of Project* ($m)	'Benefit' Received		Nature of 'Benefit' (In FY14)	Equivalent Number of Train Paths
		Blackwater	Goonyella		
Longer Trains	-	29	175	Network availability (train paths generated)	204
Integrated Planning Framework	-	4	55	Network reliability (reduction in train paths cancelled)	59
Multiple Consist Stowage	0.8	n/a	n/a	Not quantified	n/a
Ultrasonic Testing	-	134	45	Network reliability (train cancellations avoided)	179
Non-Destructive Testing	1.2	25	25	No. reduced testing sites	n/a
Overhead Asset Renewal	5.5	50	27	Network reliability (train cancellations prevented)	77
Over-height Detectors	1.2	30	0	Network reliability (train cancellations prevented)	30
		72	n/a	Network performance (hours unplanned corrective maintenance prevented)	n/a
Gracemere Overpass	10	594	n/a	Network performance (delay minutes saved)	n/a
		22	n/a	Network performance (train cancellations prevented due to level crossing incidents)	22
				Total Train Paths	**>500**

** capital spend, other than for Multiple Consist Stowage*

Attachment A – Total Actual Revenues and Adjusted System Allowable Revenues (Schedule for Publication)

Attachment B – Further Information Supporting Claim for Increments

Attachment A
Revenue Cap Adjustment
2013/14

Total Actual Revenues

	Per FY2014 Adjustment Charge submission				
	Billing models AT_{2-4} (excl Cross System)	Adjustments (inc Cross System, Take or Pay, Transfer fees)	Access Revenues	Rebate Adjustment	TAR AT_{2-4}
Blackwater	232,534,022	(17,380,225)	215,153,796	(8,488,855)	206,664,941
Goonyella	245,912,697	(16,104,256)	229,808,442	(7,051,502)	222,756,940
Moura	27,732,826	3,676,412	31,409,238	-	31,409,238
Newlands	27,522,223	10,202,090	37,724,313	21,731	37,746,044
GAPE	76,531,852	47,663,068	124,194,920	-	124,194,920
	610,233,620	28,057,089	638,290,709	(15,518,626)	622,772,082

	Billing models AT_5 (excl Cross System)	Adjustments (inc Cross System, Take or Pay, Transfer fees)	Access Revenues	Rebate Adjustment	TAR AT_{2-4}
Blackwater	72,431,096	141,688	72,572,784	-	72,572,784
Goonyella	96,158,034	(3,911,604)	92,246,430	(501,603)	91,744,827
	168,589,130	(3,769,915)	164,819,214	(501,603)	164,317,611

Adjusted System Allowable Revenues

		Adjustments					
	SAR per Schedule F	MCI adjustment Maintenance Costs	CPI adjustment Operating Costs			Adjusted SAR AT_{2-4}	Total
Blackwater	215,153,796	-	-			215,153,796	(8,488,855)
Goonyella	229,808,441	-	-			229,808,441	(7,051,501)
Moura	31,409,238	-	-			31,409,238	-
Newlands	37,755,329	-	-			37,755,329	(9,285)
GAPE	124,194,917	-	-			124,194,917	3
	638,321,721	-	-	-	-	638,321,721	(15,549,639)

	SAR per Schedule F	MCI adjustment Maintenance Costs	CPI adjustment Operating Costs	Electric Charge Adjustment	Connection Charges Adjustment	Adjusted SAR AT_5	Total
Blackwater	72,572,784	-	-	(1,238,600)	-	71,334,184	1,238,600
Goonyella	92,246,430	-	-	(7,795,955)	-	84,450,476	7,294,351
	164,819,214	-	-	(9,034,554)	-	155,784,660	8,532,951

Revenue Adjustment Amounts

Total of Revenue Adjustment Amounts (for 2013/14) **(7,016,688)**

Aurizon Network Access Undertaking (2010)

Explanatory Memorandum

FY2014 Revenue Adjustment Amounts and Increments

Attachment B
Further Information Supporting Claim for Increments

Table of Contents

1 Introduction

1.1 Background

This attachment provides further information on the specific initiatives set out in section 5 of the FY2014 submission on Revenue Adjustment Amounts and Increments.

Where, for an individual system:

- the Total Actual Revenue for AT_{2-4} is greater than the System Allowable Revenue for AT_{2-4} for the relevant system; and
- Aurizon Network is required to submit a variation of relevant Reference Tariffs to the QCA,

the QCA will allow an Increment to be added to the 2nd Year System Allowable Revenue for the relevant system if it is reasonably satisfied that the difference has, in whole or part, arisen as a direct result of whole of coal chain activities or initiatives of Aurizon Network (or its contractors) which have increased the efficiency of the Below Rail network. The amount of the Increment must not exceed 2% of the relevant System Allowable Revenue.

The 2% 'cap' on the incentive payment recognises that whilst Aurizon Network is not in a position to efficiently manage volume risk, it can directly influence supply chain performance through its actions alone or with other supply chain participants. These actions are not only in relation to Aurizon Network's general activities (such as asset maintenance) but also specific initiatives where the business case focuses substantially on supply chain benefit (rather than Aurizon Network benefit).

1.2 The FY2014 Claim for Increments

Aurizon Network's claim for the Increments relates only to the Blackwater and Goonyella systems, as the other systems in the Central Queensland Coal Region (CQCR) did not experience an over-recovery of System Allowable Revenues.

The significant improvement in Blackwater and Goonyella system performance in FY2014 is directly attributable to three factors:

1. increase in demand by coal industry customers, associated with significant reductions in the spot price of coal;
2. activities of coal industry customers and supply chain participants, including mines, ports and Train Operators in improving the efficiency of their own operations; and
3. activities and initiatives of Aurizon Network's Network Operations and Network Assets divisions alone, or in partnership with those supply chain participants.

With respect to the third factor, Aurizon Network is seeking approval from the QCA of Increments totalling $8.9 million, which is equivalent to 2% of the total AT_{2-4} System Allowable Revenue for these systems (the maximum allowed under the 2010AU).

This claim represents a recoveries from Access Holders of $4.3 million and $4.6 million for the Blackwater and Goonyella systems respectively, as reflected below.

System	AT_{2-4} System Allowable Revenue $m	Claim $m
Blackwater	215	4.3
Goonyella	230	4.6
Total	**445**	**8.9**

1.3 Purpose of Paper

Section 5 of the FY2014 submission provides a detailed discussion on how Total Actual Revenues have exceeded System Allowable Revenues.

Over 200 million tonnes were railed across the CQCR, significantly higher than the forecast approved by the QCA. Daily, weekly and monthly all-time throughput records were set in FY2014, and continue to be set in FY2015. These achievements reflect the sustained effort and aligned planning by all supply chain participants, including mines, ports, Train Operators and Aurizon Network.

Across Blackwater and Goonyella, Aurizon Network activities and initiatives undertaken directly contributed to supply chain benefits realised by other parties. These supply chain benefits included:

- improved coal industry customer profitability through greater network throughput, achieved via an improvement in Aurizon Network's service quality covering:
  - network availability, in terms of an increase in the amount of paths available each day to meet Train Services entitlements via the network planning process;
  - network reliability, in terms of a reduction in day-of-operation losses causing the cancellation of planned Train Services;
  - network performance, in terms of an increase in the quality of the paths provided (or conversely, a reduction in transit times); and
- improved above-rail profitability, in terms of efficiency improvements for the benefit of Train Operators.

A discussion of how Aurizon Network's general activities contributed to supply chain performance is provided in section 5. The purpose of this paper is to:

- provide specific examples of Aurizon Network initiatives that have directly contributed to these record railings; and
- as such, to demonstrate (along with section 5) that the claim for the Increments is fair and reasonable.

1.4 Benefit Quantification

Aurizon Network does not operate the Train Services which gave rise to the revenue over-recoveries in FY2014. Accordingly, this paper does not seek to provide a direct, causal link between the Aurizon Network activities and initiatives and the over-recoveries.

Rather, the paper seeks to establish that the over-recovery is related to activities and initiatives by all supply chain participants including Aurizon Network by virtue of the revenue 'opportunities' that have been created for the supply chain. The realisation of these revenue opportunities (leading to the revenue over-recoveries) has occurred due to the combined impact of the three

factors discussed at section 1.2 above.

Benefit quantification is therefore focused upon improvements in network availability and reliability, measured in terms of train paths:

- created as a result of network planning process;
- saved through reduced 'day-of-operation' (DOO) losses associated with train cancellations,

created by a selected group of 'example' initiatives undertaken by the Aurizon Network's Network Operations and Network Assets teams.

Where possible, the benefit for each initiative have been estimated using the following approach:

- equivalent train paths, based on the amount of track time reduction and divided by 30 mins headway per train (i.e. 30 mins = 1 train path); and
- reduction in trains cancelled as a result of the nominated initiative.

Where a train path benefit has not been quantified, alternative benefits associated with either network performance or above-rail profitability have been provided.

The table below indicates that over 500 extra train paths (i.e. an average ten paths per week) were made available to the supply chain during FY2014 as a result of the specific Aurizon Network initiatives. Assuming an average payload of 10,000 tonnes per train and a spot price averaging $80 per tonne, Aurizon Network created revenue opportunities for the supply chain totalling over $400 million.

On this basis, the benefit above substantially exceeds a) the value of the FY2014 revenue over-recovery (of $54.9 million for $AT_{2\text{-}4}$ excluding interest) and b) the amount claimed by Aurizon Network for the Increments. The total value of the Increments are equivalent to 2% of the value of this revenue opportunity (and around 15% of the revenue over-recovery). This estimate excludes revenue opportunities associated with improvements in network performance and efficiency improvements delivered for the benefit of Train Operators and coal industry customers.

A summary of the example initiatives undertaken by Aurizon Network is provided below and discussed further at sections 2 and 3. These initiatives include:

- initiatives undertaken by Network Operations, based in Rockhampton and Mackay, and Network Assets, based in Brisbane; and
- capital projects initiated by Aurizon Network for the Below Rail network, where the bulk of the supply chain benefit has accrued to parties other than Aurizon Network (being Train Operators and End Users).

1.5 Summary of Initiatives and Projects

Project Name	Cost of Project* ($m)	'Benefit' Received		Nature of 'Benefit' (In FY14)	Equivalent Number of Train Paths
		Blackwater	Goonyella		
Longer Trains	-	29	175	Network availability (train paths generated)	204
Integrated Planning Framework	-	4	55	Network reliability (reduction in train paths cancelled)	59
Multiple Consist Stowage	0.8	n/a	n/a	Not quantified	n/a
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		72	n/a	Network performance (hours unplanned corrective maintenance prevented)	n/a
Gracemere Overpass	10	594	n/a	Network performance (delay minutes saved)	n/a
		22	n/a	Network performance (train cancellations prevented due to level crossing incidents)	22
				Total Train Paths	**>500**

** capital spend, other than for Multiple Consist Stowage*

2 Initiatives

Initiatives in Network Operations have directly resulted in improvements in network throughput, reliability and performance. Improvements are evidenced in the following initiatives:

- Longer Trains
- Integrated Planning Framework
- Multiple Consist Stowage
- Ultrasonic Testing
- Non-Destructive Testing

2.1 Longer Trains

Network Operations and Network Assets have worked with Aurizon Operations and BMA Rail to trial extensions of the operating length of trains in the Blackwater and Goonyella systems.

The solution allowed the new consists to fall within the parameters of the Reference Train. As such, no regulatory approvals were immediately required (there are some minor pricing implications and some changes required to Train Service Entitlements, these will be confirmed with the QCA in due course).

In Goonyella, trains have been extended by four wagons (from 120 to 124) and in Blackwater, by four wagons on electric consists (from 100 to 104) and by two wagons on diesel consists (from 98 to 100). In this respect:

- the trial in Goonyella (with Aurizon Operations and BMA Rail) has been successfully implemented, and all Train Operators are now permitted to operate at the longer lengths; and
- the trial in Blackwater (with Aurizon Operations) is still proceeding, no major issues have been noted and implementation is expected by December 2014.

Aurizon Network conducted:

- Detailed independent infrastructure and rollingstock engineering assessments (interaction of the longer trains with existing signalling and telecommunications systems, analysis of track section run times, etc.);
- Assessments of the interaction between the longer trains and mine loading and port unloading facilities;
- Feasibility studies and detailed impact assessments on short, medium and long term planning and scheduling; and
- Risk assessments in accordance with the relevant rail safety legislation and Aurizon Network's rail safety standards.

The initiative has resulted in improved above-rail profitability through improvements in Train Operator efficiency (as a result of a reduction in the number of consists required in each system), and improvements in network availability (increase in paths available as part of the network planning process) as well as additional capacity to offset against a future network expansion as part of Aurizon Network's network development process. Benefits have been realised immediately in both systems upon commencement of the respective trails, and without any material increase in the operating costs of Train Operators or delays to loading and unloading or to other Train Services.

Trials in Moura and Newlands (with Aurizon Operations) are also proceeding with no major issues being noted. Implementation is expected during FY2015.

The estimated benefits are associated with additional paths generated by a reduction in consists to move the same tonnage (or conversely, an increase in the tonnage moved for a given number of consists), and are summarised below.

System	Blackwater	Goonyella	Total
Number of extended trains	1,145	5,316	6,461
Number of extra wagons	2,852	21,060	23,912
Additional paths generated	**29**	**175**	**204**

The difference in the benefits realised in Blackwater and Goonyella reflects the relevant timing of the trials and proportional increases in train length.

2.2 Integrated Planning Framework

An integrated planning framework has been developed by Network Operations to address a number of issues which were negatively affecting network availability and reliability including:

- Day-of-Operation (DOO) losses of over 20%
- High variation in planning/ scheduling times
- Limited to no Train Operator integration
- Disjointed planning / scheduling processes
- Large amounts of re-work across planning horizons (DOO, weekly and monthly plans)

The framework involved co-ordination of the relevant areas of Aurizon Network, Train Operators, coal industry customers and port operators.

By targeting the problems above with a collaborative approach, Aurizon Network sought to achieve the following:

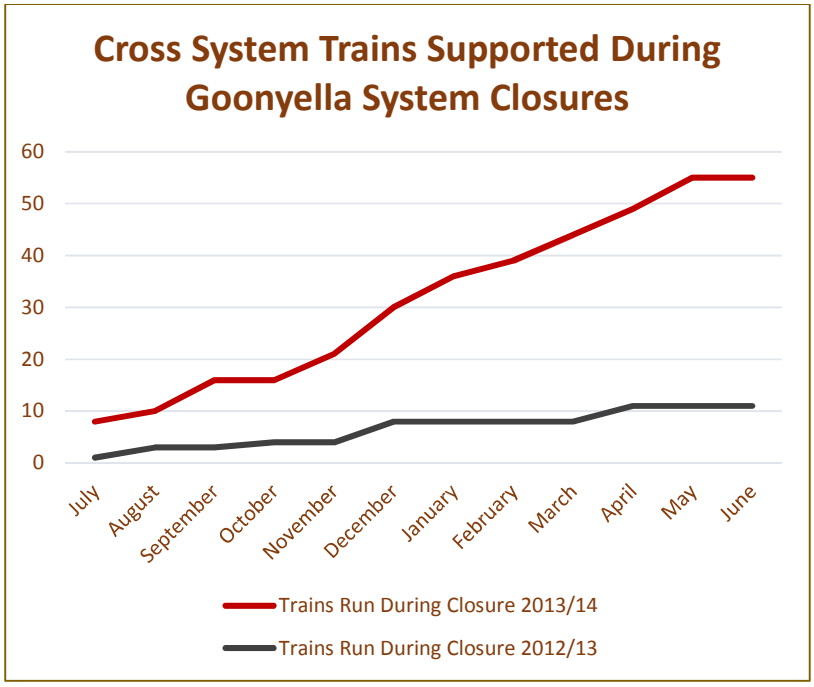
- Improved throughput
- Reduced DOO variation
- Improved depth and detail of planning horizons
- Increased discipline across planning and scheduling processes

The initiative has resulted in improved network availability as part of the network planning process, as well as improving network reliability by reducing dependence on the start and finish of track possessions. Improved supply chain profitability has also been delivered with the tonnage records being set in FY2014 (and continuing into FY2015) with a lessor number of train starts, providing an opportunity for Train Operators to rationalise or optimise their train fleets. Other above-rail performance improvements include:

- Better asset utilisation (especially of Blackwater electric rollingstock and infrastructure)
- Greater fuel efficiency
- Greater labour productivity
- Increases in average payload
- Increases in average speeds (reductions in turnaround times)
- Reduced operating unit costs

Three other examples of supply chain benefits delivered by the framework include increased cross-system operation of trains during system shutdowns, separation of single line works from possession works and consolidating track possessions for ballast cutting activities.

The 1st example, through better co-ordination of Goonyella system shut-downs, generated 55 additional services from the Goonyella system during FY2014 system closures (refer graph below).



The 2nd example created an opportunity for 200 hours of maintenance, previously undertaken under full track possessions, to be performed while operating trains through the same section of track. These works are normally timed to be conducted during planned shuts of the mines and ports, or unplanned closures on other sections of track, but the benefit of this approach is that these closures need not be exhaustive to the relevant system.

For example, during FY2014 Aurizon Network demonstrated that during a 60 hour planned closure of a section in the Blackwater system, Aurizon Operations operated two loaded services and two empty services through duplicated sections where one of the lines was being worked on (both lines were isolated so only diesel consists could operate). These modified arrangements advanced the cycles of four diesel consists for a cumulative cycle time saving of 22 hours.

2.3 Multiple Consist Stowage

This initiative, led by Network Operations, sought to reduce impacts on system throughput resulting from the distributed stowage and delayed starting of trains around major maintenance shutdowns.

During shutdowns, trains have traditionally been stowed on the Network between signal sections and in mainline yards and loops with two significant disadvantages.

1. individual consists are spread throughout the network, requiring deployment of train crew and rollingstock maintenance staff and equipment over long distances; and
2. the limited number of locations available that can be used to stow trains (for example, with a suitable grade to secure loaded wagons).

These issues have become problematic in recent years with increased consist numbers and consequential demand by Aurizon Network for increased track maintenance time.

To address the issues, 'multiple stowage' trials were conducted in both Blackwater and Goonyella. Multiple stowage utilises long track sections to stow up to three train consists within a single track section. Ten successful trials were conducted at five locations in eight system closures during FY2014, and the initiative has since been implemented across all systems in the CQCR.

The benefits realised include:

- more efficient deployment of train crew and maintenance staff at single locations for locomotive shut-down (at the start of closures) and start-up (at the end of closures);
- more locations for stowing trains provides more options to plan maintenance at unused locations; and
- the avoidance of construction of six holding lines between Goonyella and Blackwater for stowage purposes (being the next alternative to conducting the trial).

Ballast costs of around $0.8 million were incurred by Aurizon Network in ensuring that the selected locations were suitable for multiple stowage.

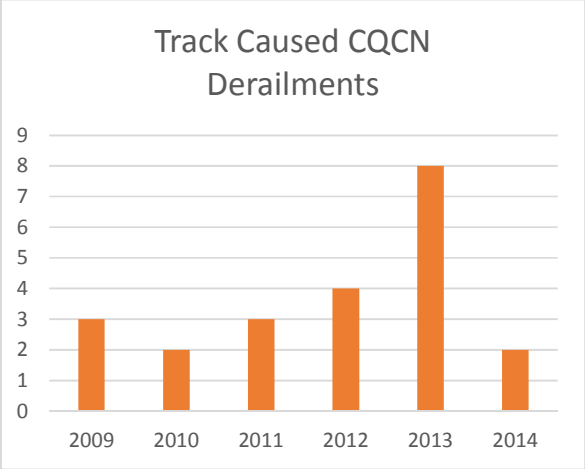
2.4 Ultrasonic Testing

Across Blackwater and the Goonyella, rail replacement is driven by three key factors:

- rail wear limits
- rail corrosion
- rail defects

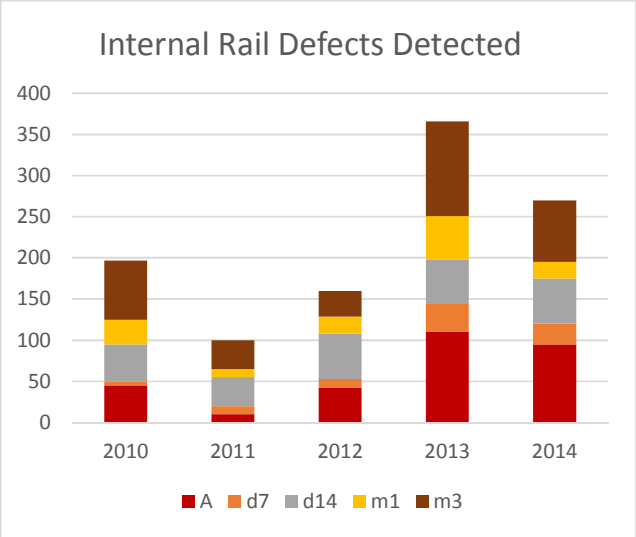
Ultrasonic testing has traditionally been used to detect rail defects within the rail. As this testing is non-destructive it is the preferred form of testing and is performed cyclically every six weeks across the CQCR.

As a result of the increasing life of the rail placed around the network and growing annual tonnages, defects have been forming in increasing numbers and severity, leading to an increase in derailments associated with rail failures. As indicated the chart below, these failures peaked in FY2013.



In response to this increase, Aurizon Network increased the speed and accuracy of testing due to more efficient methods. Examples of these new methods include mounting testing equipment on track maintenance vehicles and conducting testing during maintenance shutdowns.

This has allowed defects to be picked up much quicker and for more of the network to be covered in the same or smaller timeframe. As a result, many existing and new defects were removed from the system over FY2013 and FY2014. The benefit, in terms of a reduction in rail defects detected (colours indicate the severity of the defect) can be seen in the chart below, and the reduction in resulting derailments from eight in FY2013 to two in FY2014 can be seen in the chart above.



This reduction in derailments is equivalent to 134 train cancellations in Blackwater and 45 cancellations in Goonyella.

2.5 Non-Destructive Testing

The condition of ballast and formation is essential to the performance of the below-rail network, by 'spreading' the load of rail traffic to the formation and providing drainage away from foundation material. If ballast voids (the space between ballast rock) become fouled, the performance of

these functions is reduced and new problems occur such as mud holes which can lead to rail breaks and derailments.

The primary source of ballast fouling within the CQCR is attributed to coal fines (small particles of coal). Fines generally migrate to the ballast layer either by rain or by vibration from rail traffic where accumulation of these fines reduces the depth of clean ballast. If the layer of clean ballast below the sleeper is reduced past 100mm, top of track and line deterioration occurs more rapidly.

To rectify these problems, the ballast cleaning machine (BCM) is deployed onto a section of track to remove the fouled ballast, clean it and lay it back in place. Previously the location of BCM works was determined by destructive testing across the Blackwater and Goonyella systems to find the most fouled section. Destructive testing involved digging a trench between the sleepers and taking a sample for a PVC (Percent Void Contamination) test. This process would occupy a track possession for at least an hour to conduct the test works.

During FY2011, Ground Penetrating Radar (GPR) testing was implemented as the primary means of planning the location for the BCM operations. GPR is a non-destructive testing sub-surface inspection technology that is used to measure the condition of Aurizon Network's assets, in particular ballast, and is done so via advanced radars. By the commencement of FY2014, all ballast testing was being conducted using GPR.

GPR provides a number of benefits:

- simpler identification of sites requiring ballast cleaning;
- non-intrusive, efficient and cost effective means of measuring ballast condition network wide;
- reliable and accurate site analysis (measurements every 5 metres); and
- ability to develop ballast fouling rates and proactive ballast renewal plans.

Destructive testing traditionally occupied 300 to 400 hours of on-track time per year compared to 100 to 200 hours of on-track time for GPR testing. In addition, GPR testing is generally carried out on areas that are already closed for other maintenance works. Assuming 50% of tests were carried out during track possession that prevented the operation of revenue trains, the reduction in possession time is equivalent to an increase in network availability of around 50 train paths across Blackwater and Goonyella.

3 Capital Projects

The following selected capital projects have realised direct benefits for supply chain performance:

- Overhead Asset Renewals
- Overheight Detectors
- Gracemere Overpass

3.1 Overhead Asset Renewals

Network Assets implemented an overhead line equipment (OHLE) asset renewal program across the Goonyella and Blackwater system to reduce de-wirements, earth-wire faults and traction faults in response to life-expired components.

The systems were scoped with covering 50kms in Blackwater and Goonyella per year to conduct the following:

- renewal of individual components such as insulators, cantilevers and termination assemblies;
- upgrade of existing structure to rail and structure to track traction bonds with new earth wire bonding;
- installation of designated earthing points;
- installation of bird nesting deterrents; and
- upgrading existing earth wire clamps and earth wire conductors.

Significant improvements in network performance (reduction in de-wirements, earth-wire faults and traction faults) have resulted from this program. The benefit is primarily associated with improvements in performance (due to replacement of assets in their modern equivalent form). However, benefits also arose due to the project's efficient implementation, with work completed immediately behind, and in the same shift as, the BCM and track laying machine.

This co-ordination has meant that Aurizon Network has not needed extra possessions to complete the work, resulting in the increased network performance (reductions in DOO losses associated with rail OHLE failures) without a reduction in network availability, per the table below.

Cancellation Cause	FY2012	FY2013	FY2014
Traction Faults	344	251 (27% improvement)	174 (31% improvement)
Dewirements	19	9 (52% improvement)	9 (no change)
Earthwire Failures	31	21 (32% improvement)	14 (33% improvement)

The reductions above are equivalent to 50 train paths in Blackwater and 27 train paths in Goonyella through a reduction in DOO losses (cancellations).

3.2 Over-height Detectors

Over-height road vehicles are a real and increasing threat to OHLE at level crossings, with impact events causing earthing, OHLE damage, dewiring, vehicle damage and severe safety risk to vehicle occupants. Over-height vehicles are not complying with road rules and signage. Due to a lack of monitoring systems, vehicles involved in collision events may leave the scene and compliance and cost recovery may be difficult.

In response, Network Assets implemented a rail safety project to reduce the risks to OHLE at level crossings. Impacts with road vehicles cause OHLE damage and/or de-wirements as well as damage to the vehicles themselves and to their occupants.

Two priority sites were selected – Ardurard Road, Blackwater and Normanby Street (Fitzroy Development Road), Dingo, both in the Blackwater system. These locations have accounted for an average five OHLE incidents per annum since 2007. The system detects over-height vehicles approaching the level crossing and provides a targeted warning to the vehicle's driver in the form of a message sign with associated traffic lights.

The introduction of the detectors resulted in the number of OHLE incidents at these level crossings reducing to two each in FY2014. This has resulted in improvements:

- in network performance (reduction in day-of-operation losses associated with OHLE damage); and
- and network reliability (improvement in transit times associated with delays to check damaged OHLE).

The DOO cancellations and delays associated with the reduction in incidents are estimated to be equivalent to around 30 train paths per annum.

3.3 Gracemere Overpass

In FY2013, construction of the Gracemere Overpass was completed resulting in the closure in May 2013 of at-grade level crossings at Somerset Road and Malchi-Nine Mile Road, Gracemere.

Construction was led by the Department of Transport and Main Roads (TMR) and supported by Aurizon Network. Aurizon Network provided assistance to TMR in terms of logistical and planning support (construction of the bridge was concurrent with duplication of the Blackwater mainline as part of the Wiggins Island Rail Project) and made a capital contribution of $10 million.

Prior to the closure, near misses at these level crossings represented one-third of all near misses on the CQCR. Significant day-of-operation losses resulted immediately and subsequently from these near misses, including:

- delays caused by drivers having to make emergency brake applications;
- delays caused by drivers having to be relived as a result of near misses; and
- delays caused by trains proceeding through these crossings at less than 80kph due to driver caution.

In FY2011, 22 services were cancelled following a collision between an Aurizon Network on-track maintenance vehicle and a cattle truck.

The completion of the Overpass has resulted in a significant improvement in network reliability and performance (associated with an absolute elimination of near misses) in this corridor.

Before

After

The elimination of near misses is reflected in the table below.

	FY2012	FY2013	FY2014
Near misses	41	38	Nil
Accidents	5	Nil	Nil
Total	**46**	**38**	**Nil**

Notionally, at least 22 train paths (associated with the FY2011 collision), has been saved by the construction of the Overpass. In addition, a reduction of 584 in delay minutes has also been estimated associated with the complete reduction in incidents between FY2013 and FY2014.