Aurizon Network

FY2018 Maintenance Cost Report

31 October 2018
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Executive Summary

Aurizon Network is focussed on delivering a prudent and effective maintenance programme that ensures the Central Queensland Coal Network (CQCN) is fit for purpose, having regard to the operational paradigm achieves and promotes the economically efficient operation of the CQCN.

The Queensland Competition Authority’s (QCA’s) Draft Decision on Aurizon Network’s 2017 Draft Access Undertaking (UT5 Draft Decision) proposed a forecast maintenance allowance and scope for the purpose of determining FY2018 Reference Tariffs.

Aurizon Network’s direct maintenance expenditure for FY2018 was $204.4 million, representing an over-spend of $13.6 million (7%) against the adjusted UT5 Draft Decision maintenance allowance of $190.8 million. This outcome was primarily due to the following activities:

- $8 million over-spend on Ballast Undercutting;
- $3 million cost saving in Resurfacing;
- $3 million over-spend on Track Maintenance works; and
- $2 million over-spend on Structures maintenance.

By comparison, direct maintenance expenditure for FY2018 was $3.5 million (1.7%) lower than the direct maintenance allowance proposed by Aurizon Network in response to the UT5 Draft Decision, i.e. $207.9 million.

Furthermore, during FY2018, Aurizon Network achieved most of its scope targets for mechanised maintenance activities; the exception being mainline Rail Grinding, where full production could not be achieved.

Aurizon Network maintains its position that the UT5 Draft Decision issued by the QCA is extremely disappointing in its current form, causing damage to Network, customers and the Queensland economy. Following the release of the UT5 Draft Decision in December 2017, Aurizon Network changed some of its operating practices and business decisions to align with:

- the position effectively advocated by the QCA through its adoption (in the Draft Decision) of the maintenance allowance proposed by its consultants based on applying different maintenance regimes; and
- the maintenance and operating cost allowances and Weighted Average Cost of Capital (WACC) proposed in the UT5 Draft Decision.

Key changes to operating practices included:

- Prioritised adherence to the formulated plan for planned maintenance and capital works;
- Modified rail defect maintenance practices to reduce Aurizon Network’s risk on long-term track reliability and productivity; and
- Major maintenance activities being provided over longer production blocks.

With the implementation of these operating practices, Aurizon Network has been able to limit the quantum of maintenance over-spend relative to the UT5 Draft Decision, through cost and productivity improvements. Given the inherent and interdependent linkages between the maintenance allowance, the WACC and operating costs, it should be recognised that these cost savings may not be sustainable, should other changes be made to the way in which the maintenance regime is delivered in future.
Overview of Report

Background

Aurizon Network is the access provider of a declared service for the purposes of Queensland's third-party access regime, established under Part 5 of the Queensland Competition Authority Act 1997 (QCA Act). The declared service is defined under s.250 of the QCA Act as “the use of a coal system for providing transportation by rail”.

The Rail Infrastructure required to provide the declared service is collectively referred to as the CQCN and forms the basis of a Regulated Asset Base (RAB) valued in excess of $6 billion. The CQCN is comprised of approximately 2,670 kilometres (km) of track (1,945 km of which is electrified) that links over forty (40) mines to five (5) coal export terminals.

Aurizon Network’s asset management regime strives to create value for all supply chain participants by emphasizing long-term, sustainable asset management practices. These practices:

> are delivered in accordance with standards and processes that are appropriate for a narrow gauge, heavy haul railway;
> promote the resilience of Rail Infrastructure to the climatic extremes prevalent in Central Queensland; and
> are regularly reviewed and refined to provide the appropriate balance between safety, asset availability and the efficient whole-of-life costs for the CQCN.

Maintenance tasks and the corresponding level of expenditure cannot be considered independently of the other factors, such as:

> the level of investment in CQCN Rail Infrastructure;
> the way in which the CQCN is operated; and
> climatic / geographic factors, which can be highly variable.

Aurizon Network’s UT5 submission, and the submission made in response to the UT5 Draft Decision, recognises this interdependency. Aurizon Network maintains that the allowances proposed in its submissions are prudent, efficient and necessary for ensuring that the CQCN can meet the needs of all relevant stakeholders in a sustainable manner.

Regulatory requirements and assumptions

This report is provided to the QCA in accordance with Aurizon Network’s 2016 Access Undertaking (UT4); clause 10.3.3.

The QCA has not yet issued a Final Decision on UT5 and as a consequence, this report assesses Aurizon Network’s FY2018 maintenance performance by comparing scope delivered and costs incurred to the QCA’s Draft Decision on UT5 (UT5 Draft Decision), which was issued in December 2017.

This information is provided for the four (4) coal systems in the CQCN; Blackwater, Goonyella, Moura and Newlands.

It should be noted that while the UT5 Draft Decision contains individual Reference Tariffs and Allowable Revenues for the Goonyella to Abbot Point Expansion (GAPE System), the GAPE System is not a...
Aurizon Network confirms that this report contains no confidential information and may be considered a public document.
1. Safety

Safety is Aurizon Network’s core value. Aurizon Network aspires to be world class in safety through its journey to ZEROHARM, which has delivered tangible benefits in terms of safety performance and safety culture. ZEROHARM comprises:

- ZERO incidents;
- ZERO injuries;
- ZERO work-related illnesses; and
- ZERO environmental incidents.

Injury Reporting Metrics

Aurizon Network’s strong safety performance directly benefits the coal supply chain by:

- reducing the number of unplanned system interruptions; and
- allowing Aurizon Network to maximise productive time within maintenance track possessions.

This ultimately promotes greater network reliability through a more effective and productive asset maintenance regime.

Aurizon’s primary injury reporting metrics include the:

- Total Recordable Injury Frequency Rate (TRIFR), which measures the number of incidents per million person-hours worked; and
- Lost Time Injury Frequency Rate (LTIFR), which measures the number of lost time injuries occurring in a workplace per million hours worked.

In order to continue the journey to becoming world leading in safety, Aurizon Network revised its injury definitions from 1 July 2017. The key changes include:

- the inclusion of contractors in all injury metrics;
- widening the scope of total recordable injuries to include all restricted work injuries; and
- expanding the definition of ‘Lost Time Injuries’ such that it captures any lost day of work following the injury.

Figure 1 below illustrates both the TRIFR and LTIFR for Aurizon staff since June 2011. Since that time, there has been a noticeable improvement in Aurizon’s safety performance.

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1 The previous definition of ‘Lost Time Injuries’ only captured instances where the injury impacted the next rostered shift.
Derailments Exceeding $100,000

A Derailment is an event where one or more rollingstock wheels leave the rail or track during railway operations.

Table 1 below lists the number of derailments where the cost to Aurizon Network of recovery from the derailment exceeded AUD$100,000².

<table>
<thead>
<tr>
<th>Derailment Incident</th>
<th>Date</th>
<th>Location</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>DR704347</td>
<td>11/09/2016</td>
<td>Havilah - Cockool</td>
<td>$391,815</td>
</tr>
<tr>
<td>DR761919</td>
<td>17/01/2017</td>
<td>Gentle Annie Xing</td>
<td>$656,499</td>
</tr>
<tr>
<td>DR917641</td>
<td>18/08/2017</td>
<td>Windah - Westwood</td>
<td>$1,394,923</td>
</tr>
<tr>
<td>DR936284</td>
<td>15/09/2017</td>
<td>Havilah</td>
<td>$139,650</td>
</tr>
<tr>
<td>D1019244</td>
<td>24/01/2018</td>
<td>Duaringa</td>
<td>$1,967,804</td>
</tr>
<tr>
<td>D1109439</td>
<td>9/06/2018</td>
<td>Waitara</td>
<td>$110,461</td>
</tr>
</tbody>
</table>

Table 1: Derailment Incidents and costs exceeding $100,000

It should be noted that during FY2018, Aurizon Network incurred financial ‘settlement’ costs in relation to two derailments, which occurred during FY2017.

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² As required by clause 10.3.3 (vi) of the 2016 Access Undertaking.
Major Reportable Safety Incidents

Figure 2 below presents the number of major reportable safety incidents reported to the Safety Regulator during FY2018.

In accordance with clause 10.3.3(c)(v)(C) of the 2016 Access Undertaking, Figure 2 excludes four (4) derailments with a cost of recovery exceeding $100,000, which are already reported in Table 1 above.

Figure 2: Number of major reportable safety incidents reported to the Safety Regulator

In addition to the derailments reported in Table 1, two (2) further Major Reportable Safety Incidents occurred during FY2018.

> On 18 March 2018, a running line derailment occurred while a track machine was travelling into a siding at Kabra. The cost of recovery of this event was approximately $35,000; and

> On 19 April 2018, a running line derailment occurred while a ballast train was travelling into a siding at Blackwater. The cost of recovery of this event was approximately $16,000.
2. Maintenance Expenditure and Scope

This section outlines Aurizon Network’s actual maintenance performance for FY2018 in terms of costs incurred for CQCN maintenance activities and scope delivered for mechanised maintenance activities.

The QCA has not yet issued a Final Decision on UT5 and consequently, this report compares Aurizon Network’s actual maintenance cost and scope to the forecasts outlined in the UT5 Draft Decision and provides commentary on material variations.

Volumes

**Net Tonnes Railed compared to Draft Decision**
During FY2018 the network operational performance remained strong and five monthly railing records were achieved. Highlights include:

- Tonnes delivered over the CQCN increased 18.8mt (9%) from the Cyclone Debbie affected FY2017 to a record 229.6mt. Five new monthly records were achieved during FY2018 with each new record being over 19.0mt while June 2018 achieved 20.6mt, the highest ever monthly volume
- Performance to plan improved 3.5ppt to 90.3%
- Cancellations due to the Network increased marginally from 1.5% to 1.7%
- Cycle velocity averaged 23.5km/h and remains unchanged from the prior year

By way of comparison, the UT5 Draft Decision forecast coal railings of 236.4 million tonnes for FY2018; 6.8 million tonnes higher than actual railings for the year (see Figure 3 below).

![Figure 3: CQCN - Total Net Tonnes](image-url)
CQCN Maintenance Costs

FY2018 Cost Forecast – QCA’s UT5 Draft Decision

The UT5 Draft Decision provides a total maintenance allowance for FY2018 of $201.6 million. The composition of this amount includes:

- $193.2 million for direct maintenance costs; and
- $8.5 million for indirect costs, which provides a return on inventory holdings and maintenance assets that are not part of Aurizon Network’s RAB, e.g. ballast undercutting machine, trucks, excavators, welding trucks, etc

To provide an accurate comparison to actual costs incurred, the QCA’s forecast allowance is adjusted to reflect the:

- removal of indirect costs (including return on assets and inventory) which do not form part of Aurizon Network’s maintenance spend;
- Inflationary impact on input costs, which is forecast through the MCI and reconciled through the Access Undertaking’s Revenue Adjustment Amount (Revenue Cap) process; and
- reduction in AT1 revenue through the volume variation relative to forecast.

As a result of the above, Aurizon Network’s adjusted maintenance allowance for FY2018 is:

<table>
<thead>
<tr>
<th>FY2018 Maintenance Allowance</th>
<th>$m</th>
</tr>
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<tbody>
<tr>
<td>Allowance – UT5 Draft Decision</td>
<td>201.6</td>
</tr>
<tr>
<td>Adjustments</td>
<td></td>
</tr>
<tr>
<td>- Indirect Costs</td>
<td>(8.5)</td>
</tr>
<tr>
<td>- MCI impact</td>
<td>(0.2)</td>
</tr>
<tr>
<td>- AT1 impact</td>
<td>(2.2)</td>
</tr>
<tr>
<td>Adjusted Maintenance Allowance</td>
<td>190.8</td>
</tr>
</tbody>
</table>

Table 2: Adjusted Maintenance Allowance
Figure 4: Adjusted Allowance vs Actual Cost Incurred

**FY2018 Cost Incurred - Actuals**

Aurizon Network’s direct maintenance expenditure for FY2018 was $204.4 million, representing an over-spend of $13.6 million (7%) against the adjusted UT5 Draft Decision maintenance allowance of $190.8 million.

By comparison, direct maintenance expenditure for FY2018 was $3.5 million (1.7%) lower than the direct maintenance allowance proposed by Aurizon Network in response to the UT5 Draft Decision, i.e. $207.9 million. It should be noted that Aurizon Network’s response to the UT5 Draft Decision was based on the operational practices that were in place prior to the Draft Decision alignment activities.

Aurizon Network maintains its position that the maintenance allowance provided in the QCA Draft Decision is not representative of the conditions likely to prevail over the UT5 regulatory period.

**Maintenance Costs by Activity**

The contribution of each maintenance activity to total direct maintenance costs is outlined in Figure 5 and Figure 6 below.
Figure 5: Mechanised Maintenance - Direct Costs by Activity

Figure 6: Non-mechanised Maintenance - Direct Costs by Activity

Note: The ‘General’ category in Figure 6 relates to support activities for maintenance including asset & inventory management, planning and administration.

It should be noted that the variances in Signalling and General activities relate to a change in Aurizon Network’s internal costing process following the introduction of the second phase of the Network Asset Management System (NAMS). The process requires the standby costs of the “on-call” maintenance
teams to be captured separately in the ‘General’ category. Previously, these costs were held at the activity (i.e. Signalling) level.

Maintenance Costs by Coal System

As part of the development of a new Access Undertaking, Aurizon Network submits a forecast of both maintenance cost and scope to the QCA for approval. The distribution of scope, and therefore cost, between individual coal systems is based on a “best estimate” of where system closures, and subsequently, production would take place at that point in time.

During the regulatory period, Aurizon Network considers multiple sources of information when developing the detailed maintenance program for execution. This includes:

- Qualitative information, including specific advice from Aurizon Network’s District Engineering Team, Infrastructure Maintenance Supervisors and Track Inspectors, who together, have substantive site-specific experience through managing track infrastructure within their respective defined geographical zones. This advice provides evidence of degradation at specific locations throughout the network; and

- Quantitative data, sourced from three specific data sets, namely:
  - GPR;
  - Resurfacing history; and
  - Track Geometry (sourced from the track recording vehicle).

The executable asset maintenance plans are ultimately based on the needs of the network infrastructure. It is therefore reasonable to expect that scope variances will exist at a system level between scope delivered and the scope forecast during the development of the Access Undertaking.

Figure 7 shows the FY2018 maintenance cost by coal system. Aurizon Network incurred costs in excess of the UT5 Draft Decision in the Blackwater, Goonyella and Moura systems. There was a $2 million underspend (relative to the UT5 Draft Decision) in the Newlands system.

Figure 7: Direct Maintenance Costs by System

<table>
<thead>
<tr>
<th>System</th>
<th>QCA DD</th>
<th>AN Response to DD</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blackwater</td>
<td>83.2</td>
<td>12.0</td>
<td>90.4</td>
</tr>
<tr>
<td>Goonyella</td>
<td>87.4</td>
<td>11.0</td>
<td>90.4</td>
</tr>
<tr>
<td>Moura</td>
<td>78.3</td>
<td>18.8</td>
<td>90.9</td>
</tr>
<tr>
<td>Newlands</td>
<td>80.7</td>
<td>18.5</td>
<td>19.7</td>
</tr>
</tbody>
</table>

FY2018 Maintenance Cost Report / Aurizon Network
The over-spend in the Blackwater, Goonyella and Moura systems were primarily attributable to:

- Ballast Undercutting, noting that the over-spend would’ve been significantly higher had Aurizon Network not implemented operational practices that were aligned to the UT5 Draft Decision from February 2018. The combination of improved productivity and dry weather conditions (which reduced the proportion of Total Excavation works) significantly helped to reduce Ballast Undercutting unit rates during H2 FY2018; and

- A reprioritisation of Resurfacing and Ballast Undercutting work to address high priority defects in the Moura system, that were identified during the track recording car run.

The under-spend in the Newlands system was primarily attributable to:

- Resurfacing, where both mainline and turnout resurfacing scope was delivered for a lower unit rate as a result of favourable weather conditions and improved production rates post implementation of operating practices to align to the UT5 Draft Decision.

**Maintenance Costs by Activity by System**

Direct maintenance costs by activity for each Coal System are as follows.

![Bar chart showing Blackwater System - Direct Maintenance Costs by Activity ($m)](Figure 8: Blackwater System - Direct Maintenance Costs)
Figure 9: Goonyella System - Direct Maintenance Costs

Figure 10: Moura System - Direct Maintenance Costs
Mechanised Maintenance Scope

Mechanised maintenance includes the following activities:

- Ballast undercutting;
- Rail grinding; and
- Resurfacing.

Ballast Undercutting – forecast vs actual scope

For FY2018, the UT5 Draft Decision provided for:

- a mainline undercutting scope of 140 linear kilometres (km); and
- a turnout undercutting scope of 42 turnouts.

By comparison, Aurizon Network delivered:

- 145 km of mainline ballast undercutting in linear\(^3\) terms, which in volumetric terms, equated to 144 linear equivalent km, a 3% increase relative to the UT5 Draft Decision; and
- 44 turnouts, a 5% increase relative to the UT5 Draft Decision.

A comparison of mainline and turnout scope for each coal system is outlined in Figure 12 and Figure 13 below.

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\(^3\) The linear measure assumes a consistent ballast depth of 300 millimetres.
It should be noted that the distribution of forecast scope between systems was developed well in advance of Aurizon Network’s 2017 Draft Access Undertaking (UT5) submission. Consequently, with a planning horizon of 4-years, scope forecasts between systems represent Aurizon Network’s best estimate of where network possessions, and subsequently, production would be at that point in time.
During FY2018, mainline undercutting production in the:

- Blackwater system was 11km (18%) below forecast;
- Goonyella system was 13km (20%) greater than forecast;
- Moura system was 5km (285%) greater than forecast; and
- Newlands system was 3km (18%) below forecast.

During FY2018, turnout undercutting production in the:

- Blackwater system was 2 turnouts (12%) greater than forecast;
- Goonyella system was 4 turnouts (24%) greater than forecast;
- Moura system was 2 turnouts (200%) greater than forecast; and
- Newlands system was 6 turnouts (86%) lower than forecast.

During the regulatory period, Aurizon Network analyses multiple sources of information when refining the strategic maintenance plan into a detailed program for execution. Aurizon Network’s Asset Managers analyse qualitative and quantitative data sources to assess the needs of the network infrastructure. This is then ranked and prioritised on the basis of the condition and criticality of the asset. The scope delivered in each year is an output of this condition and criticality exercise, taking account of any logistical constraints. This was the primary driver for the shortfall in the Blackwater and Newlands systems, as Moura system work was prioritised.

During FY2018, data collected by Aurizon Network’s track recording vehicle identified a number of defects in the Moura system, which required remediation. This was the key driver of the scope variation in the Moura system.

Scope delivery in the Goonyella system was driven by a combination of favourable (i.e. very dry) weather conditions and improved productive use of track time through the implementation of operating practices to align with the UT5 Draft Decision from February 2018.

**Rail Grinding – forecast vs actual scope**

For FY2018, the UT5 Draft Decision provided for:

- A mainline rail grinding scope of 4,139 km; and
- A turnout grinding scope of 748 turnouts.

By comparison, Aurizon Network delivered:

- 3,667 km of mainline rail grinding, an 11% decrease relative to the UT5 Draft Decision; and
- 790 turnouts, a 6% increase relative to the UT5 Draft Decision scope.

A comparison of mainline and turnout scope for each coal system is outlined in Figure 14 and Figure 15 below.
It should be noted that the distribution of forecast scope between systems was developed well in advance of Aurizon Network’s UT5 submission. Consequently, scope forecasts between systems represent Aurizon Network’s best estimate of where network possessions, and subsequently, production would be at that point in time.
During FY2018, mainline rail grinding production in the:

- Blackwater system was 49km (3%) below forecast;
- Goonyella system was 399km (22%) below forecast;
- Moura system was 22km (13%) greater than forecast; and
- Newlands system was 46km (14%) below forecast.

During the course of FY2018, turnout rail grinding production in the:

- Blackwater system was 1 turnout (0%) greater than forecast;
- Goonyella system was 24 turnouts (7%) greater than forecast;
- Moura system was 14 turnouts (45%) greater than forecast; and
- Newlands system was 4 turnouts (6%) greater than forecast.

During the regulatory period, Aurizon Network analyses multiple sources of information when refining the strategic maintenance plan into a detailed program for execution. Aurizon Network’s Asset Managers analyse qualitative and quantitative data sources to assess the needs of the network infrastructure. This is then ranked and prioritised on the basis of the condition and criticality of the asset. The scope delivered in each year is an output of this condition and criticality exercise, taking account of any logistical constraints.

The key determinants of scope variation reported at a system level included:

- timing differences between development of the scope for the undertaking submission and scope execution;
- track access constraints through strong railings relative to the UT5 submission forecast:
  - the Goonyella system railed 6 million tonnes higher than forecast; and
  - the Newlands system railed 4 million tonnes higher than forecast.

In relation to turnout grinding, this result was delivered primarily due to improved productive track time through the implementation of operating practices to align with the UT5 Draft Decision from February 2018.

**Resurfacing - forecast vs actual scope**

For FY2018, the UT5 Draft Decision provided for:

- a mainline resurfacing scope of 2,084 km; and
- a turnout resurfacing scope of 379 turnouts.

By comparison, Aurizon Network delivered:

- 2,146 km of mainline resurfacing, a 3% increase relative to the UT5 Draft Decision; and
- 382 turnouts, a 1% increase relative to the UT5 Draft Decision scope.
A comparison of mainline and turnout scope for each coal system is outlined in Figure 16 and Figure 17 below.

**Figure 16: Scope of Mainline Resurfacing completed by System**

**Figure 17: Scope of Turnout Resurfacing completed by System**

It should be noted that the distribution of forecast scope between systems was developed well in advance of Aurizon Network's UT5 submission. Consequently, with a planning horizon of 4-years, scope forecasts
between systems represent Aurizon Network’s best estimate of where network possessions, and subsequently, production would be at that point in time.

During FY2018, mainline resurfacing production in the:

> Blackwater system was 20km (2%) greater than forecast;
> Goonyella system was 68km (7%) lower than forecast;
> Moura system was 106km (160%) greater than forecast; and
> Newlands system was 3km (2%) greater than forecast.

During the course of FY2018, turnout resurfacing production in the:

> Blackwater system was 10 turnouts (6%) lower than forecast;
> Goonyella system was 3 turnouts (2%) lower than forecast;
> Moura system was 16 turnouts (229%) greater than forecast; and
> Newlands system was exactly in line with forecast.

During the regulatory period, Aurizon Network analyses multiple sources of information when refining the strategic maintenance plan into a detailed program for execution. Aurizon Network’s Asset Managers analyse qualitative and quantitative data sources to assess the needs of the network infrastructure. This is then ranked and prioritised on the basis of the condition and criticality of the asset. The scope delivered in each year is an output of this condition and criticality exercise, taking account of any logistical constraints.

During FY2018, track geometry data collected by Aurizon Network’s track recording vehicle identified a number of defects in the Moura system, which required remediation. This was the key driver of the scope variation in the Moura system, particularly with respect to turnout resurfacing.

Mainline resurfacing production was a beneficiary of favourable weather conditions and improved production rates related to the implementation of operating practices to align to UT5 Draft Decision.
3. Maintenance Cost Index

Table 5 presents the forecast and actual values for each sub-index used to construct the MCI. It should be noted that the index values presented below are based on the UT5 Draft Decision and are indicative only. Aurizon Network expects the final MCI values to be confirmed as part of the UT5 Final Decision.

<table>
<thead>
<tr>
<th>Index</th>
<th>FY2018</th>
<th>MCI Weighted Index</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodation</td>
<td>115.7</td>
<td>117.3</td>
</tr>
<tr>
<td>CPI</td>
<td>104.6</td>
<td>105.1</td>
</tr>
<tr>
<td>Consumables</td>
<td>104.7</td>
<td>104.6</td>
</tr>
<tr>
<td>Fuel</td>
<td>87.8</td>
<td>97.1</td>
</tr>
<tr>
<td>Labour</td>
<td>106.2</td>
<td>104.9</td>
</tr>
<tr>
<td>MCI Weighted Index</td>
<td>104.9</td>
<td>105.1</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Index</th>
<th>Forecast</th>
<th>Actual</th>
<th>Change (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodation</td>
<td>115.7</td>
<td>117.3</td>
<td>1.3%</td>
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<tr>
<td>CPI</td>
<td>104.6</td>
<td>105.1</td>
<td>0.5%</td>
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<tr>
<td>Consumables</td>
<td>104.7</td>
<td>104.6</td>
<td>-0.2%</td>
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<tr>
<td>Fuel</td>
<td>87.8</td>
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<tr>
<td>Labour</td>
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<tr>
<td>MCI Weighted Index</td>
<td>104.9</td>
<td>105.1</td>
<td>0.2%</td>
</tr>
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Table 5: Forecast & Actual MCI and Sub-Indices
Appendix A: OTCI and BRTT

This appendix provides information relating to the overall condition of track as well as the below-rail transit time in each rail system in the CQCN over FY2018.

Overall Track Condition Index (OTCI)

The OTCI provides a measure of quality of the network for each Coal System.

The OTCI provides a general indicator of track geometry variation over time. The index is calculated from data captured by track recording vehicles and is used by Aurizon Network to monitor trends in track condition.

An OTCI that is trending downwards is indicative of improving track quality. Conversely, an OTCI that is trending upwards may indicate that the track condition is deteriorating, or is being managed in a way that is ‘fit for purpose’ as determined by the Rail Infrastructure Manager.

The OTCI for all rail systems fell within the acceptable range during FY2018.

Below Rail Transit Time (BRTT)

BRTT provides an indicator of operational performance of each Coal System. The BRTT includes the following:

- Section Running Times;
- Delays from scheduled train path in the daily train plan that can be directly attributed to Aurizon Network but excludes:
  - Cancellations;
  - delays resulting from compliance with a passenger priority obligation; and
  - delays resulting from a force majeure event.
- Time taken in crossing other trains; and
- Delays due to operational constraints:
  - directly caused by the activities of Aurizon Network in maintaining the CQCN; or
  - due to a fault or deficiency in the CQCN provided such delays are not contributed to by a railway operator or force majeure events.

The BRTT for all coal systems was within the respective requirement during FY2018. This outcome is indicative of a well performing, fit for purpose network.
Blackwater System

Figure 18: Blackwater System OTCI

Figure 19: Blackwater System BRTT
Moura System

Figure 20: Moura System OTCI

Figure 21: Moura System BRRT
Goonyella System

Figure 22: Goonyella System OTCI

Figure 23: Goonyella System BRRTT
Newlands System

Figure 24: Newlands System (including GAPE) OTCI

Figure 25: Newlands System BRTT
Figure 26: Goonyella to Abbot Point Expansion BRRT