AECOM

Aurizon Network - Review of UT5
Opera ing Expenditure
Queensland Competition Authority
08-Sep-2017
Commercial-in-Confidence

Aurizon Network - Review of UT5 Operating Expenditure

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Client: Queensland Competition Authority

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08-Sep-2017

Job No.: 60533190

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Quality Information

Document	Aurizon Network - Review of UT5 Operating Expenditure
Ref	60533190
Date	08-Sep-2017
Prepared by	AECOM Project Team
Reviewed by	Mike Stoke

Revision History

Rev	Revision Date	Details	Authorised	
			Name/Position	Signature
Final Draft	18-Aug-2017	Final Draft	Mike Stoke Technical Director	
Final	08-Sep-2017	Final	Mike Stoke Technical Director	

Table of Contents

Tables

Figures

Executive Summary

Aurizon Network Pty Ltd ('Aurizon Network') is part of the Aurizon Group of Companies ('Aurizon Group'), which includes ASX-listed Aurizon Holdings Limited ('Aurizon Holdings') and all the entities it controls. Aurizon Network operates the below-rail network servicing coal mines in Central Queensland and these services are declared for third party access under the *Queensland Competition Authority Act 1997* (the QCA Act). Access to Aurizon Network's central Queensland coal network (CQCN) is provided under an access undertaking, developed by Aurizon Network and approved by the Queensland Competition Authority (QCA).

On 30 November 2016, Aurizon Network submitted a draft access undertaking ('2017 DAU') for the regulatory period from 1 July 2017 to 30 June 2021 (the UT5 period) for consideration by the QCA under Part 5 of the QCA Act. A critical aspect of the 2017 DAU is the maximum allowable revenue (MAR) used to derive reference tariffs for coal-carrying train services, of which operating expenditure is a key component.

AECOM was engaged by the QCA to undertake a review and provide advice and guidance to the QCA in considering what constitutes efficient allowances for Aurizon Network's system-wide and regional operating costs and corporate overheads over the UT5 period, using a 'base year – step – trend' approach. We undertook a desktop review of documents submitted to the QCA, and requested additional information through a request for information process (RFI process). We acknowledge that Aurizon Network has been responsive and helpful throughout this process. This document provides the findings and conclusions of that review.

While Aurizon Network proposed to use financial year 2014-15 (FY15) as its operating cost base year for forecasting, we recommend that financial year 2015-16 (FY16) is adopted as the base year. This is partly because FY16 is the most recent year with complete financial data, and partly because organisational changes that had been initiated earlier were completed by the beginning of that year. As a result, FY16 is considered more representative of future years, in terms of operating expenditure, than FY15. Based on this finding, all financial data presented in this report is expressed as FY16 dollars, unless otherwise stated.

The principal findings of our review include:

- There were a number of opportunities to recognise efficiencies and reduce system-wide and regional costs and corporate overheads in the FY16 base year. With these realised, our assessment of the efficient base year would involve a reduction to Aurizon Network's claimed cost of $4.93 million, which results in an efficient base year cost of $99.09 million.
- For the majority of functional areas, we found that the methodology used to allocate operating expenditure was a reasonable basis for developing forecasts that reflect efficient costs. We have, however, recommended that a number of allocation values be rejected.
- We recommend the acceptance of the majority of step-changes proposed by Aurizon Network for the UT5 period. Because FY16 has been recommended as the base year, a number of these step-changes have been incorporated fully or partially into the efficient base year costs.
- One key step-change which we have recommended be rejected is the impact of corporate office consolidation, which delivers benefits to the Aurizon Group but results in a cost increase to Aurizon Network. In our view it is not reasonable to penalise Aurizon Network's customers while delivering a cost reduction to Aurizon Group.
- We have proposed that further step-changes be incorporated to make UT5 operating expenditure reflective of efficient costs. This includes reductions based on the Aurizon Group's Transformation Program, which outlines a number of areas where cost savings are expected over the next few years.

We therefore recommend that the efficient operating cost base for the UT5 period be taken as $390.14 million in FY16 dollars for the Below Rail Services. A summary of these recommendations is provided at Table 1, and the mean annual costs by functional area is shown graphically in Figure 1, with corporate costs allocated to Aurizon Network shown in shades of green, and system-wide and regional costs shown in shades of blue.

Table 1 Summary of Recommended Operating Costs for UT5 (Below Rail) – System-wide and Regional Costs and Corporate Overheads ($FY16, millions)

$FY16, millon	Base Year	UT5				
Cost Category	FY16	FY18	FY19	FY20	FY21	Total
Efficient Base Year	**$99.09**	**$99.09**	**$99.09**	**$99.09**	**$99.09**	**$396.37**
Total Step Changes	**$0.00**	**-$2.24**	**-$1.92**	**-$1.39**	**-$0.68**	**-$6.22**
AECOM Recommended OPEX - Below Rail	**$99.09**	**$96.85**	**$97.17**	**$97.70**	**$98.41**	**$390.14**

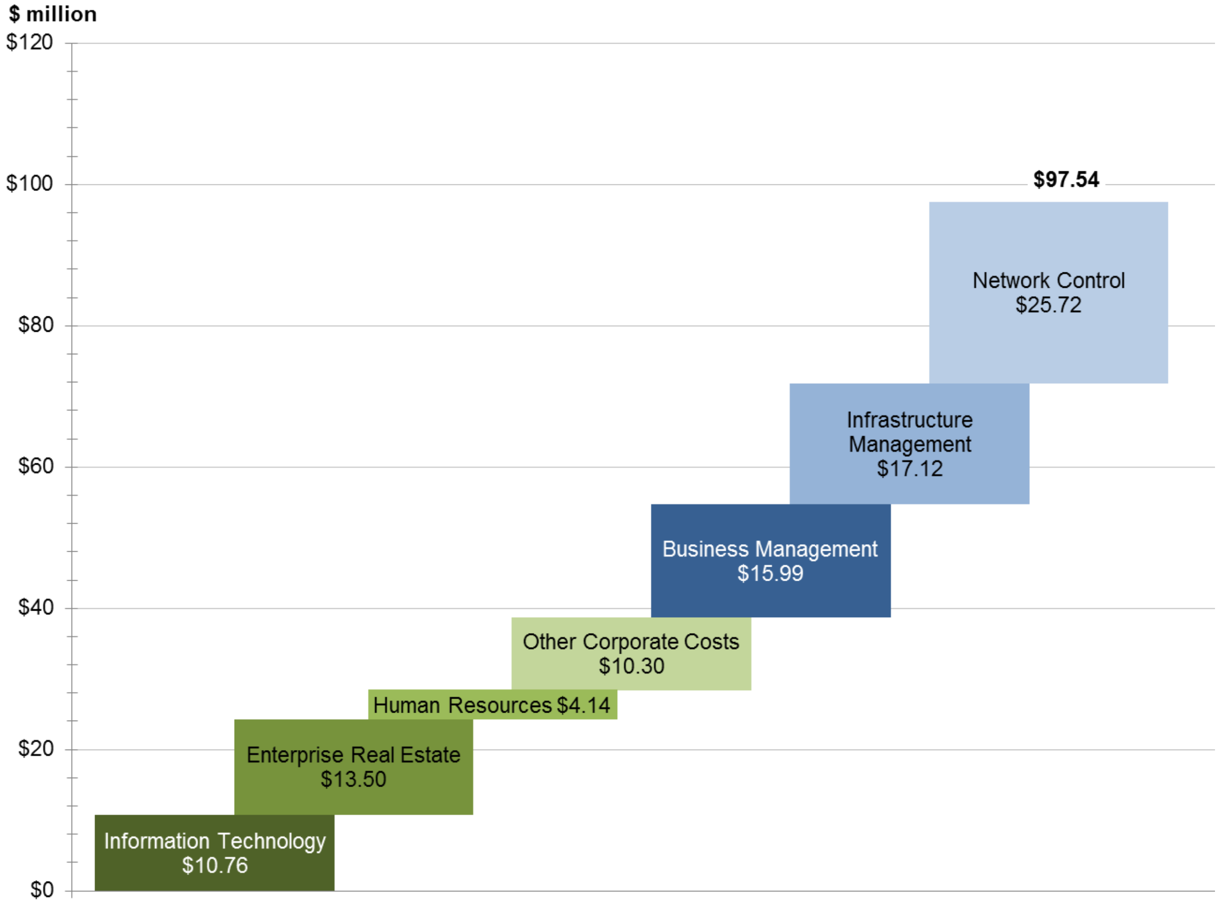


Figure 1 Mean annual recommended operating expenditure (below rail) by functional area ($FY16, millions)

This recommendation is a reduction from Aurizon Network's UT5 Operating Expenditure submission by $58.58 million during the period, involving reductions in:

- Allocated system-wide and operating costs by $24.09 million (from $259.44 million to $235.36 million in FY16 dollars).
- Allocated corporate overhead costs by $35.40 million (from $189.29 million to $154.79 million).

Section 7.2 outlines additional adjustments to the below rail recommended operating expenditure to reflect the portion of costs allocated to coal services on the below rail network.

1.0 Introduction

Aurizon Network Pty Ltd ('Aurizon Network') is part of the Aurizon Group of Companies ('Aurizon Group'), which includes ASX-listed Aurizon Holdings Limited ('Aurizon Holdings') and all the entities it controls.

Aurizon Network operates the below-rail network servicing coal mines in Central Queensland and these services are declared for third party access under the QCA Act. This network is known as the central Queensland coal network (CQCN). A map of Aurizon Network's CQCN rail network is provided at Figure 2.

Figure 2 Aurizon Network's Rail Network (Source: QCA)

Access to the CQCN is provided under an Access Undertaking, developed by Aurizon Network and approved by the QCA. The Access Undertaking provides a framework for the provision of access to Aurizon Network's CQCN rail network. Under the framework, Aurizon Network is responsible for providing, maintaining and managing access to, and operations on, its rail network and associated infrastructure.

On 30 November 2016, Aurizon Network submitted its 2017 DAU for the regulatory period from 1 July 2017 to 30 June 2021 (UT5 period), for the QCA's consideration under Part 5 of the QCA Act. A critical aspect of the 2017 DAU is the maximum allowable revenue (MAR) used to derive reference tariffs for coal-carrying train services. Operating expenditure is a key component of the equation used to derive the MAR.

AECOM was engaged by the QCA to undertake a review of and provide advice on efficient allowances for Aurizon Network's system-wide and regional costs and corporate overheads for the UT5 period.

1.1 The Purpose and Scope of the Review

Among other things, Section 138(2) of the QCA Act requires the QCA to form a view as to whether Aurizon Network's forecast operating costs are efficient.

AECOM was engaged by the QCA to review and estimate efficient allowances for Aurizon Network's system-wide and regional costs and corporate overheads over the UT5 period, to enable the QCA to determine Aurizon Network's MAR for the period. Costs associated with risk and insurance, and transmission and connection, are excluded from this review.

AECOM was required to make the following specific assessments:

Governance review:	An assessment of Aurizon Network's internal processes against a benchmark of industry best practice. This is provided as a separate report to the QCA, in draft form, to inform a potential detailed review of these matters in the future.
Methodology review:	A detailed review and assessment of Aurizon Network's operating cost allocation methodology, including assumptions, inputs and models, to determine whether Aurizon Network's allocation methodology is a reasonable basis for developing forecasts that reflect efficient costs.
Base-step-trend assessment:	Given that Aurizon Network's system-wide and regional costs and corporate overheads are made up of largely recurrent costs, historical costs may provide a good indicator of forecast efficient costs. Based on this idea, this assessment has involved the establishment of a Base Year of actual costs to which efficiency adjustments and accepted step-changes have been applied.

1.2 Aurizon Network's Operating Expenditure

Aurizon Network's proposed operating costs for the UT5 period amount to $855.4 million in total nominal dollars, of which $493.7 million are the subject of this review. These costs are spread across four key categories. An outline of the categories, their inclusions and the proposed cost breakdown is provided in Table 2. Aurizon Network's proposed UT5 operating expenditure for system-wide and regional costs, and corporate overheads, are derived using a base-step-trend approach, using FY15 as the base year.

Table 2 Aurizon Network's Proposed Operating Costs

Operating Expenditure Category	Sub-category	Total cost over UT5 period (nominal)	In scope
System-wide and regional costs	• Network control, safe working and operations • Infrastructure management • Business management	$289.9M	**YES**
Corporate overheads	• Board and CEO • Finance • Enterprise real estate • Human resources • Enterprise services	$203.8M	**YES**
	TOTAL UNDER REVIEW	**$493.7M**	
Costs associated with risk and insurance	• External insurance • Self-insurance	$37.3M	**NO**
Transmission and connection costs	• Transmission and connection charges	$324.3M	**NO**
	TOTAL PROPOSAL	**$855.3M**	

1.3 Report Structure

This structure of this report is outlined in Table 3.

Table 3 Report Structure

Main Report	
Executive Summary	Executive summary
Section 1	Introduction
Section 2	Assessment approach
Section 3	Methodologies
Section 4	The base year
Section 5	System-wide and Regional costs
Section 6	Corporate overheads
Section 7	Summary and recommendations
Appendices	
Appendix A	Summary of Requests for Information

1.4 Key Principles and Assumptions

Several principles were adopted for this review:

1.4.1 Efficient costs

In assessing the efficient operating costs of a monopoly, consideration is given to the type and level of costs that would be incurred by the entity if it were subject to competition. Competition forces are considered to drive controlled and efficient operating costs by adopting efficient practices and operating models. In assessing efficient costs, we have utilised our knowledge and experience to assess Aurizon Network's proposed operating expenditure against comparable organisations and referred to conclusions reached in reviews of the previous access undertakings (UT3 and UT4).

The corporate form and business operating model applied are commercial decisions for Aurizon Group, but the impact on Aurizon Network is subject to regulatory assessment and must reflect efficient costs. In terms of determining an efficient level of operating expenditure for Aurizon Network, the considerations are generally focused toward whether the operations are in the most efficient form that could practically and reasonably be adopted, and that activities that do not relate to providing access for coal-carrying train services on the CQCN are accurately accounted for.

Our assessment approach to efficient cost and structure is underpinned by a "reasonableness" methodology using the information made available. For this review, we interpret 'reasonable' to mean that:

- the operating costs are comparable to the costs of other relevant businesses (be generally reflective of efficient costs to the extent such organisations are exposed to competition).
- when the actual costs of Aurizon Network are analysed, the scope of activities and inputs is justifiable given the scale and nature of Aurizon Network's operations, with the activities and inputs being causally related to the declared service provided, and the expenditure on those activities and inputs not being excessive.

1.4.2 The concept of a stand-alone business

Aurizon Network is part of the vertically integrated Aurizon Holdings Limited. Among other things, the QCA Act requires a formed view on what constitutes the efficient operating costs for the declared service provided by Aurizon Network, not Aurizon Holdings' efficient costs.

This requires Aurizon Network to recover, via the access price, only those costs that are reasonably attributable to the provision of the declared service.

The 'stand-alone business' concept is a tool that can be used to assess whether access holders are paying the efficient operating costs that would be reasonably attributed to a 'stand-alone' business providing a similar service, to a similar customer composition and demand profile as that of Aurizon Network.

Given the vertically integrated nature of the Aurizon Group, comparison to a notional ‘stand-alone’ business provides an upper limit for costs incurred by the Aurizon Group that are allocated to Aurizon Network. Aurizon Network’s customers should expect to receive some economy of scale benefits from services such as Human Resources, Risk Management delivered by an integrated company.

1.4.3 Use of FY16 dollar denominated costs (rather than nominal costs)

Aurizon Network provided cost data and models in nominal form. Comparison of annual data is made more difficult if a variety of forms of indexation and varying escalation factors are in use, so to make an effective assessment of Aurizon Network’s cost projections all indexation has been removed and costs expressed in FY16 dollars ($FY16) representing our recommended base year. Unless otherwise noted, all figures, tables and charts included in this report are in $FY16.

After the base year was selected, all data was adjusted to represent constant dollars of that year. Data used from earlier years for comparison purposes has therefore been escalated to $FY16. Aurizon Network used WPI and CPI indices in its projections, and these have been removed for the purposes of this review. We have provided cost models to the QCA in $FY16, which provides the QCA with functionality to add indexation as necessary to present our findings in nominal form.

1.4.4 Development of an Independent Cost Model

The Terms of Reference required that AECOM develop an independent cost model of Aurizon Network’s efficient costs. The purpose of developing an independent cost model is to enable comment on the reasonableness and reliability of Aurizon’s cost models by identifying and examining any discrepancies between the models.

1.4.5 Cost Allocations

AECOM was tasked with identifying the efficient operating costs that are reasonably expected to be incurred for the stand-alone provision of Access for the Train Services for each year of the UT5 period. We note that the access undertaking relates to all Below Rail Services, which are *‘the activities required to supply the declared services contemplated by the QCA Act.’* Declared services, as defined by the QCA Act, are *‘the use of a coal system for providing transportation by rail,’* and do not specifically relate to coal related services. However, the 2017 DAU does not make non-coal Access subject to a reference tariff, and access charges are determined by alternative methods.

In order to estimate the efficient regulated operating expenditure for Aurizon Network over the UT5 period, we first identified those costs associated with the provision of Below Rail (regulated) services. Following this, we have provided a coal / non-coal split of the total Below Rail (regulated) costs for the QCA’s consideration, using a revenue-based allocator, except for Network Control Costs which have been allocated by coal/non-coal train kilometres.

2.0 Assessment Approach

To assess the efficient operating expenditure for Aurizon Network's UT5 period, we undertook a desktop review of documents submitted by Aurizon Network to the QCA, and requested additional information through a request for information process (RFI process). A summary of the RFIs issued is provided at Appendix A.

The methodology used for the review is summarised in Figure 3.

Figure 3 Methodology used for the review

The remainder of this report follows the Phases indicated in Figure 3 for System-wide and Regional Costs, and Corporate Overhead allocation.

3.0 Methodologies

3.1 Overview

The aim of the operating expenditure forecast is to estimate the efficient costs of operating Aurizon Network's below-rail network.

Efficient costs are defined in the 2017 Draft Access Undertaking as:

> *The cost for each year during the evaluation period that reflects the cost that would be reasonably expected to be incurred by a Railway Manager adopting efficient work practices in the provision of the Rail Infrastructure to the required service standard, having regard to any matters particular to the environment in which Aurizon Network operates, and including any transitional arrangements agreed between Aurizon Network and the QCA to reflect the transition from Aurizon Network's actual cost to that efficient cost.*[1]

Aurizon Network's methodology for forecasting direct operating costs is outlined in Figure 4.[2]

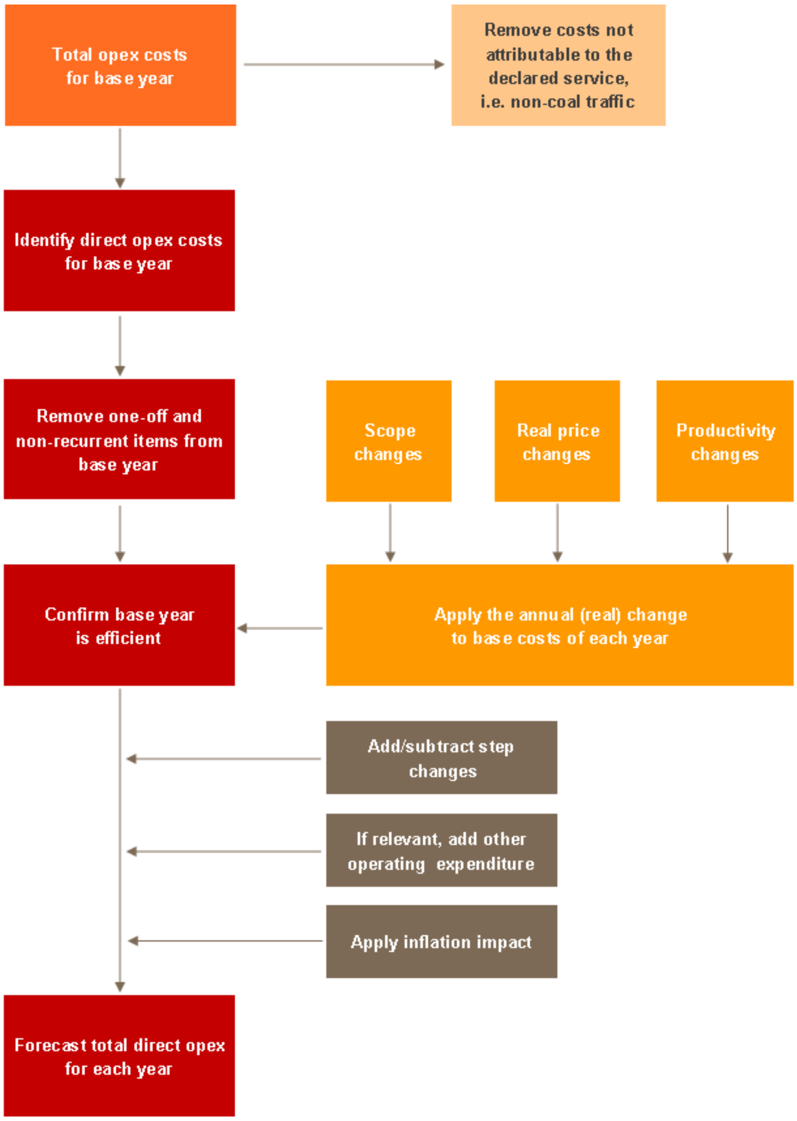


Figure 4 Aurizon's Efficient Direct Operating Costs Forecast Methodology

[1] Aurizon Network 2017 DAU, p. 282.
[2] Aurizon Network UT5 Submission, p. 203.

3.2 Allocation Methodology

There are two types of cost allocators used for UT5:

- **Network Cost Allocators**

  Aurizon Network has proposed a set of operating costs, not all of which are directly related to the provision of below-rail services. Cost allocators are used to identify the proportion of the cost base that is not considered applicable to the regulated activity and should therefore be removed from the UT5 MAR claim.

- **Aurizon Group Cost Allocators**

  A similar process has been used for Aurizon Group overhead costs to determine the proportion of these costs that should be recovered from the Network business. A set of cost drivers has been identified and a ratio developed for each driver, referred to as an 'allocator', and the ratio is used to derive the share of Aurizon Group costs that are considered to be reasonable to allocate to Aurizon Network.

We consider that the methodology used to allocate these costs is generally reasonable, with some specific exceptions regarding the values of the allocators themselves, as discussed in sections 5 and 6.

We review these allocators in detail in the rest of this section.

3.3 Expected Business Activity during UT5

Aurizon Network has not projected any significant development, growth or paradigm-change in its business activity from the UT4 to the UT5 period (refer to Table 4, which presents expectations in relation to the number of train paths and tonnage carried for the UT5 period). We note that:

- Forecast capital expenditure is expected to be predominantly for capital renewal projects;[3]
- Train paths contracted previously through UT3 and UT4 period are not expected to change;
- Volume growth (tonnage) is forecast by Aurizon Network to be minimal over the UT5 period, although it is noted that an independent assessment of forecast coal volumes commissioned by the QCA provided a more optimistic assessment of growth;[4]
- Operational control activity does not change (aside from efficiency gains noted by Aurizon);
- Infrastructure management activity does not change;
- There has been stability and consolidation of sites, activities, and functions; and
- Business management costs have been reduced.

Table 4 Aurizon Network's UT5 period forecasts – train paths and tonnage (coal)

	Actual		UT5 Period Forecast			
	FY16		FY18	FY19	FY20	FY21
Used Train paths	51,364		51,364	51,926	51,926	51,926
Available Train Paths	82,798		82,798	82,798	82,798	82,798
Tonnage (million)	225.9		225.9	228.4	228.4	228.4

In addition, a review of historical train kilometres across network reveals a relatively stable split between coal and non-coal use, as illustrated in Table 5.

[3] Aurizon Network UT5 Submission, Section 8, Capital Indicator p.138
[4] Assessment of coal volume forecasts for Aurizon network's 2017 DAU. Resource Management International, March 2017

Table 5 Aurizon Network's Historical Train Km – Coal and Non-Coal Split[5]

	FY12	FY13	FY14	FY15	FY16
Train km - coal	10,055,916	10,640,241	12,449,060	12,580,237	12,703,047
Coal %	**87%**	**88%**	**91%**	**89%**	**88%**
Train km – non-coal	1,513,168	1,393,009	1,262,678	1,626,600	1,699,679
Non-coal %	**13%**	**12%**	**9%**	**11%**	**12%**

A change in business activity would typically be expected to drive some change in operating costs. The independent assessment obtained by the QCA[6] concludes that coal volumes may increase, but does not make comment on forecast train paths, which we consider to be a more relevant driver of operating costs. While it is possible that train paths (and subsequently train kilometres) will increase with the increase in coal volumes, we note that non-coal train kilometres have also increased in recent years, and therefore, based on the information available to us, we conclude that there is no basis for an increase in operating expenditure costs in response to these higher projected coal volumes.

3.3.1 Revenue

Aurizon Network's UT5 Submission provides a summary of system-wide and regional cost allocations by functional area. On a number of occasions, Aurizon Network has excluded a percentage of its forecast operating expenditure from the MAR. Aurizon Network notes that:

'*a portion of Aurizon Network's annual revenue is earned from non-regulated activities, which supplement the revenue recovered through regulated reference tariffs. In recognition of this Aurizon Network has excluded a portion of its forecast operating expenditures when calculating its regulated revenue allowance and reference tariffs. In its final decision on the UT4, the QCA approved a 10% allocation for FY17, representing the proportion of non-regulated revenue to total revenue. Aurizon Network has applied a 10% deduction consistently across all years of the UT5 regulatory period*,'[7]

Aurizon Network has applied this deduction to a number of functional areas, including CQCN Commercial; Commercial Development and Governance; Planning and Development; and Legal.

In Table 6, we have assessed the proportion of Aurizon Network's annual revenue associated with below rail services over the past three financial years, and further the percentage of the below rail revenue which is related to coal. This is largely consistent with Aurizon Network's proposed allocation rate of 90%.

Table 6 Aurizon Network's Revenue – Below Rail v other services, coal v non-coal ($'000s)

Aurizon Network Revenue	FY14	FY15	FY16
Total Below Rail Revenue[8]	879,346	972,964	1,066,087
Total Aurizon Network revenue [9]	1,102,200	1,108,000	1,179,000
Below Rail revenue percentage	**87%**	**88%**	**90%**

[5] Aurizon Network Historical Metrics FY12-FY16 (with TKM)
[6] Confidential Draft Report – Assessment of Coal Volumes for Aurizon Network's 2017 DAU
[7] Aurizon Network UT5 Operating Expenditure Submission
[8] Aurizon Network Below Rail Financial Reports
[9] Aurizon Network Financial Reports

Of Below Rail revenue[10]	FY14	FY15	FY16
Coal – access revenue	815,963	918,217	1,010,513
Other – access revenue	11,742	12,375	9,965
Electric traction charges (predominantly coal)	50,219	39,588	45,179
Other	1,422	2,784	430
Total Below Rail revenue	**879,346**	**972,964**	**1,066,087**
Coal-related revenue percentage	**99%**	**99%**	**99%**

3.4 Aurizon Network's Changes from UT4 Approved Operating Expenditure

Aurizon Network has projected a real reduction in operating expenditure from the UT4 period to UT5 from $806.5 million to $797.5 million in FY15 dollars. The projected changes by category are summarised in FY15 dollars in Figure 5.[11]

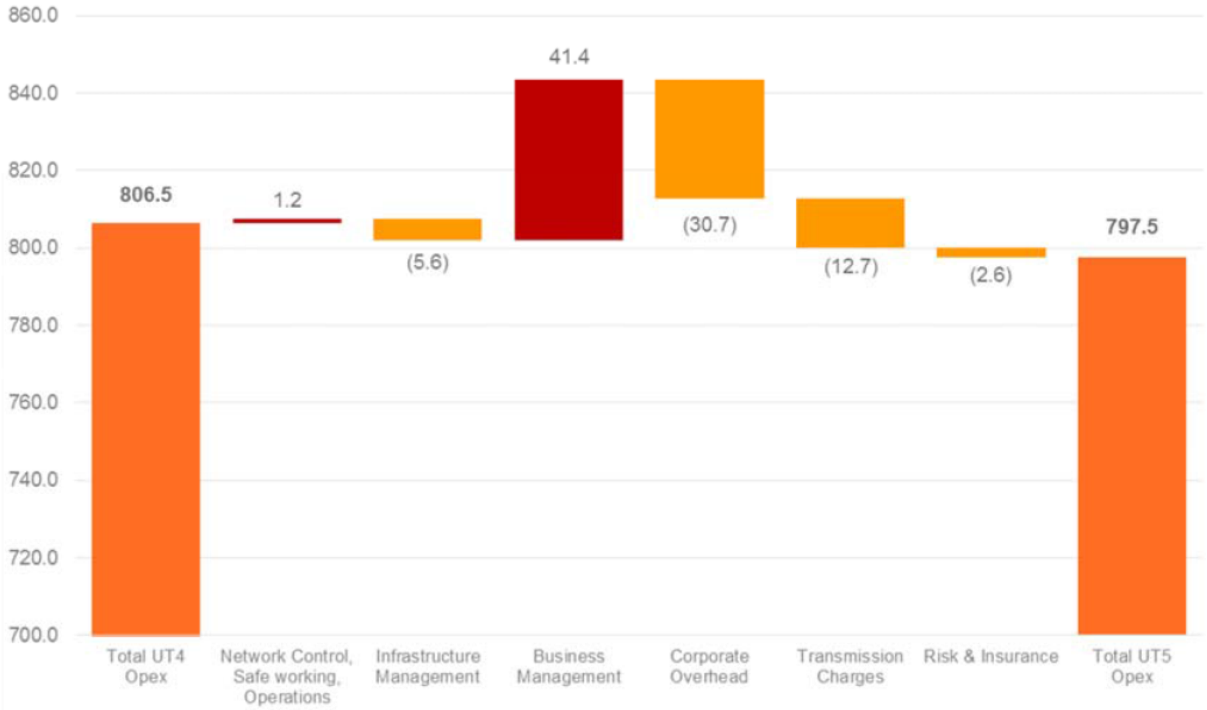


Figure 5 Operating Costs – UT4 to UT5 by Category

These changes reflect a number of proposed changes to the allocation methodology, rather than a significant change in business activity. Key changes include two distinct function transitions which have been incorporated into the UT5 submission:

- A Finance function transitioned from corporate overheads to Aurizon Network direct cost (allocated at 100%); and
- A Legal function transitioned from corporate overheads to Aurizon Network direct cost (allocated at 90%).

10 Aurizon Network Below Rail Financial Reports
11 Aurizon Network 2017 DAU Submission

Both of these changes result in a proposed increase in Business Management costs and a decrease in corporate overheads.

Other notable function/activity changes include:

- Network Train Operations coal traffic allocation increased from 91% to 98%;
- Network Regulation allocation increased from 90% to 100%;
- Major Projects allocation increased from 0% to 50%;
- Real Estate transitions and consolidations;
- Additional FTEs proposed for regulatory reporting and Permanent Way management.

We assess these in the following sections of this report.

4.0 The Base Year

In order to establish an efficient level of recurring operating expenditure, Aurizon Network's forecast costs are developed in reference to a 'base year.' In its UT5 submission, Aurizon Network used FY15 as its base year, upon which various adjustments and step-changes were applied in order to arrive at their total operating expenditure forecast for the UT5 period.

We were required to develop our own estimate of Aurizon Network's efficient costs. While Aurizon Network has based its forecast on the FY15 base-year, the QCA's requirement in the Terms of Reference to consider the 'most recent year of available data' has led us to select FY16 as the most appropriate base year, for a number of reasons:

- The FY16 cost model has been completed and made available, and can therefore be considered the most recent period of complete available data.
- It is our view that FY16 better reflects actual costs as the cost base accounts for cost savings identified from FY15, and all other changes.
- There were several non-recurring cost changes proposed for the FY16 year in the original submission. These have now been implemented and their impact is reflected in the actual FY16 cost model (refer to Figure 6, which presents the operating costs *before allocation*).

[redacted]

Figure 6 Base Operating Costs for Aurizon Network (in $FY16 dollars, before allocation)

- It is recognised that cost savings have been identified from FY15 to FY16, demonstrated by the significant decline in other Aurizon Group activity, including a reduction in real operating costs from FY15 to FY16 (Figure 6).This indicates that FY16 is a more 'efficient' year, as it factors in these Aurizon Group cost reductions. It is our view that FY16 better reflects actual costs as the cost base accounts for these cost savings identified from FY15, and all other changes. Using FY16 would avoid having to apply negative step changes from FY15.
- As noted in Section 3.3, we have not been made aware of any material changes to Aurizon Network in terms of used and available train paths across the UT4 and UT5 period. There are no Aurizon Network-related business activity reasons to prefer one year over another, since business activity in real terms has not changed between FY15 and FY16. Given that FY16 represents the year of the most current, complete available data, we believe it to be the year most representative of future years' cost.

5.0 System-wide and Regional costs

5.1 Cost Allocation Methodology

Table 7 outlines Aurizon Network's proposed system-wide and regional costs allocators for UT5, As demonstrated, the majority of Aurizon Network's operating costs are dedicated to the provision of below-rail services, and are therefore 100% allocated to the MAR.

For the areas where Aurizon Network considers that there are costs incurred for activities not associated with below-rail services, an allocator of less than 100% is proposed. Aurizon Network submitted that its proposed allocators are largely consistent with those adopted in UT4, however there are changes proposed to the allocator in four areas – Network Train Operations, Major Projects, Network Finance and Network Regulation. In addition, Aurizon Network proposes a shift in allocation from corporate overheads to the Business Management area of system-wide and regional costs for two functional areas – Network Finance and Network Legal.

We have reviewed the reasoning provided by Aurizon Network for each suggested change, noting that all the allocators are largely consistent with those it stated were applied in UT4, and noting the expectation that business activity in the UT5 period is expected to remain consistent with that of the UT4 period. Nonetheless, we have considered each of these matters afresh based on the information available to us. Our conclusion and recommendation in each case is included in the sections following.

Table 7 Aurizon Network's proposed Cost Allocators

Functional Area	Allocator		Area	Consistent with UT4?	Ref#
	UT4	UT5			
EVP Network	Nil	Nil	Key Management Personnel	Yes	
Network Train Operations	91%	98%	Network Control, Safe working and Operations	No, seeking decrease in non-coal allocation	5.1.6
Planning and Engagement	100%	100%	Network Control, Safe working and Operations	Yes	
Network Assets	100%	100%	Infrastructure Management	Yes	
CQCN Commercial	90%	90%	Business Management	Yes	5.1.1
Commercial Development and Governance	90%	90%	Business Management	Yes	5.1.1
Planning and Development	90%	90%	Business Management	Yes	5.1.1
Major Projects	Nil	50%	Business Management	No, increase in allocation	5.1.4
Finance	90%	100%	Business Management	No, previously Corporate Overhead, and increase in allocation	5.1.1, 5.1.2
Legal	90%	90%	Business Management	No, previously Corporate Overhead	5.1.1, 5.1.3
Network Operations Management	100%	100%	Business Management	Yes	
Infrastructure	Nil	Nil	Business Management	Yes	
Regulation	90%	100%	Business Management	No, increase in allocation	5.1.5

5.1.1 Regulated Allocation

There are a number of functional areas which Aurizon Network proposed to allocate 90% of expenditure to the MAR. Aurizon Network submitted that this is based on the proportion of revenue which is associated with provision of below-rail services, which Aurizon Network said was approved by the QCA for the UT4 period. These functional areas are:

- CQCN Commercial;
- Commercial Development and Governance;
- Planning and Development;
- Network Legal.

We agree with using below-rail revenue as an appropriate allocator of costs for these areas. Estimates of annual revenue earned from below-rail services and other activities over the past three years, based on Aurizon Network Financial Reports and Below Rail Financial Reports, are provided in Section 3.3.1. The proportion of revenue associated with regulated activities has been increasing by approximately 1% year on year, with FY16 below rail revenue accounting for 90% of all Aurizon Network revenue. We therefore consider Aurizon Network's proposed allocation of 90% of Business Management functions to below rail services to be reasonable.

5.1.2 Business Management: Network Finance allocation

Functional Area	Business Management
Name	Network Finance allocation
Description	Finance is responsible for billing, budgets, forecasting and preparing financial and statutory reports for Aurizon Network.
Proposed Change	Increase cost allocation to 100%, and shift allocation from Corporate Overhead to Business Management.
Recommendation	**Partially Accept** - Accept shift to Business Management - Reject 100% allocation. Allocate costs at 90%, which is consistent with other business management function areas.
Rationale	We understand from Aurizon Network's submission that the Network Finance function is now part of the Aurizon Network entity, and is independent of the finance function of Aurizon Group. It is therefore reasonable in principle that Network Finance costs be treated as direct costs of Aurizon Network, and we consider the shift from corporate overheads to business management an acceptable change for the UT5 period. In UT4, Aurizon Network allocated 90% of these costs to the MAR. Aurizon Network now proposes to allocate 100% of Network Finance costs to the MAR. The reason given for this is that Network Finance costs attributed to non-regulated revenue would be off-set by the costs of the Group Accounting, Planning and Reporting team within Group Finance, which were not included in Aurizon Network's submission. It is clear from Aurizon Network's submission that there is an overlap between the functions of Network Finance (p. 342) and those of Group Accounting, Planning and Reporting (Appendix R.6, p. 346), so we consider it reasonable that the costs for the latter are not included in the operating expenditure for UT5. However, in our view it is not reasonable that 100% of Network Finance costs be allocated to the MAR, because Aurizon Network's submission indicates that the functions of Network Finance are not specifically limited to below rail services. Page 342 of the UT5 Submission indicates that the team is responsible for a number of financial functions across the whole Aurizon Network business. As Aurizon Network's costing manual outlines, the *'costs of Finance, Regulation*

	and Commercial by their nature predominantly relate to Below Rail Services. As timesheets are not kept to record time spent on various activities, an allocation to Other Services will be made based on % of revenue for Other Services compared to revenue for Below Rail Services.' We agree with this approach, and it is our recommendation that, consistent with the Network Legal allocation, 90% of Network Finance costs are allocated to the MAR. This allocation is consistent with the proportion of below rail revenue to total Aurizon Network revenue, as outlined in Section 3.3.1.
Reviewed	• Aurizon Network UT5 Operating Expenditure Submission • Aurizon Network Financial Reports FY15, FY16, FY17 • Aurizon Group Financial Reports FY15, FY16, FY17 • Aurizon Network Below Rail Financial Reports • Aurizon Group FY17 Investor Presentation

5.1.3 Business Management: Network Legal allocation

Functional Area	Business Management
Name	Network Legal allocation
Description	The primary role of the Network Legal team is to ensure that Aurizon Network complies with its legislative and contractual obligations, and manages legal risk appropriately.
Proposed Change	Shift allocation from Corporate Overhead to Business Management. According to the Aurizon Network submission, Network Legal is part of the Aurizon Network legal entity and independent of the Aurizon Holdings Limited legal function.
Recommendation	**Accept**
Rationale	Given that the Network Legal team is a part of the Aurizon Network legal entity, a direct cost method is considered appropriate based upon the 90% cost allocation transferred to Business Management and removed from Corporate Overhead. We have examined Aurizon Network's models and confirm that this cost has been transferred from Corporate Overheads to Business Management as stated in Aurizon Network's submission, and there has been no double counting of this cost. It is therefore reasonable that Network Legal costs are treated as direct costs of Aurizon Network, and the shift from corporate overheads to Business Management is a reasonable change for the UT5 period.
Reviewed	• Aurizon Network UT5 Operating Expenditure Submission • Aurizon Network Cost Models • Aurizon Network RFI Responses

5.1.4 Business Management: Major Projects allocation

Functional Area	Business Management
Name	Major Projects allocation
Description	The Major Projects team is part of the Aurizon Network Commercial team. The team's role includes the implementation of regulatory processes, for example, the Standard User Funding Agreement (SUFA); and liaising with and coordinating services for strategic growth projects.

Proposed Change	Inclusion of a 50% allocation of the Major Projects team costs, representing the work undertaken on regulated activities – Network prospective growth projects. This claim is due to the team's ongoing involvement in regulatory processes (such as the SUFA development).
Recommendation	**Accept**
Rationale	Based on a review of the Aurizon Network staff lists and the position description for the 'Senior Commercial Advisor – Major Projects', it is our understanding that the Network Major Projects cost centre involves two full time employees – a principal commercial advisor, and a senior commercial advisor. According to the position description, the fundamental responsibility of these staff members is to 'manage the development of commercial proposals in response to customer requests for Access.' In addition, the UT5 Submission indicates that the Major Projects team is involved in the development of SUFA. Given that their roles are specifically related to the provision of Access, it is our view therefore that an allocation of the Major Projects costs to operating expenditure is reasonable. However, it would be unreasonable to allocate all Major Project costs to operating expenditure, as we note that some costs for the Major Projects team may be capitalised, given their involvement in capital project development. In accordance with the Aurizon Group cost capitalisation policy, project costs should be mostly considered operating expenditure in the concept and pre-feasibility stage. We consider that the 50% cost allocation to operating expenditure, as proposed, is reasonable.
Reviewed	• Aurizon Network RFI Responses • Aurizon Network UT5 Operating Expenditure Submission

5.1.5 Business Management: Network Regulation allocation

Functional Area	Business Management
Name	Network Regulation allocation
Description	Aurizon Network's access undertaking applies to all below-rail services. Aurizon Network incurs costs to manage and ensure compliance with the regulatory framework. Activities undertaken within the Network Regulation function include development of Access Undertakings and Reference Tariffs, compliance, consideration of regulatory policy, preparation of submission material and regulatory reporting.
Proposed Change	Increase cost allocation from 90% to 100%
Recommendation	**Accept**
Rationale	Aurizon Network notes that the Network Regulation team is '*concerned solely with the regulated below-rail network…and are not expected to undertake any activities not related to the regulated below rail network during the UT5 regulatory period*.'[12] Given that the Network Regulation function is wholly concerned with the regulated business, AECOM considers it is reasonable to allocate 100% of regulation costs to below rail services, based on the information before us.
Reviewed	• Aurizon Network UT5 Operating Expenditure Submission

[12] Aurizon Network UT5 Operating Expenditure Submission

5.1.6 Network Control, Safe Working and Operations: Network Train Operations

Functional Area	Network Control, Safe Working and Operations
Name	Network Train Operations
Description	Network Train Operations are responsible for day of operations activities, including execution of scheduled train services and asset activity (yards/maintenance) and coordination of emergency response and recovery efforts where applicable. According to Aurizon Network's submission, network controllers are also responsible for coordinating the movement of non-coal (freight and passenger) services within the CQCN. This is incorporated into the existing workload of network controllers, that is, no dedicated resources are required to facilitate non-coal services, and if they ceased to operate, no cost savings would be realised. Historically, Aurizon Network has allocated a portion of Network Control Centre costs to the non-coal services.
Proposed Change	Increase regulated cost allocation from 91% to 98%; representing a non-coal cost allocation of 2% (previously 9%)
Recommendation	**Reject Change** Allocate 100% of costs to Below Rail Services Adjust coal allocation to 88% based on Train km, as provided in Summary Section 7.2.1.
Rationale	The Network Train Operations area is directly related to providing Below Rail Services. Therefore we consider an allocation of 100% of these costs to the Below Rail business to be reasonable. We note that network controllers are responsible for non-coal traffic on the CQCN network. As outlined in Section 1.4.5, we have allocated costs first according to below rail and other services. Following these, we have provided a coal/non-coal allocation of these below rail costs. Aurizon Network's primary rationale for the increase in coal-related allocation for Network Control is based on an alternate approach in determining the allocator, that is, gross tonne kilometres (GTK) as opposed to train kilometres. We agree with the QCA's UT4 decision[13] that train control costs are a function of number of trains and distance travelled, i.e. train kilometres, and not of the tonnage moved. This allocation method is also consistent with that used by the ARTC, which notes that '*train kilometres are considered the most appropriate causal allocator, as network controllers interact with trains as they travel across territory covered by the control board*.'[14] A review of historical train kilometres on the CQCN reveals a relatively stable split between coal and non-coal services of approximately 88% and 12% respectively in FY16, as demonstrated in Table 5 at Section 3.3. Furthermore, from the analysis of business activity in Section 3.3, there is no fundamental change in train paths from the UT4 period and forecast across the UT5 period. Therefore it is our view that the designation of 88% for coal related activities is appropriate and reasonable.
Reviewed	• Aurizon Network UT5 Operating Expenditure Submission • QCA – UT4 Operating Expenditure Decision • Hunter Valley Coal Network Access Undertaking Costing Manual July 2016, ARTC • Aurizon Network RFI responses

[13] QCA – UT4 Operating Expenditure Decision
[14] Hunter Valley Coal Network Access Undertaking Costing Manual July 2016

5.1.7 Summary of Recommended Allocations

Our recommended allocations are provided in Table 8. The recommended changes in allocations are captured as changes to the base year in the following section.

Table 8 Recommended allocations

Functional Area	UT4 Allocation	UT5 Proposed Allocation	UT5 Recommended Allocation	UT5 Recommended Area
EVP Network	Nil	Nil	**Nil**	**-**
Network Train Operations	91%	98%	**100%***	Network Control, Safe working and Operations
Planning and Engagement	100%	100%	**100%**	Network Control, Safe working and Operations
Network Assets	100%	100%	**100%**	Infrastructure Management
CQCN Commercial	90%	90%	**90%**	Business Management
Commercial Development and Governance	90%	90%	**90%**	Business Management
Planning and Development	90%	90%	**90%**	Business Management
Major Projects	Nil	50%	**50%**	Business Management
Finance	90%	100%	**90%**	Business Management
Legal	90%	90%	**90%**	Business Management
Network Operations Managements	100%	100%	**100%**	Business Management
Infrastructure	Nil	Nil	**Nil**	Business Management
Regulation	90%	100%	**100%**	Business Management

*All Network Train Operations associated with operation of the below rail network. The coal/non-coal allocation is provided in Summary Section 7.2.1.

5.2 Efficient Costs in the FY16 Base Year

We have undertaken a detailed review of Aurizon Network's system-wide and regional operating expenditure cost base as presented in their FY16 cost model. Aurizon Network's actual system-wide and regional costs (allocated according to Aurizon Networks proposed UT5 allocations) for FY16 were $58.1M.

In order to achieve an efficient base year, adjustments to the base year are made for identified inefficiencies, non-recurrent costs and non-regulatory cost impacts. While we have not identified any efficiency adjustments to the FY16 year, an adjustment to the base year has been made based on the recommended changes to allocation in the previous section, as noted in Table 9.

Table 9 Efficiency adjustments to the FY16 Base Year - System-wide and Regional Costs

Efficiency Adjustment	Description and Rationale	Impact on Base Year ($FY16, millions)
Allocation Adjustment	Adjustment to actual base year costs due to changes in allocation as recommended in Section 5.1.	-0.19
	Total Adjustments to Base Year	**-0.19**

The assessed, allocated efficient cost base for the FY16 Base Year based on this analysis, incorporating the adjustment made in Table 9, is $57.9M, as indicated in Table 10 and Figure 7. Note that actual costs are allocated according to Aurizon Network's proposed UT5 allocations, and adjustments have been made to reflect AECOM's suggested allocations. Table 10 includes 100 per cent of Aurizon Network's proposed Network Control costs. A separate recommended non-coal deduction to apply to Network Train Operations costs is presented in Section 7.2.1, based on our recommended allocator.

Table 10 Adjusted Base Year Costs FY16 (Allocated) – System-wide and Regional Costs ($FY16, millions)

Cost Category ($FY16)	Total Cost	Below Rail Services	Other Services
Aurizon Network (Actual Costs)	**$59.55**	**$58.13**	**$1.42**
Business Management	$17.49	$16.38	$1.11
Infrastructure Management	$17.12	$17.12	$0.00
Network Control	$24.93	$24.63	$0.31
AECOM Allocator Adjustments			
Business Management		-$0.49	$0.49
Infrastructure Management		$0.00	$0.00
Network Control		$0.31	-$0.31
Total Allocator Adjustments		**-$0.19**	**$0.19**
2016 Efficient Base Year	**$59.55**	**$57.94**	**$1.60**

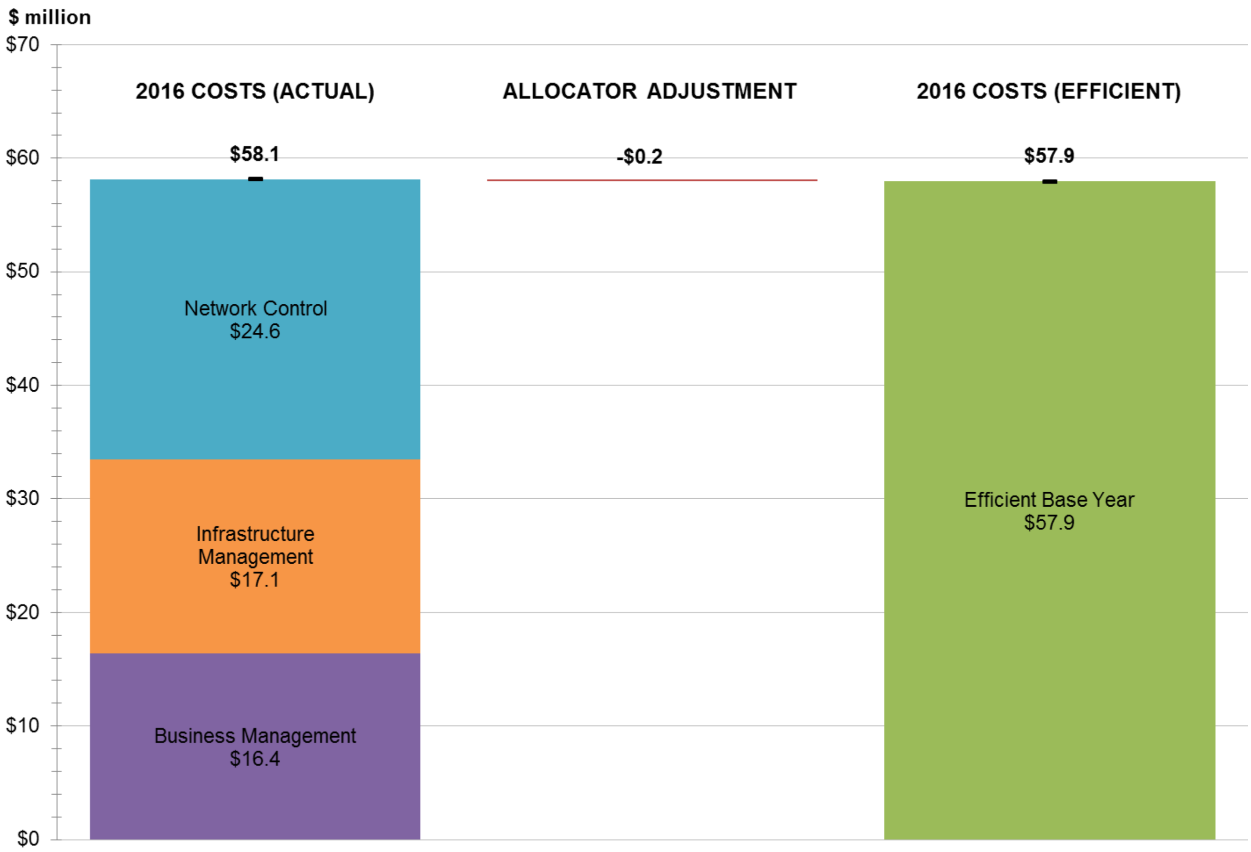


Figure 7 Adjusted Base Year Costs FY16 (Allocated) – System-wide and Regional Costs ($FY16, millions)

5.3 Incremental Assessment

Aurizon Network has proposed several step-changes to system-wide and regional operating expenditure for the UT5 period, as demonstrated in Figure 8. We have assessed these proposed step-changes in the sections following, and indicated our conclusion for each step-change and accompanying rationale. The recommendations are colour-coded for convenience.

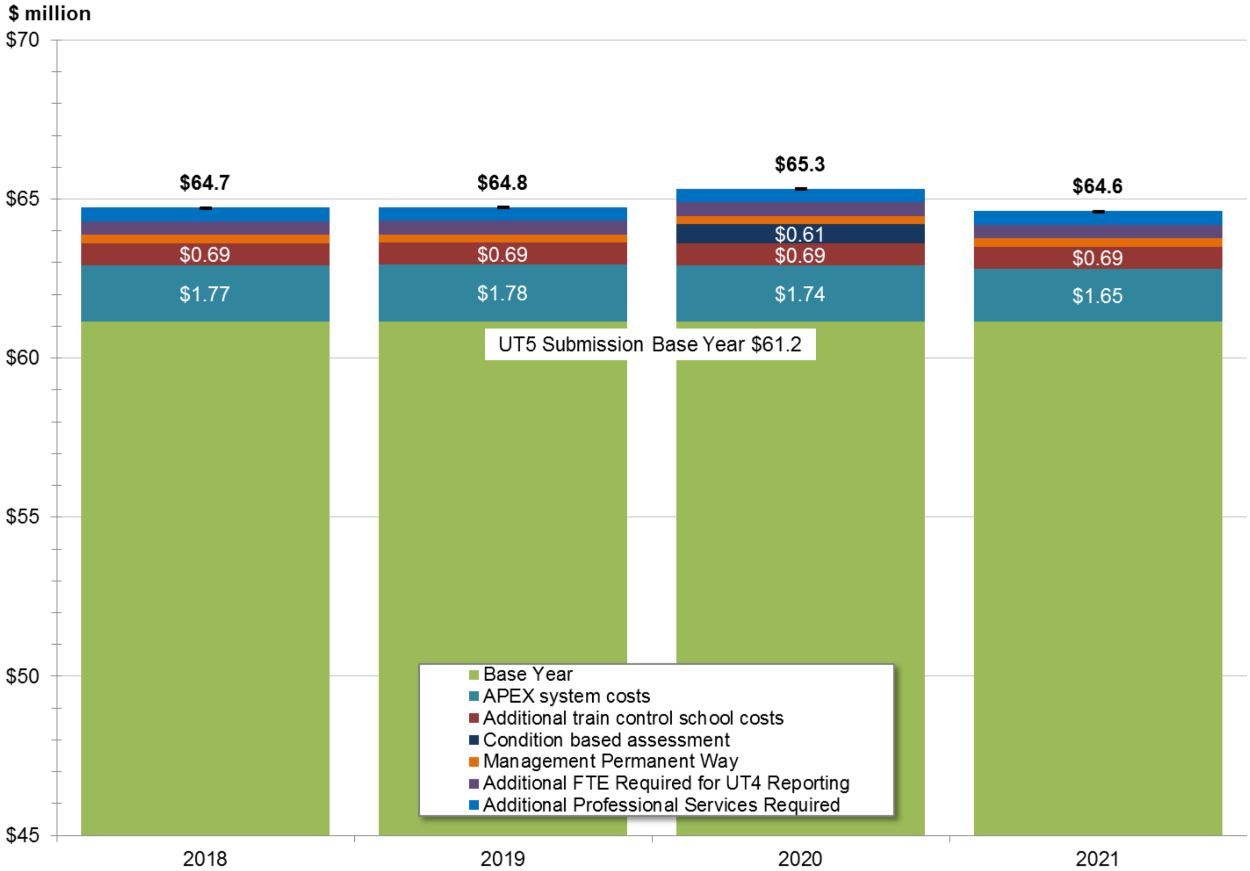


Figure 8 Aurizon Network Submission – System-wide and Regional Costs for the UT5 period ($FY16, millions)

Aurizon Network has used FY15 as its Base Year in forecasting its UT5 operating expenditure. As we have used FY16, it is noted that some of Aurizon Network's proposed changes have already been implemented in FY16, and therefore the costs have been fully or partially incorporated into FY16 costs. As a result, it is likely that accepted step-changes to the FY16 base year may be nil (in the case of them being fully captured in FY16) or a portion of the value proposed (in the case of them being partially captured in FY16), across the UT5 period. In each case, this has been noted for clarity.

5.3.1 Step Change: Condition Based Assessment

Name	Condition Based Assessment
Value Proposed	$0.61M in FY20
Description	Aurizon Network's Proposal includes a forecast of costs expected to be incurred to carry out the condition-based assessment as required by the policy obligations within the Access Undertaking. These are incorporated into the Business Management cost proposal.

Recommendation	**Partially Accept** • Accept allowance for Condition Based Assessment, which has not been included in the FY16 base year • Propose an adjusted value of $0.42M
Rationale	The 2016 Access Undertaking indicates that a Condition Based Assessment of rail infrastructure must be procured '*no later than 31 March 2017*,' and *'if the Term is extended beyond four years, at the QCA's request.*' A Condition Based Assessment of the CQCN, based on FY16 data, was undertaken by Advisian and delivered in final form on 5 May 2017. It is understood that the previous Condition Based Assessment was undertaken, also by Advisian (then Evans & Peck), in FY13 for FY12 data, and that another assessment is to be expected during the UT5 period. Aurizon Network's proposed costs for Condition Based Assessment in FY20 are based on the actual cost of the exercise in FY13 escalated to FY20 dollars. An allowance for complying with the Condition Based Assessment requirement of the Access Undertaking is considered reasonable. However, we consider the estimated cost should be substituted with more recent actual costs, which are likely to be a better reflection of future efficient costs. We sought details of the cost of the more recent, FY17 assessment from Aurizon Network. Total costs for the FY17 Condition Based Assessment were $429,959. De-escalated to FY16 dollars, this value is $419,472. It is our view that the FY17 cost is more recent and therefore more representative of future costs, and therefore we consider that a reduction in the proposed expenditure from $0.61M to 0.42M is reasonable. We also understand that, in the event that the actual cost of the Condition Based Assessment differs from the allowance provided through the MAR, then Aurizon Network is able to claim the difference in cost through a revenue adjustment.[15] The expenditure is not included within the FY16 base year and is appropriate to be included as a step-change item in FY20.
Accepted Value	$0.42M in FY20
Reviewed	• 2016 Access Undertaking • Condition Based Assessment CQCN FY16, Advisian • Aurizon Network RFI responses • Aurizon Network cost models

5.3.2 Step Change: Network Control School

Name	Network Control School
Value Proposed	$0.74M p.a.
Description	Aurizon Network's Proposal seeks an additional allowance for the annual 'Network Control School' training program for network controllers. This course is a six month program which follows a recruitment and selection process of approximately 10 applicants per year. The course includes: • Enterprise induction • Safe work standards training • Addition training • Rotation through planning and PMO roles • Control board mentoring.
Recommendation	**Accept**

[15] Aurizon Network 2017 DAU, Schedule F, clause 4.3(c)(v)

	The actual cost of Network Control School in FY16 was $0.65M. This amount is therefore already accounted for in the FY16 base year. As such, the proportion of costs exceeding $0.65M is accepted (If FY15 was used as the base year, the full step-change would be relevant).
Rationale	The Business Case for funding the Network Control School highlights an expected shortage of an average of 10 FTEs per year in BAU requirements for the Network Control function, over the UT5 period. This school is seen as necessary for ensuring that network control capability is maintained across the short and longer term, and to reduce risk to critical services. According to the Aurizon Network UT5 Submission, 99% of school costs relate to labour costs of trainees and the two existing Aurizon Network Control employees who conduct the training. We consider this step change to be reasonable, noting that Aurizon Network may experience critical shortages resulting in an inability to perform BAU activities. As FY16 is being recommended as the base year, most of the Network Control School costs are already accounted for. As such, the step-change should not reflect the full amount proposed by Aurizon Network, but only that additional to what was accounted for in the base year.
Value Accepted	$0.65M has already been incorporated into the base year of a total proposed cost of $0.75M, therefore the step-change applied to the base year is $0.10M (allocated).
Reviewed	• Trainee Network Controller School – Business Case – FINAL • Aurizon Network RFI responses • Aurizon Network cost models

5.3.3 Step Change: APEX System Costs

Name	APEX System Costs
Value Proposed	FY18: $1.77M; FY19: $1.78M; FY20: $1.74M; FY21: $1.65M
Description	Aurizon Network's Advanced Planning and Execution (APEX) tool is a software solution to support faster and more responsive planning and scheduling of trains. Improvements are being rolled out over multiple phases: *Phase 1 (12 months) – Advanced Planning and Scheduling (APS):* • Planning and scheduling optimisation and decision support capability from two year planning horizon to day of operations execution and recovery • ViziRail utilised for day of operations monitoring purposes, on time performance and incident recording • Continuation of existing integration with access holder IT systems and the SAP network billing solution. *Phase 2 (18 months) – Movement Planner (Foundation)* • Deployment of Movement Planner Phase 1 (real time electronic graph) for day of operations execution • Integration of APS and Movement Planner for seamless planning and execution with a feedback loop from day of operations back into planning • Decommissioning of ViziRail and NOPP • Integration development to switch over new systems to existing customer systems, including SAP billing solutions. *Phase 3 (36 months) – APS+ Movement Planner (Optimisation)* • Deployment of Movement Planner Optimisation which will deliver automated conflict detection and resolution within the day of operations.

In 2013 the program delivery schedule was re-sequenced to bring forward Phase 2, followed by Phase 1 and Phase 3. Integration with APS will occur in conjunction with Phase 1.

Recommendation

Partially Accept

Implementation of the program is delayed from the original Investment Approval Request milestone dates, and Aurizon Network advises that only Phase 2 had been delivered as at the end of the FY15-16 financial year. The completion of the program is now forecast to be FY20. Accordingly, the support and maintenance costs schedule is now different to the original UT5 submission.

FY18	Nil	$0
FY19	Support for phases 1 & 2	$0.44M ($FY16)
FY20	Support for phase 3	$0.60M ($FY16)
FY21	Post implementation support	$1.73M ($FY16)

The APEX tool is a major capital project. Costs proposed include operating expenditure for ongoing support from the consultant. The capital and operating expenditure was the result of a competitive tender and are therefore considered to be reasonable.

Rationale

Aurizon's APEX tool is an example of a productivity investment approved on the basis of improved performance and consequential labour reduction.

Based on our review, no discernible labour benefit has been transposed into operating expenditure FTEs for the UT5 period. However, it should be noted that benefits may have been realised through Aurizon's Capital or Maintenance costs. A Post-Implementation Review has yet to be undertaken for this project, however a benefits realisation assessment was conducted for specific Network KPIs during the first six months of FY16 (refer to Table below). Certain Phase 2 KPI improvement targets were met or exceeded.

KPI	Baseline Metric (FY15)	Phase 2 (target)	Phase 2 (actuals)	Trend
On Time Port Arrivals	16.13%	17.30%	17.49%	↑
Network Velocity (Cycle Velocity)	23.7 kph	23.81 kph	23.82 kph	↑
DoO Cancellations	7.30%	7.2%	6.5%	↓
Schedule Adherence	12 to 69%	17 to 74%	14 to 74%	↑
Payload Improvements	8686 t	8687 t	8806 t	↑

Source: Aurizon Network

Despite there being no clear efficiency gains in operating expenditure FTEs, cost capitalisation practices of Aurizon Network state that 'all project costs incurred in post-commissioning are to be expensed', therefore these costs are to be considered operating expenditure.

Further, the use of a competitive tender process to procure these works is an indication of cost efficiency. Attachment 8 (Feasibility Paper) in the Funding Request outlines that Aurizon Network tested the market through a Request for proposal process and invited 14 companies with commercial off-the-shelf capabilities in planning, scheduling, day-of-operations and optimisation. Six companies were subsequently shortlisted and four responded to the Request for Proposal. The scoring and weighting process was sighted with the preferred supplier identified for software and associated implementation services.

Value Accepted

FY18: $0

FY19: $0.44M ($FY16)

FY20: $0.60M ($FY16)

	FY21: $1.73M ($FY16)
Reviewed	• Aurizon Network correspondence • Aurizon Network UT5 Operating Expenditure Submission • Aurizon Network RFI responses • Aurizon Network cost models • Project Pluto Funding Request

5.3.4 Step Change: Additional Requirement for FTE Reporting

Name	Planning and Development - Additional Requirement for FTE Reporting
Value Proposed	$0.45M p.a.
Description	Aurizon Network has proposed an increase in planning and development costs to account for the additional obligations imposed by the QCA in the UT4 undertaking, for example, baseline capacity assessments, strategic train plan, system operating parameters and the Network development plan. This increase has included the addition of three FTEs in order to meet these obligations.
Recommendation	**Accept** – included in FY16 Base Year
Rationale	We note that there are some additional reporting requirements for the UT4 Undertaking, and as such, it is anticipated that regulatory reporting requirements will be similar over the UT5 period. We note three additional FTEs were introduced in FY16. By adopting the 2016 year as the efficient cost base year, the additional resources are considered made available already and therefore no further step-change is required.
Value Accepted	$0.45M p.a. – already incorporated into base year costs.
Reviewed	• 2016 Access Undertaking • 2010 Access Undertaking • Aurizon Network UT5 Operating Expenditure Submission and models • Aurizon Network RFI responses

5.3.5 Step Change: Professional Advisory Services

Name	Professional Advisory Services
Value Proposed	$0.45M p.a.
Description	Aurizon Network has proposed an increase in planning and development costs to account for the additional obligations imposed by the QCA in the UT4 Undertaking, for example, baseline capacity assessments, strategic train plan, system operating parameters and the Network development plan. This increase has included the addition of an allowance for professional advisory services in order to meet these obligations.
Recommendation	**Partially Accept** • Accept consultancy fees incurred in FY16 only – this value is included in FY16 Base Year

Rationale	We note that there are some additional reporting requirements for the UT4 Undertaking. This includes the submission of: • A Baseline Capacity Assessment • Quarterly performance reports in place of annual performance reports • Quarterly maintenance cost reports in addition to an annual maintenance cost report • Annual compliance report It is anticipated that regulatory reporting requirements will be similar over the UT5 period. In consideration of this, we accept the costs of professional advisory services to the extent of those incurred in FY16. These costs will already be incorporated into the FY16 base year, and therefore no further step-change is required.
Value Accepted	$0.45M p.a. – already incorporated into FY16 base year costs.
Reviewed	• 2016 Access Undertaking • 2010 Access Undertaking • Aurizon Network UT5 Operating Expenditure Submission • Aurizon Network cost models

5.3.6 Step Change: Manager - Permanent Way

Name	Manager – Permanent Way
Value Proposed	$[redacted] p.a.
Description	The Manager of Permanent Way is the engineering manager responsible for the supervision and maintenance of track and associated ballast and equipment.
Recommendation	**Accept** – included in FY16 Base Year
Rationale	This role holds accountability for the Permanent Way in the northern systems – Goonyella and Newlands, and arises from transfer of accountability from the position of 'Manager Maintenance North' in Jilian. It is our view that this role is required as part of the restructuring of the Mackay and Rockhampton Network Control and Infrastructure Management. The role was established in 2016, and has therefore been incorporated into the FY16 base year costs. The role is viewed as prudent in managing the permanent way in a safe and reliable manner.
Value Accepted	$[redacted] p.a. already incorporated into FY16 base year costs. The cost of this position has decreased from [redacted] in FY15 to $[redacted] in FY16.
Reviewed	• 2016 Access Undertaking • Aurizon Network RFI Responses • Aurizon Network staff list • Aurizon Network cost models

5.4 Summary of System-Wide and Regional Costs

The total recommended adjustments to Aurizon Network's system-wide and regional costs are summarised in Table 11, and the difference between recommended costs and Aurizon Network's proposal are outlined in Table 12.

Table 11 AECOM proposed Aurizon Network System-wide and Regional Costs ($FY16, millions)

$FY16, millon	Base Year	UT5				
Cost Category	FY16	FY18	FY19	FY20	FY21	Total
2016 Actual Costs	$58.13	$58.13	$58.13	$58.13	$58.13	**$232.51**
Base Year Adjustments						
Allocation Adjustment	-$0.19	-$0.19	-$0.19	-$0.19	-$0.19	
Base Year	**$57.94**	**$57.94**	**$57.94**	**$57.94**	**$57.94**	**$231.77**
Step Changes						
Condition based assessment				$0.42		
Train-Control school		$0.10	$0.10	$0.10	$0.10	
APEX system costs			$0.44	$0.60	$1.73	
Total Step Changes		**$0.10**	**$0.54**	**$1.12**	**$1.83**	**$3.58**
Total Efficient System Wide and Regional Costs	**$57.94**	**$58.04**	**$58.48**	**$59.06**	**$59.77**	**$235.36**

Table 12 Difference between Aurizon Network proposal and AECOM recommended OPEX ($FY16, millions)

	UT5				
System wide and regional costs ($FY16)	FY18	FY19	FY20	FY21	Total
Aurizon UT5 Submission	$64.74	$64.75	$65.33	$64.62	**$259.44**
AECOM Recommended Value	$58.04	$58.48	$59.06	$59.77	**$235.36**
Difference	**-$6.69**	**-$6.27**	**-$6.27**	**-$4.85**	**-$24.09**

Our recommended system-wide and regional operating expenditure costs for below rail services represent a total reduction from the original claim of approximately $24.09M in FY16 dollars across the UT5 period.

These costs are shown graphically in Figure 9, which shows the recommended cost structures in bars for each year of UT5, and the value of Aurizon's submission in orange above the bars.

A separate recommended non-coal deduction to apply to Network Control (Network Train Operations) costs is presented in Section 7.2.1, based on our recommended allocator.

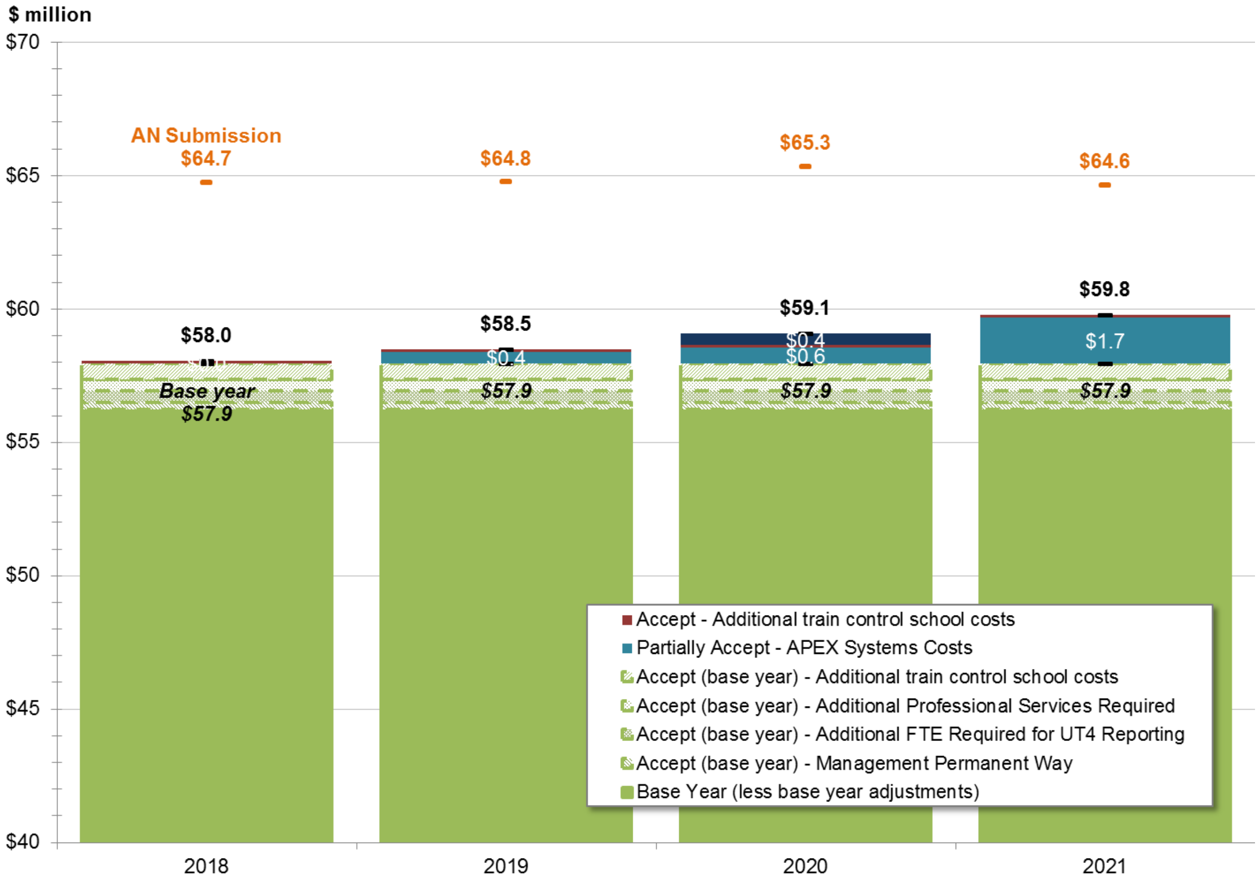


Figure 9 AECOM Recommended – System-wide and Regional Costs ($FY16)

6.0 Corporate Overheads

6.1 Cost Allocation Methodology

Aurizon Holdings uses 230 cost centres, of which 102 are not considered to relate to Aurizon Network activity and are therefore excluded from Aurizon Network's Operating Expenditure Submission. Of the 128 cost centres that are consider relevant to Aurizon Network:

- 26% of the total cost allocated is considered to be wholly dedicated to Aurizon Network, and is allocated at 100% using the 'Specific' allocator in Table 14.
- 12% of the total cost allocated is considered to be related to staff numbers, and uses Aurizon Network's proportion of the Aurizon Group headcount (FTE) as the driver. Safety costs incurred are also considered to be related to staff numbers, and these costs use the same allocator. The value of this allocator has not changed since UT4.
- 61% of the cost allocated uses Aurizon Network's proportion of Aurizon Group operating costs as the driver (the 'Costs' allocator in Table 14). The ratio used for this allocator is 24%, which is a significant increase from the value used in UT4.
- There are several financial allocators used for the remaining 1% of costs allocated. The allocators used have been introduced for UT5.

A summary of the Corporate Overhead cost allocators proposed for the UT5 period is provided at Table 13 and Table 14.

Table 13 Corporate overhead allocators proposed for UT5 period

Functional Area	Area	Consistent with UT4?	Ref
Board and CEO	Direct Costs	Yes	
CFO, Treasury, Tax & Insurance, Investor Relations, Enterprise Procurement	Direct Costs	Yes	
Finance Partner Marketing and Operations	Nil	Yes	
Network Finance	Shifted to Business Management	No	6.1.3
Finance Shared Services > Accounts Receivable (AR) > Accounts Payable (AP) > Payroll	 > AR transactions processed > AP transactions processed > FTEs	No – previously allocated as direct costs	6.1.1
Enterprise Real Estate	Property and associated costs directly identifiable FTEs applied to non-directly identifiable costs	No – more detailed analysis to identify specific network costs	6.1.2
Group Accounting, Planning and Reporting	Nil	Yes	
Executive Vice President HR > Including share-based payments	FTEs > Direct Costs	Yes	
Business partner teams, organisational capability, enterprise support	FTEs	Yes	
Brand and Communications	Direct Costs (excluding corporate sponsorship and events – Nil)	Yes	
EVP, Company Secretary, Internal Audit, Information Technology	Direct Costs	Yes	

Functional Area	Area	Consistent with UT4?	Ref
General Counsel	Direct Costs	Yes	
Network Legal	Shifted to Business Management	No	6.1.3
Safety, Health and Environment, Risk Services	FTEs	Yes	

Table 14 Corporate overhead allocator values

Allocator	Ratio UT4	Ratio UT5	% Cost Allocated to Network	Ref
Specific	100%	100%	26%	
FTE	15%	15.8%	12%	6.1.5
Costs	19%	24%	61%	6.1.4
AP		14%	1%	
AR		31%		
FSS		19%		

Note: Numbers are rounded.

We have reviewed the basis for allocation and also the cost centres that each allocator has been assigned to, and have drawn conclusions as noted in the following sections.

6.1.1 Corporate Overheads Allocation: Finance Shared Services

Name	Finance Shared Services
Description	Finance Shared Services included accounts receivable, accounts payable, payroll processing and compliance, credit card management and reconciliations, and motor vehicle fleet management. Processing of accounts receivable and accounts payable are primarily outsourced functions.
Proposed Change	Shift allocation from Direct Costs to: • Accounts Receivable: AR transactions processed • Accounts Payable: AP transactions processed • Payroll: FTEs
Recommendation	**Accept**
Rationale	It is our view that this change demonstrates a more accurate allocation method for the Accounts Receivable and Accounts Payable functions. Using transactions processed to allocate these functions will provide an allocation that is more reflective of Aurizon Network's use of these functions. Allocating the Payroll function in accordance with the FTE allocator is considered reasonable practice, and has been used previously by regulated businesses, including SA Power.
Reviewed	• Aurizon Network UT5 Operating Expenditure Submission • Lacertus Verum Overhead Allocation Report, 14 August 2015

6.1.2 Corporate Overheads Allocation: Enterprise Real Estate

Name	Enterprise Real Estate
Description	The Enterprise Real Estate team have functional accountability for the Aurizon Group built environment nationwide. They have identified and validated the occupancy footprint of all Aurizon Network operational sites, property and facility related assets in order to confirm property and facility maintenance costs.
Proposed Change	• Property and associated costs directly identifiable • FTEs applied to non-directly identifiable costs
Recommendation	**Accept**
Rationale	The change in allocation methodology involves more detailed analysis to identify specific network costs. Allocations are based on Aurizon Network's occupancy of different sites, and an evaluation of the extent to which Aurizon Network are responsible for the different cost items including licence costs, corporate contracts and facilities management costs, council rates, electricity, land tax and outgoings. For those directly identifiable costs, this is considered more reflective of Aurizon Network's actual incurred costs, and we consider this change reasonable.
Reviewed	• Aurizon Network UT5 Operating Expenditure Submission • Aurizon Network RFI Responses

6.1.3 Corporate Overheads Allocation: Network Legal and Network Finance

Name	Network Legal and Network Finance
Description	Network Finance is responsible for billing, budgets, forecasting and preparing financial and statutory reports for Aurizon Network. The primary role of the Network Legal team is to ensure Aurizon Network complies with its legislative and contractual obligations, and manages legal risk appropriately.
Proposed Change	Shift allocation from Corporate Overheads to Business Management
Recommendation	**Accept**
Rationale	Change previously discussed in 5.1.
Reviewed	• Aurizon Network UT5 Operating Expenditure Submission

6.1.4 Corporate Overheads Allocation: Corporate Cost allocation

Name	Corporate Cost allocator
Proposed Allocator	Increased from 19% to 24% of operating expenditure
Recommendation	**Partially Accept** Accept the principle and the ratio used. Recommend a change to the IT function for which this allocator is used.

Rationale

The ‘Costs’ allocator used by Aurizon Network represents its share of Aurizon Group operating costs, so any changes to Aurizon Network’s business activity or the business activity of the rest of the Aurizon Group will change the ratio.

We have noted that Aurizon Network business activity has been more or less static during recent years, and is expected to increase slightly over UT5. Aurizon Group business activity has reduced considerably over the UT4 period, which therefore increases the proportion of Aurizon Group costs that would be allocated to Aurizon Network using this allocator. This is illustrated in Figure 10, which presents changes in the ‘Costs’ allocator over the period.

Aurizon Network operating costs (in real terms) are expected to change by about 1% over the UT5 period (the red bars in Figure 10), but there has been a significant decline in other Aurizon Group activity (the orange bars). The calculated Costs allocator ratio is 24.1% in FY16. Projections for the future value of the allocator rely on the expected level of business activity of the remainder of the Aurizon Group during the UT5 period. This information is not available, so we have assumed that the rest of the Aurizon Group will continue to operate at FY16 levels except for a slight reduction due to the Transformation Program.

[redacted]

Figure 10 Corporate Overheads Direct Costs Allocator ($FY16)

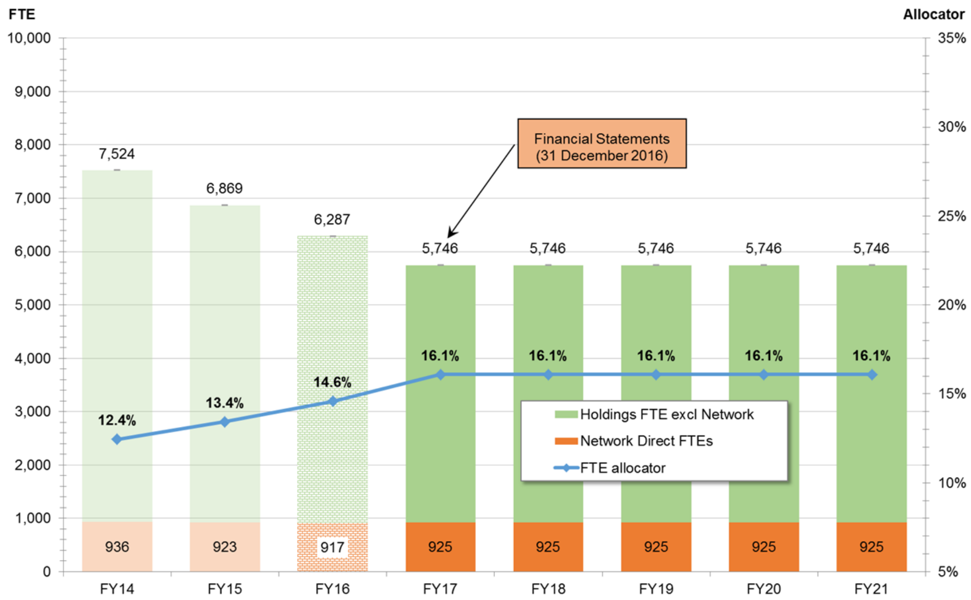
Figure 10 also includes the expected impact of savings due to the Transformation Program, which will slightly increase the Costs allocator by the end of the UT5 period. We note that Aurizon Network has proposed to use 24% for the Costs allocator ratio for the entire UT5 period. This is the calculated ratio for FY16 as indicated in the graph, so we accept this value.

The allocator is used for 61% of the Aurizon Group costs currently allocated to Aurizon Network, and the financial model provided by Aurizon indicates the specific cost centres involved. Our review of these has concluded that the proposed use of the allocator is appropriate for the nominated cost categories with the exception of IT costs.

IT costs are usually incurred or allocated on a per-seat or license basis, which therefore uses headcount. Aurizon had a benchmarking review of its IT services carried out by ITNewcom, who, in their December 2014 report, refer to the volume of licences in use for all IT assets at the time. We therefore consider that the relative number of licences should be used for cost allocation of IT services. We had insufficient information to derive an allocator on this basis therefore we consider FTE count a reasonable proxy.

Reviewed	• Aurizon Network - IT Services Market Price, ITNewcom, Dec 2014

6.1.5 Corporate Overheads Allocation: FTEs and Safety

Functional Area	Corporate Overheads
Name	FTE and Safety
Proposed Allocator	15.8% allocation
Recommendation	Update allocation to 16.1% to reflect most recent year of FTEs
Rationale	The FTE allocation method of corporate costs is consistent with UT4 and relatively consistent with benchmarked regulated industries (based on ARTC's application to the ACCC, which was accepted; with reference to a cross section of rail, energy and port organisations). The FTE ratio has changed since FY14 as indicated in Figure 11. Reductions in staff numbers in the rest of the Aurizon Group have resulted in an increase in the value of the ratio from 12.4% to approximately 16.1%. In the absence of any information to suggest significant changes in headcount of either the Aurizon Group or Aurizon Network during UT5, the ratio will not change materially over that period.  **Figure 11 Aurizon Group FTE Allocator** This allocator is used for all personnel-related Aurizon Group costs, and represents 6% of the overhead cost allocated to Aurizon Network. Having accepted the principle, we consider that increasing the allocator to 16.1% is reasonable for all the cost categories for which it has been assigned.
Reviewed	• Lacertus Verum 14 August 2015, Overhead Allocation Report: Section 5 ARTC, Table 3: Allocation Method for Support Divisions • Australian Energy Regulator: Essential Energy April 2014 Version 3, Cost Allocation Method: Table 4 • Ernst & Young 2013 - Benchmarking of Corporate overhead costs for Aurizon Network Operations • ARTC 2016 Hunter valley Network Access (HVAU) Costing Manual • Aurizon Financial Statements FY16

6.1.6 Summary of recommended allocations

In summary, our recommended allocation values are provided in Table 15. The recommended changes in allocations are captured as changes to the base year in the following section.

Table 15 Recommended Allocation values – Corporate Overheads

Allocator	Ratio UT4	Ratio UT5	UT5 Recommended Allocation	Other recommendation
Specific	100%	100%	100%	
FTE	15%	15.8%	16.1%	
Costs	19%	24%	24%	Shift IT allocation to FTE based allocator
AP	-	14%	14%	
AR	-	31%	31%	

6.2 Efficient Costs in the FY16 Base Year

We have undertaken a detailed review of Aurizon Network's corporate overheads operating expenditure cost base as presented in their FY16 cost model. Actual corporate overhead costs for Aurizon Network for FY16 were $45.89M.

In order to achieve an efficient base year, adjustments to the Base Year are made for identified inefficiencies, non-recurrent costs and non-regulatory cost impacts. We have identified several areas where we believe cost reductions can and should be achieved in Aurizon Group's corporate overheads and noted these in Table 16.

Table 16 Efficiency adjustments to the FY16 Base Year – Corporate Overheads (allocated)

Efficiency Adjustment	Description and Rationale	Impact on Base Year ($FY16, millions)
Bonus Adjustment	In the FY16 Corporate Cost Model, Aurizon Network proposed the use of FY15 bonuses. Recent gross bonuses in FY16 dollars were: - FY14: $[redacted] ($[redacted] per FTE) - FY15: $[redacted] ($[redacted] per FTE) - FY16: $[redacted] ($[redacted] per FTE) Based on the gross bonuses awarded in recent years, it is our view that FY15 year was an anomalous year due to long term bonuses maturing, and that bonuses in FY16 are likely to be a reasonable indication of future bonus amounts. As we are using actual FY16 costs for their base year, the proposed inclusion of FY15 bonuses into the base year has not been considered, and actual FY16 bonus costs have been used. However in FY16, as noted in the Annual Report 2016, despite the 'credible' performance of the Key Management Personnel (KMP) against their Short Term Incentive (STI) key performance indicators, the Board exercised its discretion and determined not to award any STI to the Managing Director and CEO, or to his direct reports[16]. In FY15, STI awards to the KMP equated to $4.32M[17] in total. It is reasonable to expect that STIs, which include both monetary and share-based payments, will be awarded in subsequent years and throughout the UT5 period, as these are a mechanism through which Aurizon attracts and retains its KMP. This is in accordance with the ASX Corporate Governance Council's *Principles and Recommendations*, which state that 'a listed entity should design its executive remuneration to attract, retain and motivate high quality senior executives.' In addition, as the *Principles and Recommendations* indicate, equity incentives are used by listed companies to remove a principal-agent problem and 'to align their (management) interests with the creation of value for security holders.' They are a common element of remuneration packages for key management personnel across similar businesses, including ARTC[18] and Pacific National[19]. To adjust for future awards, we have added the allocated value of the FY15 KMP STI awards, escalated to $FY16 ($0.60M).	+$0.60
Change in IT allocation	The costs of the IT group of functions are assigned to Aurizon Network using a 'costs' allocator. We note that enterprise IT systems generally attract a cost in the form of a licence or per seat charge, which is therefore a headcount-based calculation. We recommend that the relative number of licences be used for cost allocation of IT services. In lieu of this information, it is our view that FTE count is a reasonable proxy, however a more accurate assessment could be made if detailed licence information was available.	-$5.50
Allocation Adjustment	Adjustment to actual base year costs due to changes in allocation as recommended in Section 6.1.	+0.16

[16] Aurizon Annual Report 2016
[17] Aurizon Annual Report 2015
[18] ARTC Annual Report 2016
[19] Asciano Annual Report 2016

Efficiency Adjustment	Description and Rationale	Impact on Base Year ($FY16, millions)
	Total Adjustment Value to Base Year FY16 ($FY16)	**-$4.75**

Incorporating the adjustments made in Table 16, the assessed allocated efficient cost base for Corporate Overheads for the FY16 base year based on this analysis is $41.15M ($FY16), as indicated in Table 17 and Figure 12 Note that actual costs for the base year are allocated according to Aurizon Network's proposed UT5 allocations, and adjustments have been made to reflect AECOM's suggested allocations.

Table 17 Adjusted Base Year Costs FY16 (Allocated) – Corporate Overheads ($FY16, millions)

Cost Category ($FY16)	Total Cost	Below Rail Services	Other Services
Aurizon Network (Actual Costs)	[redacted]	**$45.89**	[redacted]
Board & CEO	[redacted]	$1.70	[redacted]
Finance	[redacted]	$2.93	[redacted]
Enterprise Real Estate	[redacted]	$13.59	[redacted]
Human Resources	[redacted]	$4.10	[redacted]
General Counsel and Corporate Secretary	[redacted]	$1.02	[redacted]
Information Technology	[redacted]	$16.63	[redacted]
Safety, Health and Environment	[redacted]	$3.20	[redacted]
Other Enterprise Services	[redacted]	$2.73	[redacted]
AECOM Adjustments	[redacted]		[redacted]
Executive STI Bonuses	[redacted]	$0.60	[redacted]
Change in IT allocation	[redacted]	-$5.50	[redacted]
FTE Allocator Change	[redacted]	$0.16	[redacted]
Total Adjustments	[redacted]	**-$4.75**	[redacted]
2016 Efficient Base Year	[redacted]	**$41.15**	[redacted]

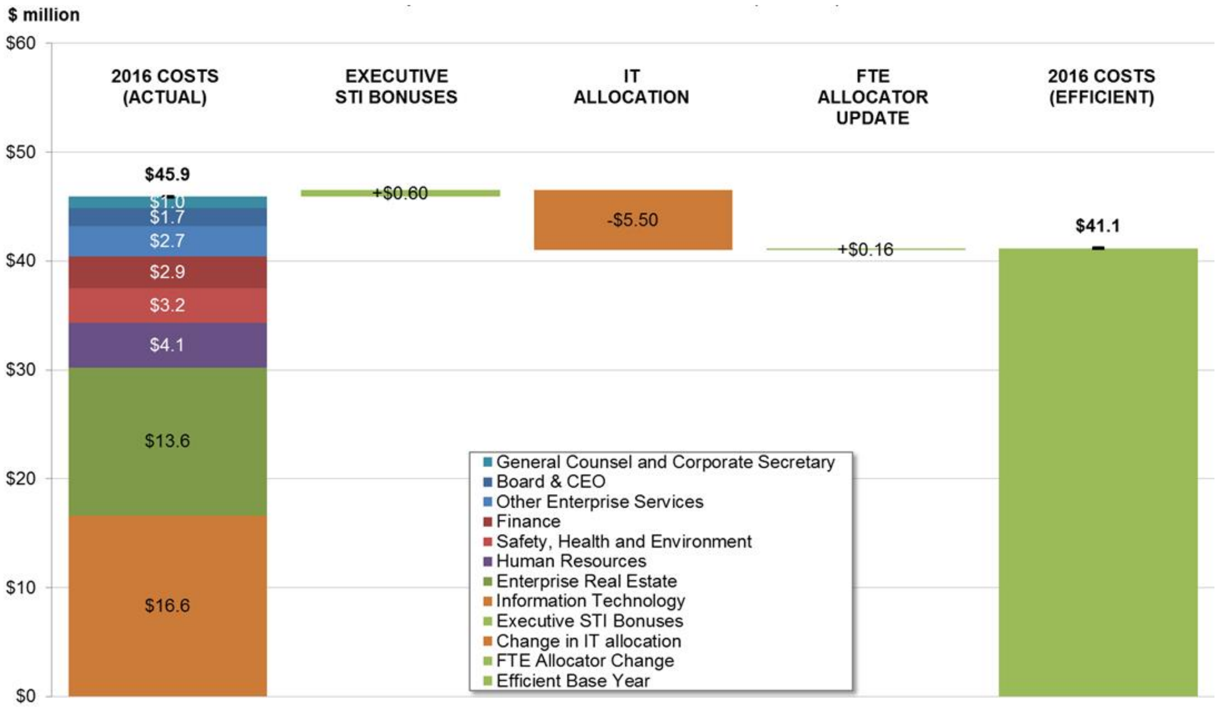


Figure 12 Actual Base Year Costs FY16 adjusted to efficient base year costs (Allocated) – Corporate Overheads ($FY16, millions)

6.3 Incremental Assessment

Aurizon Network has proposed several step-changes for corporate overheads in the UT5 period, as demonstrated in Figure 13. We have assessed these proposed step-changes in the sections following, and indicated our conclusion for each step-change and accompanying rationale. The recommendations are colour-coded for convenience.

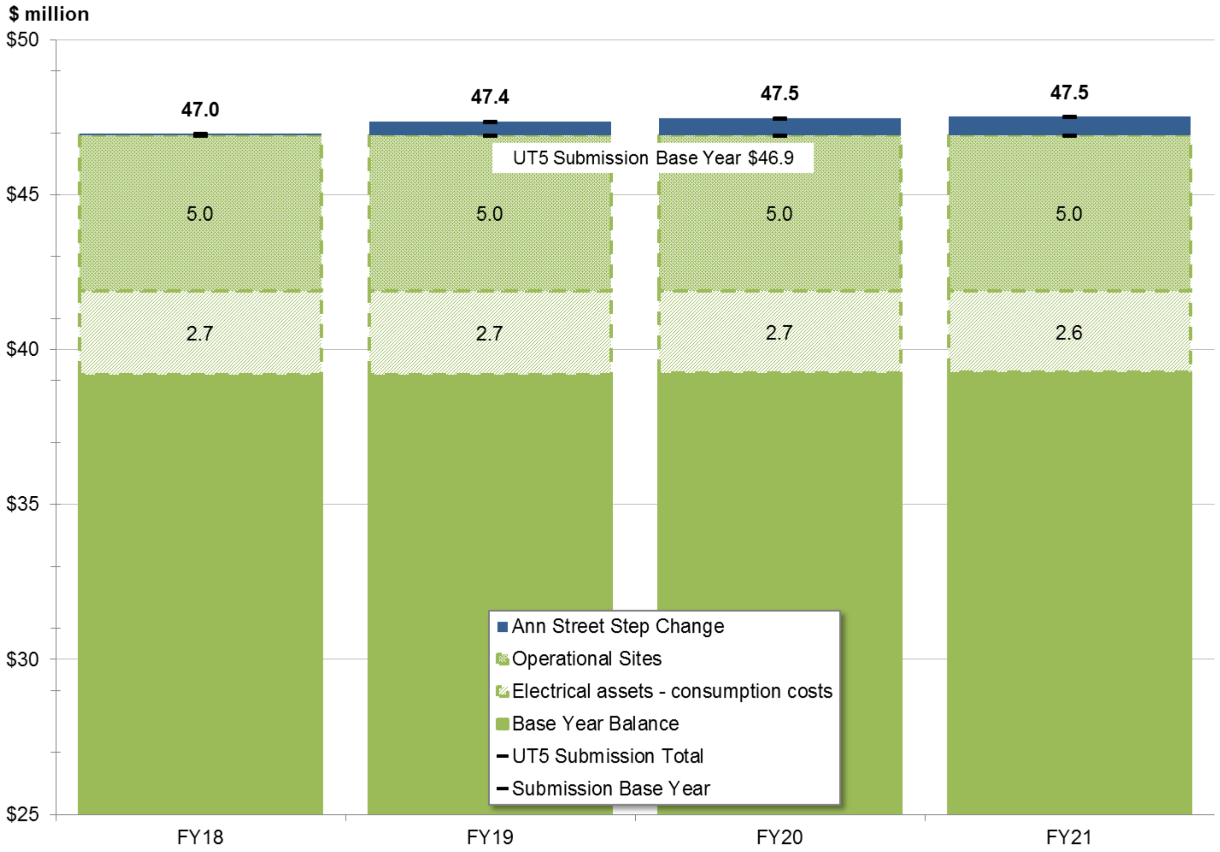


Figure 13 Aurizon Proposal – Corporate Overheads UT5 period

Aurizon Network has used FY15 as its base year in forecasting its UT5 operating expenditure. As we have recommended a base year of FY16, it is noted that some of Aurizon Network's proposed changes have already been implemented in FY16, and therefore the costs have been fully or partially incorporated into FY16 Base Year costs. As a result, it is likely that accepted step-changes on top of the FY16 Base Year may be nil (in the case of them being fully captured in FY16) or a portion of the value proposed (in the case of them being partially captured in FY16), across the UT5 period. In each case, this has been noted for clarity.

Aurizon Network has proposed minor adjustments to its base year Aurizon Group costs that would increase the cost allocation to Aurizon Network by about $1.6 million in real FY16 dollars by FY21. We have assessed these proposed step-changes in the sections following, and indicated our conclusions. The recommendations are colour-coded for convenience.

6.3.1 Step Change: Corporate Office Consolidation

<table>
<tr><td>Name</td><td>Corporate Sites (commercial office tenancy)</td></tr>
<tr><td>Value Proposed</td><td><table><tr><td>FY18</td><td>FY19</td><td>FY20</td><td>FY21</td></tr><tr><td>$0.06M</td><td>$0.45M</td><td>$0.56M</td><td>$0.60M</td></tr></table></td></tr>
<tr><td>Description</td><td>Aurizon Group has announced that it will be consolidating its Brisbane premises, 175 Eagle St and 192 Ann St, to a new head office at 900 Ann St from September 2018. The Aurizon Network corporate cost proposal includes rent and other tenancy costs, such as utility charges, outgoings, compliance reporting, land tax, repairs and maintenance for 900 Ann St in place of 192 Ann St from that date.</td></tr>
<tr><td>Recommendation</td><td>Reject</td></tr>
<tr><td>Rationale</td><td>Aurizon Group has committed to consolidation of offices to a new location at 900 Ann St. Figure 14 indicates that the projected 10-year occupancy cost of 900 Ann Street is cheaper than the current leases. This move delivers a substantial reduction in property costs for the Group as a whole, although per head occupancy costs for the 200 Network staff involved are projected to increase (using per head rates).

In our view, any cost reduction available to the Aurizon Group should be passed on proportionally to Aurizon Network, so we do not accept the increase included in the submission. We note that rental costs at 192 Ann St would otherwise have continued to increase at the contracted 3.5% per annum, and consider that a reasonable alternative, while noting that it would be preferable for Aurizon Network to receive a reduction in occupancy costs in line with that being gained by the Aurizon Group. Consumables are expected to increase in line with CPI.

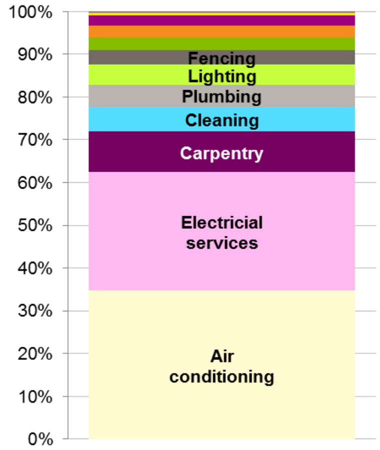
[redacted]

Figure 14 Extract from CEO Update May 2015 (redacted)</td></tr>
<tr><td>Accepted Value</td><td>$0. In FY16 dollars there is no accepted change. Given contracted costs are set to increase by 3.5%, a small change in value would be present in real or nominal dollars.</td></tr>
<tr><td>Reviewed</td><td>• Aurizon Network RFI responses</td></tr>
</table>

6.3.2 Step Change: Operational Sites

Name	Operational Sites
Value Proposed	$5.01M p.a.
Description	The majority of operational sites are owned sites occupied by multiple business units. Costs for these sites include licence costs, corporate contracts and facilities management costs, council rates, electricity, land tax and outgoings. Costs were distributed to Aurizon Network based on a pro-rated allocation.
Recommendation	**Partially Accept** These are costs for operational sites, with an allocation to Aurizon Network proportionate to its occupation of the sites. These costs have already been incorporated into the base year. Two sites not expected to incur costs in the UT5 period have been deducted from the expenditure, making a negative step change of $0.13.
Rationale	Costs applicable to regional properties owned by the Aurizon Group, and used by Aurizon Network, have been introduced in the UT5 claim. Approximately $5 million per annum has been allocated to Aurizon Network, including: • Licence costs of $1.77 million (these are notional, and based on a desktop review by CBRE dated 22 January 2016) • Corporate Contracts and Facility Management costs of $2.70 million • Outgoings of approximately $0.58 million. These properties are owned by the Aurizon Group and are not part of the Regulated Asset Base. They primarily serve as operational depots for Aurizon Network and other Aurizon Group staff. From a review of the list of operational sites, six of the 24 sites are solely occupied by Aurizon Network, and all costs have been allocated to Aurizon Network. Based on information from Aurizon Network, it is anticipated that the costs for two of the sites will not extend into the UT5 period. While the actual costs for these sites are included in the base year, they have been deducted from the step change proposed for operational sites ($0.13 million). Of the remaining 16 sites, corporate contract costs, council rate costs, electricity costs and land tax have been allocated to Aurizon Network in a number of ways, examples of which include allocations by Aurizon Network-occupied facilities, site area occupied, and occupancy percentages. [redacted]
Accepted Value	$4.21M p.a. – $0.13M less than the costs incorporated into the base year
Reviewed	• Aurizon Network RFI responses • Aurizon Network UT5 Operating Expenditure Submission

6.3.3 Step Change: Electrical Assets – Consumption Costs

Name	Electrical Assets – Consumption Costs
Value Proposed	$2.80M p.a.
Description	This cost represents electricity consumption charges and maintenance and compliance costs for corridor electrical assets such as signalling equipment rooms, communications equipment rooms, power equipment rooms and centralised traffic control, track coupling units, power supply cabins and power supply buildings. Aurizon Network has indicated that this is not a new cost. In FY13, these costs had been budgeted within the System-wide and Regional costs, specifically within 'Network Control, Safe working and Operations' cost category. Within the current organisation structure, these costs are incurred with the Enterprise Real Estate profit centre (RFI #33). FY15 actual costs comprise of $2 million of electricity consumption costs and $0.6 million of repairs and maintenance costs. Both costs have been sourced from actual spend for all network electrical assets maintained by Enterprise Real Estate (RFI#33). An indication of the components of the fixed maintenance expenditure that is allocated to Aurizon Network is presented in Figure 15 below. Approximately 35% of fixed maintenance expenditure relates to air conditioning, and electrical services accounts for about 28% of the costs. (RFI#66).  **Figure 15 The components of the FY2015 fixed maintenance expense incurred by Enterprise Real Estate (ERE)**
Recommendation	**Accept –** already incorporated into FY16 Base Year
Rationale	We recommend that these costs be accepted. They were previously included in the UT4 allowance for train control, safe working and operations. This step-change represents a transition in function stemming from an organisational structural change. Our review of the of the profit centres relating to Network Control and Safe working Operations suggests that there is no double counting. Aurizon Network's 2016 corporate cost model notes actual costs of $0.55 million for allocated labour costs and $2.26 million in electrical asset consumption costs. The total of $2.80 million aligns with the Aurizon Network's proposal.
Accepted Value	$2.80M p.a. – incorporated into base year.
Reviewed	• Aurizon Network UT5 Operating Expenditure Submission • Aurizon Network RFI responses • Aurizon Network cost models

6.3.4 AECOM Suggested Step-Change: Transformation Program Efficiencies

Our detailed review of Aurizon Network's cost models identified areas where savings are available over the UT5 period but and have not been included in Aurizon Network's submission. This suggested step-change is outlined below.

<table>
<tr><td>Name</td><td>Transformation Program Efficiencies</td></tr>
<tr><td>Value Proposed by AECOM</td><td><table><tr><td>FY18</td><td>FY19</td><td>FY20</td><td>FY21</td></tr><tr><td>-$2.21M</td><td>-$2.33M</td><td>-$2.38M</td><td>-$2.38M</td></tr></table></td></tr>
<tr><td>Recommendation</td><td>Accept</td></tr>
<tr><td>Rationale</td><td>$[redacted] of potential gross savings over the UT5 period have been identified by Aurizon Network as part of its Transformation Program. These represent anticipated cost efficiencies that can be achieved through a number of different mechanisms, for example, renegotiation outsourced contracts, or re-evaluating incentive payments. We view this Transformation Program as a commitment to achieving cost efficiencies, and as a result, propose a negative step-change to reflect these efficiencies.

Therefore, from the opportunities outlined in the Transformation Program, 100% of opportunities that have been identified as “Locked In”, “Implementing” and “Cash Flowing” have formed part of this negative step-change.

We note that a number of transformation opportunities are still under evaluation (listed as “evaluating” in Aurizon Network's spreadsheet). Given these opportunities are in the evaluation stage and business cases are yet to be developed for them, it seems reasonable to assume that not all the opportunities will actually be implemented.

Some savings are likely to be achievable, however, and it seems reasonable in principle to provide Aurizon Network with an incentive to achieve greater efficiencies where they are possible. We therefore suggest that 50% of the proposed savings be included for the next regulatory period, to encourage Aurizon Network to continue their drive for efficiency improvements, and that a true-up be undertaken at the end of the UT5 period.

$9.30M in efficiencies have been recognised for the UT5 period and included as a negative step change. This step change reflects Aurizon Network's historical success in implementing transformation savings.</td></tr>
<tr><td>Reviewed</td><td>• Aurizon Network RFI responses</td></tr>
</table>

6.4 Summary of Corporate Overheads

Our recommendations for Aurizon Network's total corporate overhead costs, including accepted and recommended step changes and allocated according to recommended allocations, are summarised in Table 18. The yearly difference in costs between Aurizon Network's submission and our recommendations over the UT5 period is outlined in Table 19.

Table 18 Accepted and recommended step changes to corporate overhead costs allocated to Network ($FY16)

$FY16, millon	Base Year	UT5				
Cost Category	FY16	FY18	FY19	FY20	FY21	Total
2016 Actual	$45.89	$45.89	$45.89	$45.89	$45.89	**$183.58**
Base Year Adjustments						
Executive STI Bonuses	$0.60	$0.60	$0.60	$0.60	$0.60	
Change in IT allocation	-$5.50	-$5.50	-$5.50	-$5.50	-$5.50	
FTE Allocator Change	$0.16	$0.16	$0.16	$0.16	$0.16	
Base Year	**$41.15**	**$41.15**	**$41.15**	**$41.15**	**$41.15**	**$164.59**
Step Changes						
Transformation Savings	$0.00	-$2.21	-$2.33	-$2.38	-$2.38	
Operational Sites - decommissioned sites	$0.00	-$0.13	-$0.13	-$0.13	-$0.13	
Corporate Office Consolidation	$0.00	$0.00	$0.00	$0.00	$0.00	
Total Step Changes	**$0.00**	**-$2.34**	**-$2.46**	**-$2.50**	**-$2.51**	**-$9.81**
Total Efficient Corporate Overhead Costs	**$41.15**	**$38.81**	**$38.69**	**$38.64**	**$38.64**	**$154.79**

Table 19 Difference between Aurizon Network Submission and AECOM recommendation – corporate overheads ($FY16)

	UT5				
Corporate Overhead Costs ($FY16)	FY18	FY19	FY20	FY21	Total
Aurizon UT5 Submission	$46.96	$47.35	$47.47	$47.51	**$189.29**
AECOM Recommended Value	$38.81	$38.69	$38.64	$38.64	**$154.79**
Difference	**-$8.15**	**-$8.66**	**-$8.82**	**-$8.86**	**-$34.50**

Our proposed corporate overhead allowance for the UT5 period is outlined in Figure 16.

Figure 16 AECOM recommended – Corporate Overheads UT5 period ($FY16)

7.0 Summary

This review has:

- Recommended that FY16 be adopted as the base year for the purposes of assessing UT5 efficient operating costs for Aurizon Network;
- Assessed the methodology used to allocate both Aurizon Group and Aurizon Network costs, and recommended a number of changes;
- Assessed the base year cost structure and identified a number of opportunities for efficiency improvement which, if implemented, would reduce the base year cost;
- Assessed step changes proposed by Aurizon Network and provided recommendations to accept, reject or presented alternatives;
- Recommended additional step changes to Aurizon Group costs allocated to Aurizon Network;
- Derived a total efficient operating expenditure estimate for Aurizon Network during the UT5 period.

7.1 Summary of Findings

This review has concluded that Aurizon Network's efficient operating cost base for system-wide and regional costs and corporate overheads $390.14 million over the UT5 period in FY16 dollars.

We recommend that:

- Total allocated system-wide and operating costs be $235.36M over the period in FY16 dollars;
- Total allocated corporate overhead costs be $154.79M over the period in FY16 dollars.

A summary of these recommendations is provided at Table 20, and the mean annual costs by functional area is shown graphically in Figure 17, with corporate costs allocated to Aurizon Network shown in shades of green, and system-wide and regional costs shown in shades of blue.

A separate recommended non-coal deduction to apply to Network Control (Network Train Operations) costs is presented in Section 7.2.1, based on our recommended allocator.

Table 20 UT5 Recommended Operating Expenditure – Corporate Overheads and System-wide ($FY16)

$FY16, millon	Base Year	UT5				
Cost Category	FY16	FY18	FY19	FY20	FY21	Total
2016 Actual Costs						
System wide and regional costs	$58.13	$58.13	$58.13	$58.13	$58.13	
Corporate Overhead Costs	$45.89	$45.89	$45.89	$45.89	$45.89	
Base Year	$104.02	$104.02	$104.02	$104.02	$104.02	**$416.09**
Base Year Adjustments						
System wide and regional costs	-$0.19	-$0.19	-$0.19	-$0.19	-$0.19	
Corporate Overhead Costs	-$4.75	-$4.75	-$4.75	-$4.75	-$4.75	
Efficient Base Year	**$99.09**	**$99.09**	**$99.09**	**$99.09**	**$99.09**	**$396.37**
Step Changes						
System wide and regional costs	$0.00	$0.10	$0.54	$1.12	$1.83	
Corporate Overhead Costs	$0.00	-$2.34	-$2.46	-$2.50	-$2.51	
Total Step Changes	**$0.00**	**-$2.24**	**-$1.92**	**-$1.39**	**-$0.68**	**-$6.22**
AECOM Recommended OPEX - Below Rail	**$99.09**	**$96.85**	**$97.17**	**$97.70**	**$98.41**	**$390.14**

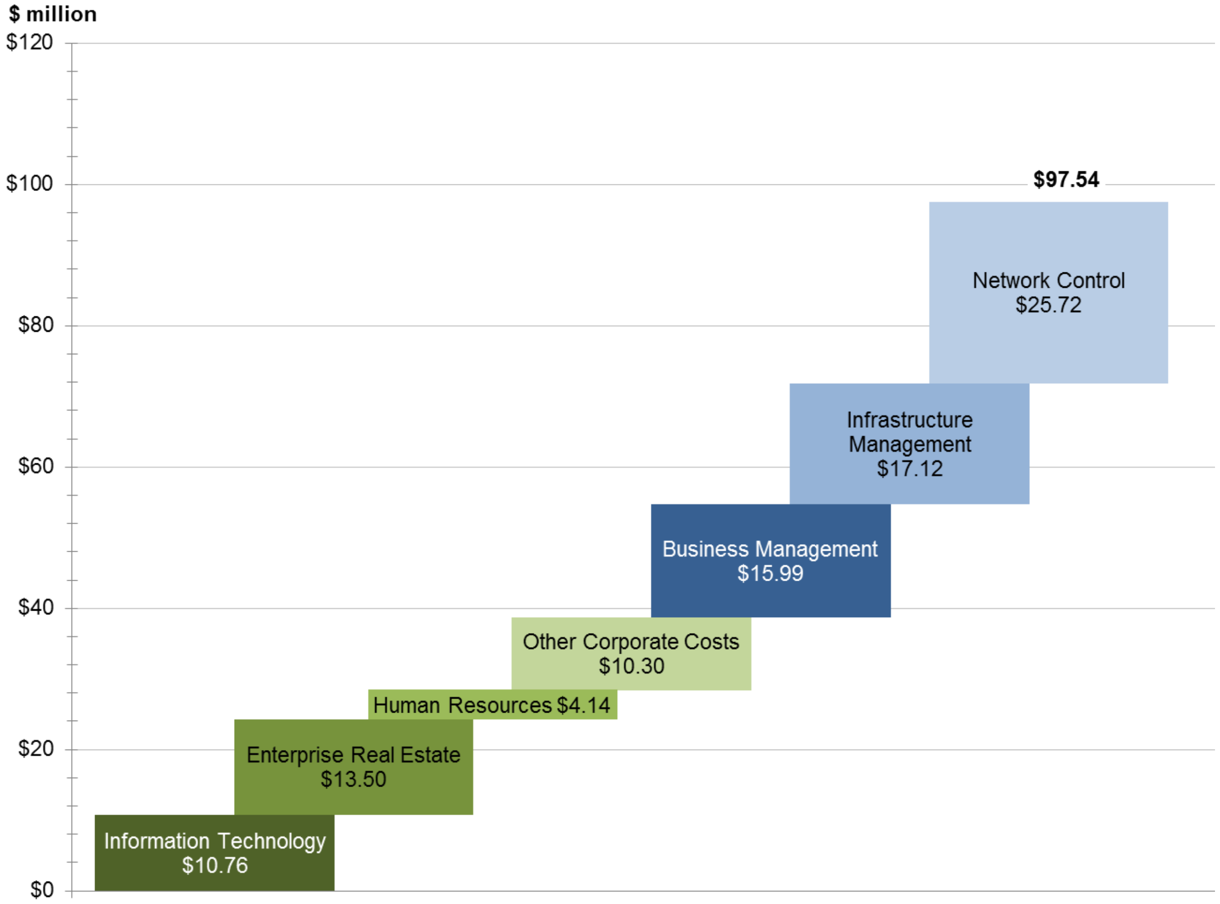


Figure 17 AECOM recommended mean-annual OPEX for UT5 period ($FY16)

7.1.1 Difference from Aurizon Network's Submission

A summary of Aurizon Network's submission is presented in Table 21.

Table 21 Aurizon Network Submission ($FY16)

$FY16, millon	Base Year	UT5				
Cost Category	FY15	FY18	FY19	FY20	FY21	Total
Submission Base Year (2015)						
System wide and regional costs	$61.16	$61.16	$61.16	$61.16	$61.16	
Corporate Overhead Costs	$46.90	$46.90	$46.90	$46.90	$46.90	
Submission Base Year	**$108.06**	**$108.06**	**$108.06**	**$108.06**	**$108.06**	**$432.25**
Step Changes						
System wide and regional costs		$3.58	$3.59	$4.17	$3.46	
Corporate Overhead Costs		$0.06	$0.45	$0.56	$0.60	
Submission Step Changes		**$3.64**	**$4.04**	**$4.73**	**$4.07**	**$16.48**
Aurizon UT5 Submission $FY16		**$111.70**	**$112.10**	**$112.80**	**$112.13**	**$448.73**

An overview of the year-on-year difference between AECOM's recommended operating expenditure (below rail) and Aurizon Network's submission is provided in Table 22. AECOM's recommended expenditure of $390.14 million represents a $58.58 million reduction from Aurizon Network's submission over the UT5 period, including:

- Allocated system-wide and operating costs reduced by $24.09 million (from $259.44 million to $235.36 million in FY16 dollars).

- Allocated corporate overhead costs reduced by $35.40 million (from $189.29 million to $154.79 million).

Table 22 Difference between recommended OPEX and Aurizon Network Submission ($FY16)

	UT5				
Total Network OPEX ($FY16)	FY18	FY19	FY20	FY21	Total
Aurizon UT5 Submission $FY16	$111.70	$112.10	$112.80	$112.13	**$448.73**
AECOM Recommended OPEX - Below Rail	$96.85	$97.17	$97.70	$98.41	**$390.14**
Difference	**-$14.84**	**-$14.93**	**-$15.09**	**-$13.72**	**-$58.58**

7.2 Coal and Non-coal

Section 3.3 outlines two ways by which costs can be allocated between coal and non-coal services on the below rail network. Aurizon Network proposed a non-coal allocation for its Network Control costs only, as discussed in section 5.1.6.

7.2.1 Network Control costs

A review of historical train kilometres on the CQCN reveals a relatively stable split between coal and non-coal services of approximately 88% and 12% respectively and the analysis of business activity in Section 3.3 indicates that there is no fundamental change in train paths from the UT4 period and forecast across the UT5 period. As discussed in Section 5.1.6, we consider train kilometres to be an appropriate allocator for the Network Control function. Therefore it is our recommendation 88% of Network Control costs are allocated to the MAR for coal-carrying train services.

AECOM's recommended total non-coal allocation for Network Control services and the revised total efficient opex for the UT5 period is outlined in Table 23 below.

Table 23 Reduction of Efficient Costs by Network Control non-coal allocation ($FY16, millions)

	UT5				
Total Network OPEX ($FY16)	FY18	FY19	FY20	FY21	Total
AECOM Recommended OPEX - Below Rail	**$96.85**	**$97.17**	**$97.70**	**$98.41**	**$390.14**
Network Control - Non-Coal allocation	-$1.81	-$1.81	-$1.81	-$1.81	**-$7.23**
AECOM Recommended OPEX adjusted	**$95.05**	**$95.36**	**$95.90**	**$96.61**	**$382.91**

7.2.2 Other costs

We have estimated potential deductions to other below rail operating costs, to reflect a potential allocation of these costs to non-coal carrying train services (i.e. services for which there are no reference tariffs). This adjustment has not been included elsewhere in this report.

After examining the revenue split between coal and non-coal access for below rail services, we consider that an appropriate coal allocation, based on actual revenues for FY16 (our recommended Base Year), is 99%. We consider this a reasonable basis to apply a non-coal deduction to other operating cost categories in order to establish the MAR for coal-carrying train services.

The allocations are summarised in Table 24.

Table 24 AECOM proposed Aurizon Network coal and non-coal regulated costs ($FY16, millions)

	UT5				
Total Network OPEX ($FY16)	FY18	FY19	FY20	FY21	Total
AECOM Recommended OPEX - Below Rail	**$96.85**	**$97.17**	**$97.70**	**$98.41**	**$390.14**
Below Rail OPEX - Non-Coal allocation	-$2.63	-$2.63	-$2.63	-$2.64	**-$10.53**
AECOM Recommended OPEX adjusted	**$94.23**	**$94.54**	**$95.07**	**$95.77**	**$379.61**

Appendix A

RFI Summary

Appendix A RFI Summary

RFI #	Summary of information requested	Date of request
1	Current organisational structure of Aurizon. Number of FTEs by function and location, information regarding operating model, organisational design principles and position descriptions.	13-Feb-17
2	Board policies (for Aurizon Network) addressing governance, business strategy, ICT strategy, risk, safety, remuneration, procurement, budget-setting and financial management, together with any associated plans.	13-Feb-17
3	The current strategic plan, risk register and asset management plans within Aurizon Network.	13-Feb-17
4	Documentation regarding business processes.	13-Feb-17
5	Performance reports.	13-Feb-17
6	Plans to improve organisational efficiency, and/or reviews of efficiency improvement initiatives implemented.	13-Feb-17
7	Documentation on agreed levels of service, and examples of performance reporting against agreed levels (e.g. on-time metrics, cancellations, response to access requests), performance against regulatory requirements such as safety, reliability, availability and environmental impacts.	13-Feb-17
8	Summaries of customer engagement, legal and marketing activities.	13-Feb-17
9	2012–13 and 2015–16 actual operating costs.	13-Feb-17
10	Details of any related-party agreements (e.g. between Aurizon Network and Aurizon Operations) where costs are included as part of UT5 operating expenditure proposal.	21-Feb-17
11	Below-rail financial statements, including non-coal revenues.	08-Mar-17
12	FY17 actual (9 months) and budget (3 months) operating cost data.	08-Mar-17
13	FY16 actual and forecast FTEs. Workforce masterplan and rationale for changes (i.e. location, numbers, job function).	08-Mar-17
14	Information regarding specific cost categories.	08-Mar-17
15	Information regarding Professional Services (consulting) expenditure.	08-Mar-17
16	Information regarding discount rates applied.	08-Mar-17
17	Employee salary benchmarking information.	08-Mar-17
18	Information regarding specific cost categories.	08-Mar-17
19	Business case in support of Advanced Planning and Execution (APEX) tool expenditure.	08-Mar-17
20	Justification for additional Train Control School costs.	08-Mar-17
21	Justification for increased regulatory compliance cost allowance.	08-Mar-17
22	Information regarding proposed step change for Condition Based	08-Mar-17

RFI #	Summary of information requested	Date of request
	Assessment cost.	
23	Further information regarding actual IT costs and basis of allocation.	08-Mar-17
24	Further detail regarding transformation savings.	08-Mar-17
25	Further information regarding specific project costs.	08-Mar-17
26	Further Information regarding Professional Services (consulting) expenditure.	08-Mar-17
27	Information regarding executive share-based payments.	08-Mar-17
28	Details of capitalisation policy.	08-Mar-17
29	Details of other revenue by cost centre for relevant Network/Corporate cost centres e.g. procurement rebates, network control revenue from other operators, property applications, property lease rental revenue.	08-Mar-17
30	Further information regarding market valuations of property rentals.	08-Mar-17
31	Information regarding surplus regional property.	08-Mar-17
32	Information regarding proposed allowance for electrical asset costs.	08-Mar-17
33	Further information regarding surplus or vacant property space and consolidation of regional sites.	08-Mar-17
34	Spreadsheet information relating to corporate overhead allocation.	17-Mar-17
35	Information regarding specific project costs.	17-Mar-17
36	Further detail regarding allocated costs.	17-Mar-17
37	Information regarding corporate services fee arrangements.	17-Mar-17
38	Further information regarding corporate services fee arrangements.	17-Mar-17
39	Information regarding revenue generated by specific cost centres identified and the relevance of these revenues to Aurizon Network.	17-Mar-17
40	Further details regarding allowances for operational sites.	17-Mar-17
41	Reconciliation of labour cost components contained in legal costs.	17-Mar-17
42	Further information explaining budgeting processes.	17-Mar-17
43	Detail regarding allocation of safety costs.	28-Mar-17
44	Further detail regarding FY17 Corporate Plan.	28-Mar-17
45	Business case for Network Asset Management System (NAMS). Further information on NAMS costs.	28-Mar-17
46	Further information regarding additional labour costs proposed for regulatory compliance.	28-Mar-17
47	Further information regarding transformation initiatives.	28-Mar-17
48	Further information on corporate initiatives within the transformation program and flow of benefits to the network business.	28-Mar-17

RFI #	Summary of information requested	Date of request
49	Detailed spreadsheet demonstrating allocation of corporate costs.	28-Mar-17
50	Follow-up to RFI #33.	28-Mar-17
51	Further information regarding internal services agreements.	28-Mar-17
52	Reconciliation of lease costs.	28-Mar-17
53	Business case to support the efficiency of the Brisbane office consolidation/relocation.	28-Mar-17
54	Clarification regarding property portfolio and allocated FTEs.	28-Mar-17
55	Clarification regarding potential overlap between operating and maintenance functions, and associated costs.	28-Mar-17
56	Information on corporate staff FTEs.	05-Apr-17
57	Information regarding employee benefits costs.	05-Apr-17
58	Position descriptions for various specific roles and clarification regarding previously provided information.	18-Apr-17
59	Follow-up to RFI# 1.	18-Apr-17
60	Follow-up to RFI# 56.	18-Apr-17
61	Number of FTEs within the Network Legal function.	18-Apr-17
62	Revenues generated by individual cost centres in the operating expenditure model.	18-Apr-17
63	Follow-up to RFI# 53 - Further request for business case for Brisbane office consolidation/relocation.	18-Apr-17
64	Clarification of the treatment of debt raising transaction costs.	18-Apr-17
65	Information regarding adjustments for redundancy costs and planned efficiency gains.	16-May-17
66	Follow-up to RFI# 32.	16-May-17
67	Follow-up to RFI# 65.	14-Jun-17
68	Further information on Transformation Plan corporate initiative savings.	14-Jun-17
69	Costs incurred for the 2017 Condition Based Assessment.	19-Jul-17
70	Detail regarding calculation of FTE allocator.	19-Jul-17
71	Breakdown of IT costs and information regarding number of software licences.	19-Jul-17
72	Follow-up to RFI# 30.	19-Jul-17
73	Further information regarding APEX system / Movement Planner investment.	19-Jul-17