



Aurizon Network FY2023 Capital Expenditure Claim

Prepared by Aurizon Network
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1. Executive Summary

Aurizon Network Pty Ltd (**Aurizon Network**) welcomes the opportunity to submit to the Queensland Competition Authority (**QCA**) its capital expenditure claim (**Capex Claim**) for the Financial Year ending 30 June 2023 (**FY23**). This submission provides evidence to support the QCA's prudence and efficiency assessment of the FY23 Capex Claim and the subsequent inclusion of Aurizon Network's capital expenditure into the Regulatory Asset Base (**RAB**).

Aurizon Network notes that the FY23 Capex Claim follows the collaborative provisions of the QCA approved 2017 Access Undertaking (**UT5**). It should be noted that Aurizon Network's FY23 Renewals Strategy and Budget (**Approved RSB**) was approved by the Rail Industry Group (**RIG**) on 14 February 2022 for all Coal Systems in the Central Queensland Coal Network (**CQCN**). Throughout FY23, Aurizon Network has sought wherever reasonably possible to deliver asset replacement and renewals activity in each Coal System in a manner that is consistent with the Approved RSB.

This submission seeks QCA approval of Aurizon Network's FY23 Asset Replacement and Renewal Expenditure (**Renewals Capex Claim**) of \$298.1m including Interest During Construction (**IDC**). This submission:

- i. demonstrates the extent to which Aurizon Network's capital expenditure and scope of work is consistent with the Approved RSB for each Coal System;
- ii. seeks QCA approval of additional costs where the Renewals Capex Claim departs from the Approved RSB for each Coal System in accordance with Clause 7A.11.6 (b)(iv)(B);
- iii. seeks QCA approval for the prudent and efficient value of the applicable assets where Aurizon Network's capital expenditure and scope of work was not included in the approved RSB for any Coal System in accordance with Clause 2.2 of Schedule E of UT5.

Capitalised terms in this submission have the meaning given in UT5, unless otherwise defined.

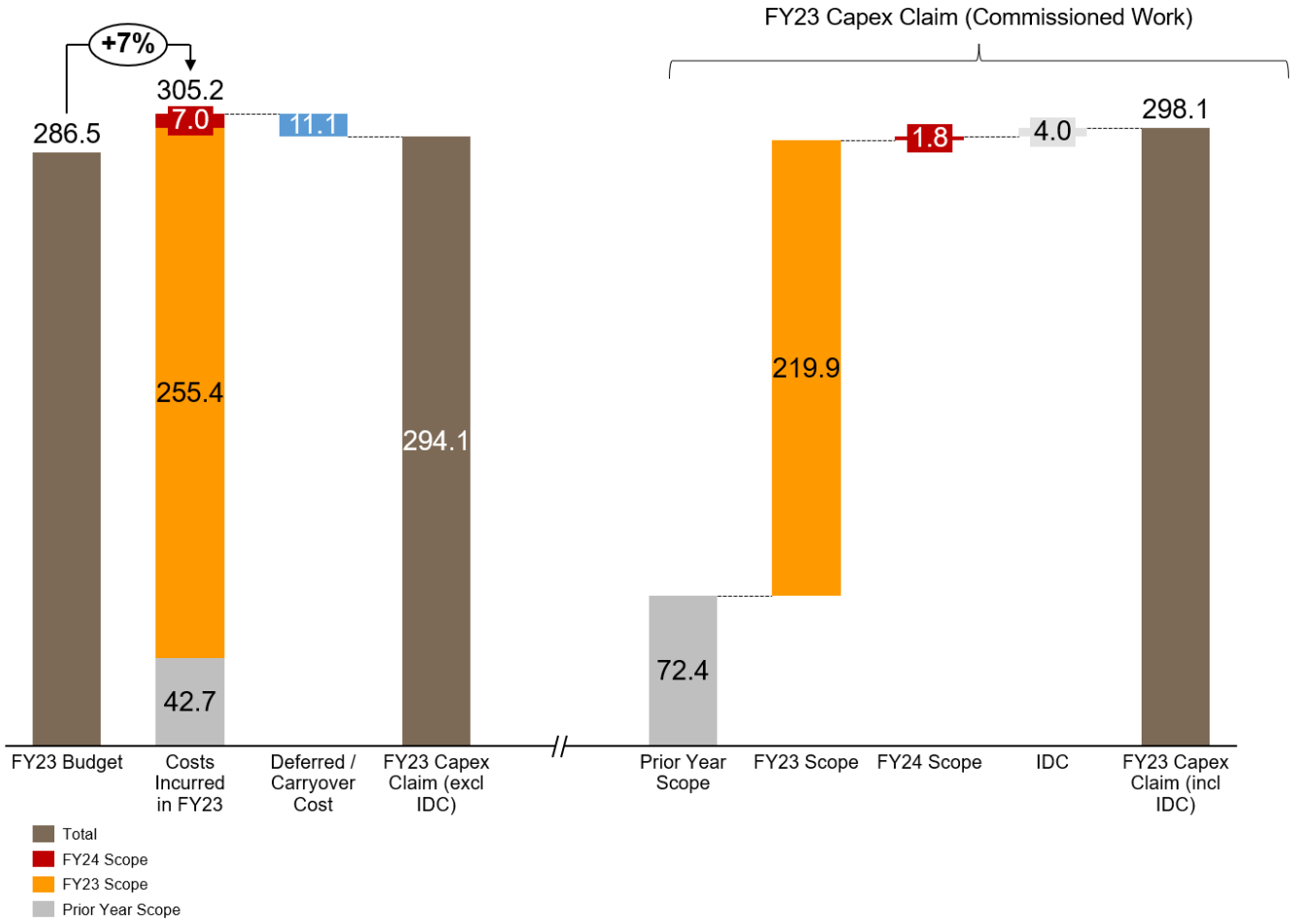
Table 1 Renewals Capex Claim by Coal System

Coal System	Approved RSB (\$m)	Capex Incurred (\$m)	Variance (\$m)	Capex Claim excluding IDC (\$m)	Capex Claim including IDC (\$m)
Blackwater	125.8	130.0	4.2	128.5	130.4
Goonyella	122.4	128.8	6.4	121.9	123.9
Moura	15.8	19.8	4.0	17.6	17.5
Newlands / GAPE	22.5	26.6	4.1	26.1	26.3
Total CQCN	286.5	305.2	18.7	294.1	298.1

Figure 1 FY23 Renewals Program provides a comparison between the FY23 Approved RSB and the FY23 Capex Claim including a breakdown of total claimed costs for each Coal System.

Figure 1 FY23 Renewals Program

Total CQCN



2. Introduction

Aurizon Network is the accredited Rail Infrastructure Manager (**RIM**) of the CQCN, the largest open-access coal rail network in Australia and one of the country's most complex rail freight networks. The CQCN is comprised of over 2,670 kilometres of heavy haul railway track, linking more than forty mines to five coal export terminals across four major Coal Systems and the Goonyella to Abbot Point Expansion (**GAPE**).

On 14 February 2022, the Chair of the RIG advised Aurizon Network that a Special Majority of End Users for each Coal System approved each of the corresponding RSBs.

Aurizon Network has sought to implement the FY23 Approved RSB for each Coal System and has delivered the renewals program in a manner that has had regard to the UT5 Maintenance Objectives in terms of:

- Seeking to ensure that Committed Capacity is delivered;
- Appropriately balancing cost, reliability and performance of the Rail Infrastructure; and
- Coordinating outages with other Supply Chain Participants wherever reasonably possible with a view to maximising throughput.

In doing so, Aurizon Network notes that cost and scope variances do exist for some items when compared to the Approved RSB. Aurizon Network considers that the information included within this submission and within the supporting documentation provided to the QCA demonstrates that these variations were prudent and efficient and should be approved for inclusion in the RAB.

2.1 Renewals Capex Claim

Aurizon Network submits for QCA approval, its Renewals Capex Claim for FY23. This Renewals Capex Claim details the:

- expenditure incurred;
- scope of works undertaken; and
- procurement strategy and methodology used.¹

The approved FY23 RSB provided for a forecast spend of \$286.5m for the CQCN in aggregate. Aurizon Network incurred total capital expenditure of \$305.2m during FY23; \$18.7m higher than the aggregated budget. It should be noted that variances from the approved RSB have been communicated to the Rail Industry Group (**RIG**) through quarterly meetings and reports.

The FY23 Renewals Capex Claim reflects the value of assets commissioned during the year. Aurizon Network successfully commissioned a multitude of asset replacement and renewal activities throughout the CQCN, representing a total value of **\$294.1m** excluding IDC (\$298.1m including IDC). The breakdown for each Coal System is shown in Table 1 above.

The scope of works delivered by Aurizon Network during FY23 is comprised of:

- FY23 scope planned in accordance with the approved RSB;
- scope originally planned for delivery in FY22, but subsequently deferred to FY23 due to operational reasons; and

¹ Clause 7A.11.6 (a) of UT5

- additional (or substitute) scope that has been identified as requiring prioritisation during FY23.

FY23 was a challenging 12 months for Aurizon Network with several issues facing the entire supply chain and asset renewal expenditure exceeding the Approved RSB in all systems. Contributing factors to the above budget spend included:

- Continued impacts of prolonged wet weather which led to an increase in reactive renewal activity as well as disruption to planned renewal activities across the year;
- Completion of additional renewal scope that had been deferred from FY22; and
- Higher levels of cost escalation (particularly for materials and contractors) than was assumed in the Approved RSB.

Additional commentary outlining Aurizon Network's performance against the approved RSB can be found in the relevant section for each Coal System.

3. Assessment of the Renewals Capex Claim

3.1 UT5 Requirements

This submission provides the QCA with the details of capital expenditure that Aurizon Network considers should be included in the RAB. In circumstances where:

Capital Expenditure is consistent with the approved RSB:

The QCA must determine the extent to which the FY23 Renewals Capex Claim is consistent with the FY23 approved RSB for each Coal System in line with Clause 7A.11.6 (b)(iii). To the extent that the FY23 Renewals Capex Claim for a Coal System is consistent with the applicable approved RSB, the relevant End Users are deemed to support the relevant elements of the Renewals Capex Claim. Accordingly, the QCA will approve the Renewals Capex Claim.

Capital Expenditure departs from the approved RSB:

The QCA must determine the extent to which the FY23 Renewals Capex Claim departs from the FY23 approved RSB for each Coal System in line with clause 7A.11.6 (b)(iv). To the extent that the FY23 Renewals Capex Claim for a Coal System departs from the applicable approved RSB, the QCA will determine whether those additional costs specified are prudent and efficient.

In determining the prudence and efficiency of capital expenditure, the QCA must have regard to the following three matters outlined in Clause 2.2 of Schedule E of UT5:

SCOPE	STANDARD	COST
<ul style="list-style-type: none">• Scope of works for the project, including whether the requirement for the works is prudent and efficient.	<ul style="list-style-type: none">• Standard of works, including whether the standard could be expected to deliver the requirements for that project without it being overdesigned or likely to deliver a capital works project which is beyond the requirements of its scope.	<ul style="list-style-type: none">• Costs of that project are prudent and efficient, having regard to the scope and standard of work undertaken or to be undertaken for the project, which must include having regard, where relevant, to a list of factors for each element of scope, standard and cost.

The QCA must assess, in accordance with Clause 2.2(b) of Schedule E of UT5, whether the capital expenditure is prudent and efficient and in doing so, must consider only the circumstances relevant at the time of making the decision to incur the capital expenditure (or in relation to assessing prudence of costs, at the time when the costs were incurred, or the capital expenditure project was undertaken, as applicable).

3.2 Demonstrating consistency with the Approved RSB

Aurizon Network has provided a comparison of actual cost incurred and scope delivered against the approved RSB for each Coal System. This information is presented in each individual Coal System section of this submission and is aligned to the information voluntarily provided to the RIG in Quarterly Reports.

Clause 1.3(a)(ii) of Schedule E of UT5 allows Aurizon Network to submit the costs of assets that were *commissioned* during the year to the QCA for approval within the annual Capex Claim. Aurizon Network has included additional information to clearly outline the capital expenditure that has been *incurred* during the year versus what it is seeking to claim (commissioned assets) and include in the RAB.

To support the QCA's assessment of the Renewals Capex Claim, Aurizon Network has prepared End of Financial Year Status Reports (**EOFY Reports**) for the 6 categories of asset renewal activities identified in the approved RSB. These EOFY Reports:

- articulate the extent to which scope and cost is consistent with the approved RSB for each Coal System;
- identify departures from the approved RSB; and
- provide supporting commentary or evidence to justify the prudence and efficiency of any variations.

The 6 categories of asset renewal activities with EOFY Reports are:

EOFY Report	Activities Included
1. Permanent Way	Rail Renewal Sleeper Renewal Track Upgrade Turnout Renewal Turnout Components Turnout Design Permanent Way Other
2. Ballast Cleaning	Mainline Undercutting Mainline Excavator Undercutting Turnout Undercutting Bridge Rollout Ground Penetrating Radar
3. Structures	Bridges Culvert Renewal Culvert Design
4. Civil Renewals	Formation Renewal Formation Reactive Formation Other Level Crossing Renewal Level Crossing Design Level Crossing Other Access Points and Access Roads Corridor Fencing and Security
5. Control Systems Assets	Safe working – Asset Protection Safe working – Interlocking Safe working – Train Detection Safe working – Minor Power Resilience Telecommunications Assets Transmission and Data Renewal UTC/DTC System Upgrades Other Control System Renewals
6. Electrical Traction Assets	Overhead Line Equipment Power Systems Goonyella Ports OHLE Traction Substation

3.3 Demonstrating prudence and efficiency where the Renewals Capex Claim departs from the Approved RSB

As per Clause 7A.11.6(b)(iv), to the extent that a Renewals Capex Claim for an individual Coal System departs from the applicable approved RSB, the QCA must assess any additional costs specified within the Renewals Capex Claim. The QCA must approve Aurizon Network's additional costs to the extent they are prudent and efficient. The QCA will assess the additional costs in accordance with Clause 2.2 of Schedule E to UT5.

Aurizon Network has sought to identify, for each individual Coal System, capital expenditure that has departed from the approved RSB within this submission.

3.3.1 Aurizon's Enterprise Investment Framework supports prudent and efficient investments

As detailed in the FY21 Capital Claim², Aurizon Network adheres to the Aurizon Enterprise Investment Framework (**Framework**). In addition to that Framework, Aurizon Network has its own internal governance requirements which ensures the appropriate review and approvals from Network Finance, Network Operations, Network Assets and ultimately the Network Group Executive. The overall Framework is a rigorous governance process undertaken prior to the commitment of capital investments. The purpose of the Framework is to facilitate sound investment decisions and to ensure that:

- Investment proposals are rigorously assessed;
- Investment decisions are made on a consistent basis;
- Capital is optimised; and
- Learnings from past investments are recorded and taken into consideration as part of Aurizon Network's commitment to continuous improvement.

An Investment Approval Request (**IAR**) was provided to the relevant members of the Network Leadership Team and ultimately the Aurizon Investment Committee for review and endorsement.

The Framework and supporting documentation are informed by the requirements of UT5 and promote the prudence and efficiency of scope, standard and cost for capital expenditure. To inform and assist the internal governance process, Aurizon Network referred to the FY23 Renewals and Strategies Budget for each individual Coal System and the associated Capital Indicators which were ultimately approved by the QCA in its decision on the FY23 annual Review of Reference Tariffs.

3.3.2 Documentation available to demonstrate prudence and efficiency

Aurizon Network has prepared comprehensive documentation to support the QCA's assessment of prudence and efficiency of the scope, standard and cost for the capital expenditure which departs from the approved RSB. This documentation is outlined in Table 2 below and can be provided to the QCA on request.

Table 2 Supporting documents available with this submission

Document	Scope	Standard	Cost
FY23 Renewals Strategy & Budget	✓	✓	✓
End of Financial Year (EOFY) Status Reports	✓	✓	✓
Capital Expenditure Workbook			✓

² <http://www.qca.org.au/wp-content/uploads/2021/09/aurizon-network-2020-21-capital-expenditure-claim.pdf>

Document	Scope	Standard	Cost
Quarterly Reports FY23 Q1-Q4	✓		✓
FY23 – Detailed Scope Report	✓		
<i>ODCN Enhancement – Feasibility IAR</i>	✓	✓	✓
<i>Blackwater/Moura Stowage Project (Phase 1) - IAR</i>	✓	✓	✓

3.4 Identification of Capital and Operating Expenditure

Aurizon Network’s approach to identifying capital expenditure is generally aligned to the Australian Accounting Standard AASB 116 Property, Plant and Equipment. This approach ensures that costs categorised as operating expenditure are not included within the Renewals Capex Claim.

Those costs which have been categorised as capital expenditure for work commissioned in FY23 are contained within this submission for inclusion in the RAB. For the FY23 Renewals Capex Claim, Aurizon Network has identified commissioned assets as those that were installed and ready for use on or before 30 June 2023.

Clause 1.3(a)(ii) of Schedule E of UT5 allows Aurizon Network to claim the costs of commissioned assets during the year within the annual Capex Claim. The approved RSB, however, reflects that renewal spend expected to be incurred during the year. Aurizon Network has included additional information within this submission to reconcile the total costs that have been incurred during the year with the costs that have been included in the Renewals Capex Claim (i.e. commissioned assets) for subsequent inclusion in the RAB.

3.5 Interest During Construction (IDC)

Aurizon Network’s approach to calculating IDC is consistent with the methodology that has been approved by the QCA since 2010. The regulatory model assumes that all capital expenditure is included in the RAB in the middle of the relevant financial year. IDC is therefore calculated up to and including the mid-point of the year in which the project was commissioned. For capital expenditure commissioned in FY23, the mid-point is 31 December 2022.

IDC is calculated using an S-curve methodology, whereby monthly cash flow values are multiplied by the applicable interest rate. The monthly cash flows for each project are extracted from Aurizon Network’s financial accounting system, SAP. The applicable interest rate is the weighted average cost of capital (**WACC**) for the relevant year within the regulatory period.

3.6 Key Terminology

3.6.1 Costs Incurred

Costs incurred refer to costs that Aurizon Network has incurred when delivering capital expenditure works throughout the year. For clarity, incurred costs are the key measure for determining consistency with the approved RSB for each Coal System.

3.6.2 Costs Claimed

Clause 1.3(a)(ii) of Schedule E of UT5 requires that Aurizon Network claim costs associated with assets that that have been commissioned during the year. Please note that the value of Aurizon Network’s Renewals Capex Claim may

also include costs incurred in a prior year that were unable to be claimed because the asset was not commissioned in the prior year.

3.6.3 Scope Achieved

Scope achieved refers to scope undertaken throughout the year and is reflective of the costs incurred and costs claimed.

In accordance with Clause 7A.11.6(a)(i)-(iii) of UT5, Aurizon Network has provided a summary of costs incurred and scope achieved in the Blackwater, Goonyella, Moura, Newlands system and GAPE outlining where Aurizon Network has remained consistent with or has departed from the approved RSB. For further details on the scope of work Aurizon Network completed during FY23 (relating to both FY23 RSB and other scope items), please refer to the supporting documentation provided to QCA staff.

Aurizon Network has also included waterfall graphs in Appendix B to assist with the comparison of actual incurred asset renewals expenditure and the value of commissioned assets for each program that is included within this submission.

Throughout the year, Aurizon Network has communicated changes and variations with the approved RSB to the RIG through the provision of Quarterly Reports. The following sections summarise Aurizon Network's asset replacement and renewals performance for the year by Individual Coal System. Please note that the totals presented in the tables below may not add due to rounding.

4. Blackwater System

4.1 Cost Incurred and Scope Achieved for the year

Please refer to Table 3 for details of the costs incurred and scope achieved for each item within the Blackwater system. Aurizon Network considers that its performance should be assessed as consistent where costs are in line with or below the approved RSB and/or the scope delivered is equal to or more than the approved RSB.

Table 3 Blackwater System Costs Incurred & Scope achieved for the year

Renewal Item	Note	Actual Cost (\$m) FY	Budget (\$m) FY	Var	Actual Scope FY	Budget Scope FY	Var
Permanent Way	1	31.4	31.0	0.4			
Rail Renewal		9.3	9.3	(0.0)	22.1	24.1	(2.0)
Sleeper Renewal		2.9	3.6	(0.7)	2,793.0	7,568.0	(4,775.0)
Track Upgrade		9.9	9.2	0.7	7.5	8.8	(1.3)
Turnout Renewal		4.8	4.4	0.4	2.0	4.0	(2.0)
Turnout Components		3.8	2.8	1.1			
Turnout Design		0.3	0.7	(0.4)			
Permanent Way Other		0.4	1.0	(0.6)			
Ballast Cleaning	2	43.2	41.0	2.2			
Mainline Undercutting		36.1	35.1	1.0	61.3	73.6	(12.3)
Turnout Undercutting		2.8	2.8	0.0	20.0	20.0	-
Bridge Rollout		3.6	2.5	1.1	741.0	830.0	(89.0)
GPR		0.6	0.6	0.0			
Structures	3	15.6	12.0	3.5			
Bridges		0.1	0.2	(0.2)	-	1.0	(1.0)
Culvert Renewal		14.4	11.4	3.0	18.0	19.0	(1.0)
Culvert Design		1.1	0.4	0.7			
Civil Renewals	4	17.4	14.4	3.0			
Formation Renewal		6.1	4.8	1.4	3.3	2.8	0.6
Formation Reactive		4.7	1.5	3.2			
Formation Other		0.2	0.2	0.1			
Level Crossing Renewal		5.0	5.8	(0.8)	4.0	5.0	(1.0)
Level Crossing Design		0.3	0.2	0.1			
Level Crossing Other		0.2	0.4	(0.2)			
Access Points and Access Roads		0.2	1.3	(1.0)			
Corridor Fencing and Security		0.6	0.4	0.2			
Control Systems Assets	5	18.5	21.8	(3.2)			
Safe working - Asset Protection		5.1	5.4	(0.3)	2.0	10.0	(8.0)
Safe working - Interlocking		3.5	2.5	1.0	2.0	2.0	-
Safe working - Train Detection		1.8	2.4	(0.7)	3.0	1.0	2.0
Safe working - Minor		0.5	1.9	(1.4)			
Power Resilience		-	-	-			
Telecommunication Assets		2.6	4.3	(1.7)	76.7	48.3	28.4

Renewal Item	Note	Actual Cost (\$m)	Budget (\$m)	Var	Actual Scope	Budget Scope	Var
Transmission and Data Renewal		2.3	2.8	(0.6)	30.0	26.0	4.0
UTC/DTC System Upgrades		1.5	1.3	0.2	10.0	8.0	2.0
Other Control Systems Renewals		1.4	1.1	0.2			
Electrical Traction Assets	6	3.9	5.6	(1.7)			
Overhead Line Equipment		1.5	2.7	(1.2)	8.0	16.0	(6.0)
Power Systems		2.2	2.3	(0.1)	39.0	44.0	(5.0)
Traction Substation		0.1	0.5	(0.4)			
RSB Total		130.0	125.8	4.2			
Non-RSB Projects	7	0.0	-	-			
Non-RSB ODCN		0.0	-	-			
Non-RSB Stowage		-	-	-			
Total		130.0	125.8	4.2			

Variation Commentary:

1. Permanent Way

During FY23, Aurizon Network incurred \$31.4m delivering permanent way renewal activities in the Blackwater System, compared to the approved budget of \$31.0m; a variance of \$0.4m.

Wet weather disruptions throughout FY23 impacted not only scope delivery but also costs due to the necessity to reschedule and remobilise resources. For example, work crews were mobilised to complete sleeper renewals at Wallaroo however adverse weather meant that the full scope was unable to be completed despite resources already being mobilised (and costs incurred). Residual scope has been replanned for FY24, and additional mobilisation costs will likely be incurred in FY24 to complete the works. The sleeper renewal at Boorgoon was also impacted by adverse weather in November and again in February, resulting in the full scope being deferred to FY24.

The ability to procure external track workers to supplement the internal work force during integrated closures also emerged as an issue during FY23. The Rocklands rail renewal had to be deferred to FY24 due to the inability to procure sufficient welding resources across the integrated closure. This work has been planned for Q1 FY24. Resourcing also impacted the Stanwell Balloon track upgrade. The works were rescheduled three times, however, were not able to proceed following two instances of plant breakdown and one instance of critically low coal stockpile issues at the power station. Plans are being developed to complete these works in FY24.

Two of the four turnout renewals were completed. One turnout renewal was delayed due to access to a neighbouring property not being provided by the owner. A determination of a permanent solution is dependent on outcomes from the dispute which is yet to be resolved. The other turnout renewal had staging works completed with final commissioning planned in FY24.

2. Ballast Cleaning:

The FY23 RSB provided that Aurizon Network complete 73.6km of mainline undercutting scope within the Blackwater system. When establishing the RSB forecast, mainline undercutting is assumed to have a standard ballast depth in line with its asset management standards. As a result, the RSB reflects a linear measure of scope. During FY23, Aurizon Network delivered 83% of its mainline undercutting scope when expressed on a linear basis.

Aurizon Network notes, however, that actual ballast depth in locations throughout the CQC can vary, and as a result, can impact the quantity of material that must be processed. The depth of ballast and spoil generated can have a significant impact on the linear production that can be achieved and hence, the level of productive effort that is required at each location. Considering this, Aurizon Network has also evaluated scope completed having regard to the actual average ballast depth that was encountered for each mainline undercutting job and has used this data to calculate the volumetric equivalent scope. On a volumetric basis, Aurizon Network delivered 66.8km of mainline undercutting, representing 91% of the mainline undercutting scope for the year.

Scope variances were predominately driven by weather events (-7km) which impacted scope delivery by the RM902 and deferred scope (-6.1km). These impacts were partially offset by delivery of prior year scope (+4.7km) and additional reactive works completed by excavators (+2.0km). Ballast condition during operations saw an additional 2.7km of volumetric equivalent scope completed.

Additionally, Aurizon Network delivered 100% of the turnout undercutting scope and 89% of the bridge rollout scope. The bridge rollout at Memooloo incurred a scope adjustment based upon more detailed engineering assessments that identified planned formation repair work for the site was not required. The Lilley Wholes Creek bridge was deferred to Q1 FY24 due to delays in design and required procurement activities.

Aurizon Network incurred \$43.2m delivering the ballast cleaning program in FY23 which was 5% above the approved budget, predominantly driven by:

- Contracted Services – primarily driven by higher levels of external support delivered by contractors coupled with inflationary pressures which increased costs above budgeted rates. Support activities include ballast delivery and production (delivery of ballast to site by truck and spoil removal), stress testing and restressing and pre and post earthworks. Higher ballast material costs and an increase in the quantity of ballast required at some locations driven by screenability has also contributed to higher than budget costs; and
- Additional Excavator works – during the year, the ballast cleaning program was impacted by adverse weather conditions, causing some jobs to be cancelled and/or changes to plan. As a result, Aurizon Network relied on reactive excavators to deliver additional scope. Aurizon Network ultimately delivered 131% of the Blackwater excavator undercutting scope that was outlined in the RSB.

It should be noted that despite these external influences, Aurizon Network realised internal cost reductions, driven by labour costs, a reduction in RM902 component replacements (screeners and cutter bars) and lower plant maintenance costs. These reductions have had the effect of offsetting some of the increased external cost pressures.

3. Structures:

During FY23, Aurizon Network completed Structures renewals equivalent to 90% of the planned scope. The planned renewals scope was impacted by the requirement to defer the one bridge renewal to FY24 due to long lead time to supply precast units and the completion of two culvert renewals that were delayed from FY22. Three culvert renewals that were originally planned for FY23 have been deferred to FY24 due to the contractor being unable to complete the works as a result of resource constraints and, for one culvert, due to issues with access and the required cultural heritage clearances.

Aurizon Network incurred higher than budgeted costs due to external contractor prices rising at higher rates than were assumed in the budget with vendors highlighting increases in fuel, materials, plant and labour as well as overall construction industry pricing. Completion of 22 culvert designs, more than half of which were deferred from FY22, also contributed to the higher than budgeted costs. These costs will be claimed in the year the relevant renewals are completed.

4. Civil Renewals

During FY23, Aurizon Network completed 87% of the planned formation renewal scope in the Blackwater System plus an additional 0.6km of formation renewal that had been deferred due to wet weather in FY22. Additional reactive formation renewal activities were also required to be completed within FY23 to address accelerated deterioration caused by compounding impacts of ongoing wet weather. Whilst this significantly contributed to the higher than planned costs, the majority of sites completed were under Temporary Speed Restriction (**TSR**), with the reactive rectification works allowing the TSRs to be lifted. This was partially offset by lower than budgeted access points and access roads identified scope (which is also reactive in nature).

One level crossing was deferred to FY24 due to the appointed contractor being unable to deliver in FY23 as a result of resource constraints.

5. Control Systems:

Aurizon Network incurred \$18.5m delivering Control Systems renewals in FY23 which was \$3.2m below budget. Major factors that impacted the overall program include:

- The availability of key labour resources, both in design and construction, particularly during planned closures, has been impacted by the delayed completion of prior year scope. This has resulted in several scope items being deferred to future years, or only partially completed within FY23.
- Control Systems was further impacted by above budget cost escalation particularly on material costs which have been impacted by global shortages in electrical components.

Specific variations to scope against the RSB were due to the following:

- **Asset Protection:** Two of the 10 renewals were completed. Original budget was set utilising unit rate methodology data taken from FY20 Scope which was significantly lower than current costs. Remaining scope has been planned for FY24.
- **Interlocking:** Delays have been experienced largely due to the external supplier being unable to meet schedule for both hardware and provision of labour resources required for initial set up and interface of equipment into the Network. The program is expected to be brought back to schedule within FY24.
- **Train Detection:** Costs were \$0.7m below budget despite an additional two renewals being completed, due to deferred scope from FY22.
- **Power Resilience:** 2 items of scope were removed from the program and 1 was determined to not be in need of replacement.
- **Telecommunications Assets:** The variance to the scope delivered against plan (and therefore costs incurred against plan) is largely due to the completion of a significant amount of prior year scope.
- **Transmission & Data:** 30 sites were delivered against a budget of 26 due to the completion of prior year scope however costs remained \$0.6m below budget.
- **UTC/DTC System Upgrades:** 10 sites were delivered against a budget of 8 due to the completion of prior year scope.

6. Electrical:

During FY23, Aurizon Network incurred \$3.9m delivering electrical renewal activities in the Blackwater System, compared to the approved budget of \$5.6m, and completed approximately 78% of the planned scope.

The predominant cause for scope not being completed in FY23 was a result of planning scope which attempted to design, procure, and construct in a single financial year. With a reduced frequency in access opportunities and longer lead times for material and design, this model is now rarely achievable for the majority of asset renewals.

As a result, the electrical renewals program is implementing a process of presenting a design scope followed by a construction scope in a subsequent financial year to allow the design maturity to progress, material orders to be placed and appropriate time for construction to be scheduled into one of the access opportunities

available. This process is being introduced incrementally with the majority of renewals presented this way in FY24 and full implementation of this approach being targeted in FY25.

- 7. Non-RSB Projects:** Costs incurred as a result of the ODCN Enhancement and Blackwater/Moura Stowage Project which were not included in the Blackwater RSB are discussed in section 8.

4.2 Cost Incurred versus Claimed Amount

In line with Clause 1.3(a)(ii) of Schedule E of UT5, please refer to Table 4 below for details of the costs incurred for the year versus the claimed amount for the Blackwater System.

Table 4 Blackwater System Costs Incurred versus Claimed Amount

Item	Total Costs Incurred in FY23 (\$m)	FY23 Scope Claimed in FY23 (\$m)	Prior Year Scope Claimed in FY23 (\$m)	Future Year / Multi-Year Scope Claimed in FY23 (\$m)	Total Claimed Expenditure (\$m)	IDC (\$m)	Total Claimed Amount including IDC (\$m)
Permanent Way	31.4	25.3	3.3	-	28.6	0.3	28.9
Ballast Cleaning	43.2	37.5	3.3	0.5	41.3	0.1	41.3
Structures	15.6	11.4	1.6	-	13.1	0.1	13.1
Civil Renewals	17.4	14.3	1.6	-	15.9	0.1	16.1
Control Systems Assets	18.5	6.5	19.4	-	25.9	1.2	27.1
Electrical Assets	3.9	1.2	2.4	-	3.6	0.2	3.8
Non-RSB Projects	0.0	0.0	0.1	-	0.1	0.0	0.2
Total	130.0	96.3	31.8	0.5	128.5	1.9	130.4

5. Goonyella System

5.1 Cost Incurred and Scope Achieved for the Year

Please refer to Table 5 for details of the costs incurred and scope achieved within the Goonyella system. Aurizon Network considers that its performance should be assessed as consistent where costs are in line with or below the approved RSB and/or the scope delivered is equal to or more than the approved RSB.

Table 5 Goonyella System Costs Incurred & Scope achieved for the Year

Renewal Item	Note	Actual Cost	Budget	Var	Actual Scope	Budget Scope	Var
		(\$m) FY	(\$m) FY		FY	FY	
Permanent Way	1	37.4	36.3	1.1			
Rail Renewal		11.6	12.1	(0.5)	33.7	35.0	(1.2)
Sleeper Renewal		6.8	6.2	0.5	11,187.0	10,885.0	302.0
Track Upgrade		14.3	13.6	0.7	11.3	13.0	(1.7)
Turnout Renewal		0.1	–	0.1	–	–	–
Turnout Components		3.9	3.0	0.9			
Turnout Design		0.3	0.3	(0.1)			
Permanent Way Other		0.4	1.0	(0.6)			
Ballast Cleaning	2	42.2	35.9	6.3			
Mainline Undercutting		35.2	29.5	5.6	55.3	61.0	(5.6)
Turnout Undercutting		4.5	3.4	1.1	22.0	24.0	(2.0)
Bridge Rollout		1.9	2.4	(0.5)	589.0	670.0	(81.0)
GPR		0.6	0.6	(0.0)			
Structures	3	10.0	7.3	2.6			
Bridges		2.3	2.3	0.0	1.0	1.0	–
Culvert Renewal		7.6	4.9	2.7	10.0	7.0	3.0
Culvert Design		0.1	0.2	(0.1)			
Civil Renewals	4	9.3	9.3	0.0			
Formation Renewal		5.2	5.8	(0.5)	2.5	2.4	0.1
Formation Reactive		3.3	1.5	1.8			
Formation Other		0.2	0.1	0.1			
Level Crossing Renewal		0.1	0.8	(0.7)	–	1.0	(1.0)
Level Crossing Design		0.2	0.1	0.1			
Level Crossing Other		0.1	0.2	(0.1)			
Access Points and Access Roads		0.2	0.4	(0.2)			
Corridor Fencing and Security		0.1	0.4	(0.3)			
Control Systems Assets	5	23.1	22.3	0.9			
Safe working - Asset Protection		3.3	2.5	0.8	4.0	4.0	–
Safe working - Interlocking		0.0	–	0.0	–	–	–
Safe working - Train Detection		2.4	3.0	(0.6)	4.0	4.0	–
Safe working - Minor		0.9	1.3	(0.4)			
Power Resilience		0.5	0.6	(0.1)			
Telecommunication Assets		13.1	10.4	2.7	140.9	117.0	23.9
Transmission and Data Renewal		1.7	3.0	(1.3)	33.0	36.0	(3.0)

Renewal Item	Note	Actual Cost (\$m)	Budget (\$m)	Var	Actual Scope	Budget Scope	Var
UTC/DTC System Upgrades		0.4	1.0	(0.6)	2.0	4.0	(2.0)
Other Control Systems Renewals		0.9	0.5	0.4			
Electrical Traction Assets	6	6.8	11.3	(4.5)			
Overhead Line Equipment		2.3	4.7	(2.5)	9.0	38.0	(33.0)
Power Systems		3.0	2.6	0.5	66.0	48.0	18.0
Goonyella Ports OHLE		1.4	3.5	(2.1)			
Traction Substation		0.1	0.5	(0.4)			
RSB Total		128.8	122.4	6.4			
Non-RSB Projects	7	0.0	-	-			
Non-RSB ODCN		0.0	-	-			
Total		128.8	122.4	6.4			

Variation Commentary:

1. Permanent Way

Aurizon Network completed approximately 94% of the planned rail renewal and track upgrade scope and an additional 302 sleeper renewals to those initially planned in the Goonyella System during FY23. The scope was delivered at a cost of \$37.4m or 103% of budget.

2. Ballast Cleaning:

The FY23 RSB provided that Aurizon Network complete 61km of mainline undercutting scope within the Goonyella system. When establishing the RSB forecast, mainline undercutting is assumed to have a standard ballast depth in line with its asset management standards. As a result, the RSB reflects a linear measure of scope. During FY23 Aurizon Network delivered 91% of its mainline undercutting scope when expressed on a linear basis.

Aurizon Network notes, however, that actual ballast depth in locations throughout the CQCN can vary, and as a result, can impact the quantity of material that must be processed. The depth of ballast and spoil generated can have a significant impact on the linear production that can be achieved and hence, the level of productive effort that is required at each location. Considering this, Aurizon Network has also evaluated scope completed having regard to the actual average ballast depth that was encountered for each mainline undercutting job and has used this data to calculate the volumetric equivalent scope. On a volumetric basis, Aurizon Network delivered 59.1km of mainline undercutting, representing 97% of the mainline undercutting scope for the year.

Scope variances were predominately driven by deferral of scope (11.3km) offset by the completion of 13.6km scope from the previous year. Weather impacts accounted for 2.1km of lost scope, partially offset by an additional 0.8km of volumetric equivalent scope due to ballast condition.

Additionally, Aurizon Network delivered 92% of the turnout undercutting scope and 88% of the bridge rollout scope. The bridge rollouts planned for renewal at Dalrymple Bay were descope due to the likelihood that the works will need to be executed as a manual track upgrade in future years. The bridge rollout for North Creek had to be deferred due to external resources and has been replanned for Q1 FY24. The budget made provision for one turnout to be undercut on a 'reactive' basis, i.e. in a location that was yet to be identified. This reactive scope was not required in FY23. Planning refinements and wet weather also resulted in three turnouts not being delivered. These were, however, offset by the completion of two turnouts which were carried over from the previous year.

Aurizon Network incurred \$42.2m delivering the ballast cleaning program in FY23 which was 17% above the approved budget, primarily driven by higher levels of external support delivered by contractors coupled with inflationary pressures which increased costs above budgeted rates. Support activities include ballast delivery and production (delivery of ballast to site by truck and spoil removal), stress testing and restressing and pre and post earthworks. Higher ballast material costs and an increase in the quantity of ballast required at some locations driven by screenability has also contributed to higher than budget costs.

It should be noted that despite these external influences, at a total program level, Aurizon Network realised internal cost reductions, driven by labour costs, a reduction in RM902 component replacements (screeners and cutter bars) and lower plant maintenance costs. These reductions have had the effect of offsetting some of the increased external cost pressures .

3. Structures:

Aurizon Network completed 100% of the planned structures scope in the Goonyella System in FY23. An additional 3 culvert renewals that were deferred in FY22 were completed in FY23, driving the additional costs against budget, as well as 17 culvert designs that were also completed against a budget of 6 (11 had been delayed from prior years).

4. Civil Renewals

Aurizon Network completed 100% of the planned formation renewal scope in the Goonyella System in FY23. Whilst the formation renewal planned for Broadlea was not able to be delivered due to ongoing negotiations to gain permission from the neighbouring property to temporarily store materials, additional formation renewals that had been delayed from prior years were able to be delivered instead. Additional formation reactive renewal activities were also required to be completed within FY23 to address accelerated deterioration caused by compounding impacts of wet weather.

The planned level crossing renewal has been deferred to FY24, following further consultation with the nearby mine operator.

5. Control Systems:

Aurizon Network incurred \$23.1m delivering Control Systems renewals in FY23 which was \$0.9m above budget. Major factors that impacted the overall program include:

- The availability of key labour resources, both in design and construction, particularly during planned closures, has been impacted by the delayed completion of prior year scope. This has resulted in several scope items being deferred to future years, or only partially completed within FY23.
- Control Systems has been further impacted by above budget cost escalation particularly on material costs which have been impacted by global shortages in electrical components.

Specific variations to scope against the RSB were due to the following:

- **Asset Protection:** 100% of scope was delivered however costs were higher than budgeted. For the weigher renewal original budget was set utilising unit rate methodology data taken from FY20 Scope which was significantly lower than current costs
- **Train Detection:** Costs were \$0.6m below budget despite 100% of scope being completed.
- **Telecommunications Assets:** The variance to the scope delivered against plan (and therefore costs incurred against plan) is largely due to the completion of a significant amount of prior year scope.
- **Transmission & Data:** 33 sites were delivered against a budget of 36 however costs remained \$1.3m below budget.
- **UTC/DTC System Upgrades:** 2 sites were deferred to FY24 due to vendor delays.

6. Electrical:

During FY23, Aurizon Network incurred \$6.8m delivering electrical renewal activities in the Goonyella System, compared to the approved budget of \$11.3m, and completed approximately 87% of the planned scope.

The predominant cause for scope not being completed in FY23 was a result of planning scope which attempted to design, procure, and construct in a single financial year. With a reduced frequency in access opportunities and longer lead times for material and design, this model is now rarely achievable for the majority of asset renewals.

As a result, the electrical renewals program is implementing a process of presenting a design scope followed by a construction scope in a subsequent financial year to allow the design maturity to progress, material orders to be placed and appropriate time for construction to be scheduled into one of the access opportunities available. This process is being introduced incrementally with the majority of renewals presented this way in FY24 and full implementation of this approach being targeted in FY25.

7. **Non-RSB Projects:** Costs incurred as a result of the ODCN Enhancement which was not included in the Goonyella RSB are discussed in section 8.

5.2 Cost Incurred versus Claimed Amount

In line with Clause 1.3(a)(ii) of Schedule E of UT5, please refer to Table 6 for details of the costs incurred for the Year versus the claimed amount for the Goonyella System.

Table 6 Goonyella System Costs Incurred versus Claimed Amount

Item	Total Costs Incurred in FY23 (\$m)	FY23 Scope Claimed in FY23 (\$m)	Prior Year Scope Claimed in FY23 (\$m)	Future Year / Multi-Year Scope Claimed in FY23 (\$m)	Total Claimed Expenditure (\$m)	IDC (\$m)	Total Claimed Amount including IDC (\$m)
Permanent Way	37.4	32.9	4.0	-	37.0	0.3	37.3
Ballast Cleaning	42.2	29.4	11.3	-	40.7	0.6	41.3
Structures	10.0	6.2	3.2	-	9.4	0.2	9.6
Civil Renewals	9.3	7.0	2.1	-	9.1	0.1	9.3
Control Systems Assets	23.1	11.0	9.7	-	20.7	0.5	21.2
Electrical Assets	6.8	1.1	3.9	-	4.9	0.2	5.1
Non-RSB Projects	0.0	0.0	0.0	-	0.0	0.0	0.0
Total	128.8	87.6	34.4	-	121.9	2.0	123.9

6. Moura System

6.1 Cost Incurred and Scope Achieved for the Year

Please refer to Table 7 for details of the costs incurred and scope achieved within the Moura system. Aurizon Network considers that its performance should be assessed as consistent where costs are in line with or below the approved RSB and/or the scope delivered is equal to or more than the approved RSB.

Table 7 Moura System Costs Incurred & Scope achieved for the Year

Renewal Item	Note	Actual Cost (\$m)	Budget (\$m)	Var	Actual Scope	Budget Scope	Var
		FY	FY		FY	FY	
Permanent Way	1	8.8	5.2	3.6			
Rail Renewal		2.7	1.8	0.8	6.1	6.0	0.1
Sleeper Renewal		1.0	–	1.0	2,051.0	–	2,051.0
Track Upgrade		2.3	1.7	0.7	1.2	1.6	(0.4)
Turnout Renewal		2.0	1.1	0.9	2.0	2.0	–
Turnout Components		0.1	0.6	(0.4)			
Turnout Design		0.5	–	0.5			
Permanent Way Other		0.2	0.1	0.1			
Ballast Cleaning	2	2.4	1.9	0.5			
Mainline Undercutting		1.5	0.9	0.6	1.9	1.5	0.4
Turnout Undercutting		0.3	0.3	0.1	2.0	2.0	–
Bridge Rollout		0.6	0.7	(0.1)	170.0	170.0	–
GPR		–	–	–			
Structures	3	2.6	2.4	0.2			
Bridges		0.0	–	0.0			
Culvert Renewal		2.6	2.3	0.2	7.0	8.0	(1.0)
Culvert Design		0.0	0.1	(0.1)			
Civil Renewals	4	3.0	2.9	0.1			
Formation Renewal		0.0	1.1	(1.1)	–	0.5	(0.5)
Formation Reactive		1.4	0.8	0.6			
Formation Other		0.0	0.0	(0.0)			
Level Crossing Renewal		0.7	0.4	0.3	1.0	1.0	–
Level Crossing Design		0.0	0.0	0.0			
Level Crossing Other		0.6	0.2	0.4			
Access Points and Access Roads		0.0	0.2	(0.2)			
Corridor Fencing and Security		0.2	0.2	(0.0)			
Control Systems Assets	5	2.9	3.3	(0.4)			
Safe working - Asset Protection		1.9	1.1	0.9	2.0	3.0	(1.0)
Safe working - Interlocking		0.6	1.2	(0.6)	1.0	1.0	–
Safe working - Train Detection		–	–	–	–	–	–
Safe working - Minor		0.0	0.1	(0.0)			
Power Resilience		0.0	–	0.0			
Telecommunication Assets		–	0.2	(0.2)	–	2.8	(2.8)
Transmission and Data Renewal		0.4	0.4	(0.1)	6.0	8.0	(2.0)

Renewal Item	Note	Actual Cost (\$m)	Budget (\$m)	Var	Actual Scope	Budget Scope	Var
UTC/DTC System Upgrades		0.0	0.1	(0.1)	1.0	1.0	-
Other Control Systems Renewals		-	0.2	(0.2)			
RSB Total		19.8	15.8	4.0			
Non-RSB Projects	7	-	-	-			
Non-RSB Stowage		-	-	-			
Total		19.8	15.8	4.0			

Variation Commentary:

1. Permanent Way:

Aurizon Network incurred \$8.8m delivering the permanent way renewal activities in the Moura System, compared to the approved budget of \$5.2m; a variance of \$3.6m. Contributing to this was the renewal of 2,051 sleepers at Boundary Hill that had been deferred from FY22 due to wet conditions and required significant mobilisation of plant to complete manually.

Adverse weather related impacts in the December 2022 closure also resulted in the cancellation of the majority of planned works and resulted in an increase in costs, primarily for rail renewal due to the remobilisation of resources. Despite this, 100% of the planned scope was able to be completed within FY23.

The track upgrade and turnout renewal works also exceeded budget due to estimates based on concept designs and historical unit rates that did not account for the actual complexity and site-specific constraints. The track upgrade scope had also included a turnout within the calculated distance, so the actual scope completed is less than budget.

2. Ballast Cleaning:

The FY23 RSB provided that Aurizon Network complete 1.5km of mainline undercutting scope within the Moura system. When establishing the RSB forecast, mainline undercutting is assumed to have a standard ballast depth in line with its asset management standards. As a result, the RSB reflects a linear measure of scope. During FY23 Aurizon Network delivered 127% of its mainline undercutting scope when expressed on a linear basis.

Aurizon Network notes, however, that actual ballast depth in locations throughout the CQCN can vary, and as a result, can impact the quantity of material that must be processed. The depth of ballast and spoil generated can have a significant impact on the linear production that can be achieved and hence, the level of productive effort that is required at each location. Considering this, Aurizon Network has also evaluated scope completed having regard to the actual average ballast depth that was encountered for each mainline undercutting job and has used this data to calculate the volumetric equivalent scope. On a volumetric basis, Aurizon Network delivered 2.1km of mainline undercutting, representing 140% of the mainline undercutting scope for the year. The 0.6km additional reactive scope was completed to address asset condition.

Additionally, Aurizon Network delivered 100% of the turnout undercutting scope and bridge rollout scope.

Aurizon Network incurred \$2.4m delivering the ballast cleaning program in FY23 which was 26% above the approved budget, predominantly driven by:

- Additional 40% of scope delivered against budget; and
- Higher levels of external support delivered by contractors coupled with inflationary pressures which increased costs above budgeted rates. Support activities include ballast delivery and production (delivery of ballast to site by truck and spoil removal), stress testing and restressing and pre and post earthworks. Higher ballast material costs and an increase in the quantity of ballast required at some locations driven by screenability has also contributed to higher than budget costs.

It should be noted that despite these external influences, Aurizon Network realised internal cost reductions, driven by labour costs, a reduction in RM902 component replacements (screeners and cutter bars) and lower plant maintenance costs. These reductions have had the effect of offsetting some of the increased external cost pressures

3. Structures:

During FY23 Aurizon Network completed 88% of the planned Structures renewal scope in the Moura System at a cost of \$2.5m (8% over the approved budget). One culvert renewal was deferred to FY24 due to procurement and design delays. Aurizon Network incurred higher than budgeted costs due to external contractor prices rising at higher rates than were assumed in the budget with vendors highlighting increases in fuel, materials, plant and labour as well as overall construction industry pricing.

4. Civil Renewal

Aurizon Network incurred \$3.0m delivering the civil renewal activities in the Moura System, compared to the approved budget of \$2.9m. Additional formation reactive renewal activities were required to be completed within FY23 to address accelerated deterioration caused by compounding impacts of wet weather. External contractor price increases at the time of tendering were the primary driver of the higher than budget spend for the level crossing renewal.

Engineering assessments conducted on the planned formation renewal point identified that the asset condition was better than predicted and renewal was not required to be completed this financial year.

5. Control Systems:

Aurizon Network incurred \$2.9m delivering Control Systems renewals in FY23 which was \$0.3m below budget. Major factors that impacted the overall program include:

- The availability of key labour resources, both in design and construction, particularly during planned closures, has been impacted by the delayed completion of prior year scope. This has resulted in several scope items being deferred to future years, or only partially completed within FY23.
- Control Systems has been further impacted by above budget cost escalation particularly on material costs which have been impacted by global shortages in electrical components.

Specific variations to scope against the RSB were due to the following:

- **Asset Protection:** Two of the three renewals were completed. Original budget was set utilising unit rate methodology data taken from FY20 Scope which was significantly lower than current costs. Remaining scope has been planned for FY24.
- **Train Detection:** Costs were \$0.7m below budget despite an additional two renewals being completed, due to deferred scope from FY22.
- **Telecommunications Assets:** This scope has been delayed until Q4 FY24 as the team were looking to save on mobilisation costs and complete this work at the same time as Blackwater FY24 Scope.
- **Transmission & Data:** 6 sites were delivered against a budget of 8 due to delays in key materials. The scope has been replanned for FY24.

6. Non-RSB Projects: Costs incurred as a result of the Blackwater/Moura Stowage Project which was not included in the Moura RSB are discussed in section 8.

6.2 Cost Incurred versus Claimed Amount

In line with Clause 1.3(a)(ii) of Schedule E of UT5, please refer to Table 8 below for details of the costs incurred for the Year versus the claimed amount for the Moura System.

Table 8 Moura System Costs Incurred versus Claimed Amount

Item	Total Costs Incurred in FY23 (\$m)	FY23 Scope Claimed in FY23 (\$m)	Prior Year Scope Claimed in FY23 (\$m)	Future Year / Multi-Year Scope Claimed in FY23 (\$m)	Total Claimed Expenditure (\$m)	IDC (\$m)	Total Claimed Amount including IDC (\$m)
Permanent Way	8.8	6.8	2.2	-	9.0	0.0	9.0
Ballast Cleaning	2.4	2.3	-	-	2.4	0.0	2.4
Structures	2.6	1.6	0.2	-	1.8	0.0	1.8
Civil Renewals	3.0	2.2	0.1	-	2.3	0.0	2.3
Control Systems Assets	2.9	1.3	0.8	-	2.1	0.0	2.1
Non-RSB Projects	-	-	0.0	-	0.0	0.0	0.0
Total	19.8	14.2	3.3	-	17.6	(0.1)	17.5

7. Newlands System and Goonyella Abbot Point Expansion Project (GAPE)

7.1 Cost Incurred and Scope Achieved for the Year

Please refer to Table 9 for details of the costs incurred and scope achieved within the Newlands System and GAPE. Aurizon Network considers that its performance should be assessed as consistent where costs are in line with or below the approved RSB and/or the scope delivered is equal to or more than the approved RSB.

Please note that asset replacement and renewal expenditure on infrastructure constructed as part of the GAPE project is separately identified in Table 10 below.

Table 9 Combined Newlands System and GAPE Costs Incurred & Scope achieved for the Year

Renewal Item	Note	Actual Cost (\$m)	Budget (\$m)	Var	Actual Scope	Budget Scope	Var
		FY	FY		FY	FY	
Permanent Way	1	7.1	5.2	2.0			
Rail Renewal		2.4	1.2	1.2	4.4	2.4	2.0
Sleeper Renewal		0.0	–	0.0	–	–	–
Track Upgrade		4.0	3.2	0.8	3.1	3.1	(0.0)
Turnout Renewal		0.0	–	0.0	–	–	–
Turnout Components		0.5	0.6	(0.0)			
Turnout Design		(0.1)	0.0	(0.1)			
Permanent Way Other		0.2	0.1	0.0			
Ballast Cleaning	2	3.9	4.3	(0.5)			
Mainline Undercutting		2.4	3.1	(0.7)	4.0	5.9	(1.9)
Turnout Undercutting		0.5	0.4	0.1	2.0	3.0	(1.0)
Bridge Rollout		1.0	0.9	0.1	275.0	230.0	45.0
GPR		–	–	–			
Structures	3	6.2	5.2	1.0			
Bridges		5.5	4.6	0.9	3.0	3.0	–
Culvert Renewal		0.7	0.5	0.2	1.0	1.0	–
Culvert Design		0.0	0.1	(0.0)			
Civil Renewals	4	5.1	4.2	0.9			
Formation Renewal		3.5	2.3	1.2	1.3	1.0	0.3
Formation Reactive		0.3	0.5	(0.2)			
Formation Other		0.0	0.0	(0.0)			
Level Crossing Renewal		1.0	0.8	0.2	2.0	2.0	–
Level Crossing Design		0.0	–	0.0			
Level Crossing Other		0.2	0.2	0.0			
Access Points and Access Roads		0.1	0.2	(0.1)			
Corridor Fencing and Security		0.0	0.2	(0.2)			
Control Systems Assets	5	4.3	3.7	0.6			
Safe working – Asset Protection		0.1	–	0.1	–	–	–
Safe working – Interlocking		2.2	1.3	0.9	1.0	1.0	–
Safe working – Train Detection		–	–	–	–	–	–
Safe working – Minor		0.0	0.0	0.0			
Power Resilience		0.1	–	0.1			

Renewal Item	Note	Actual Cost (\$m)	Budget (\$m)	Var	Actual Scope	Budget Scope	Var
Telecommunication Assets		–	–	–	–	–	–
Transmission and Data Renewal		2.0	1.9	0.1	49.0	57.0	(8.0)
UTC/DTC System Upgrades		0.0	0.3	(0.3)	2.0	1.0	1.0
Other Control Systems Renewals		–	0.2	(0.2)			
Total		26.6	22.5	4.1			

Variation Commentary:

1. Permanent way

During FY23, all planned permanent way renewal scope in Newlands and GAPE was delivered, as well as additional rail renewal scope due to accelerated rail wear.

Actual costs exceeded budget for the track upgrade. The cost efficiencies Aurizon Network had planned for due to the length of scope were not able to be realised due to the high freight costs experienced in mobilising to the Newlands corridor as well as difficult track access conditions in the section between Aberdeen and Binbee.

2. Ballast Cleaning:

The FY23 RSB provided that Aurizon Network complete 5.9km of mainline undercutting scope within Newlands and GAPE. When establishing the RSB forecast, mainline undercutting is assumed to have a standard ballast depth in line with its asset management standards. As a result, the RSB reflects a linear measure of scope. During FY23 Aurizon Network delivered 68% of its mainline undercutting scope when expressed on a linear basis.

Aurizon Network notes, however, that actual ballast depth in locations throughout the CQCN can vary, and as a result, can impact the quantity of material that must be processed. The depth of ballast and spoil generated can have a significant impact on the linear production that can be achieved and hence, the level of productive effort that is required at each location. Considering this, Aurizon Network has also evaluated scope completed having regard to the actual average ballast depth that was encountered for each mainline undercutting job and has used this data to calculate the volumetric equivalent scope. On a volumetric basis, Aurizon Network delivered 4.4km of mainline undercutting, representing 75% of the mainline undercutting scope for the year.

The RSB provided for 3.6km of scope to be completed with the RM902. Following weather and scope impacts in other systems, Aurizon Network sought to recover by making the operational decision to deliver all RM902 scope in Newlands and GAPE using excavators. 2.7km of this scope was able to be replanned and delivered by excavators during FY23, with the remainder being deferred.

Additionally, Aurizon Network delivered 100% of the turnout undercutting scope (note the allocation of one reactive turnout undercut was not utilised) and 120% of the bridge rollout scope. The bridge rollout was deferred from FY22 due to a delayed work train service that did not allow the handrails to be installed as planned.

Aurizon Network incurred \$4.3m delivering the ballast cleaning program in FY23 which was 91% of the approved budget, predominantly driven by:

- Higher levels of external support delivered by contractors coupled with inflationary pressures which increased costs above budgeted rates. Support activities include ballast delivery and production (delivery of ballast to site by truck and spoil removal), stress testing and restressing and pre and post earthworks. Higher ballast material costs and an increase in the quantity of ballast required at some locations driven by screenability has also contributed to higher than budget costs; and
- Additional Excavator works – Aurizon Network delivered 174% of the RSB excavator undercutting scope. The operational decision to execute all mainline undercutting in Newlands and GAPE with excavators saw increased costs when compared to the budget.

It should be noted that despite these external influences, Aurizon Network realised internal cost reductions, driven by labour costs, a reduction in RM902 component replacements (screeners and cutter bars) and lower plant maintenance costs. These reductions have had the effect of offsetting some of the increased external cost pressures

3. Structures:

Aurizon Network completed 100% of the planned structures scope in Newlands and GAPE in FY23. Actual costs exceeded budget due to external contractor prices rising at higher rates than were assumed in the budget with vendors highlighting increases in fuel, materials, plant and labour as well as overall construction industry pricing.

4. Civil Renewals:

Aurizon Network completed 100% of the planned civil renewal scope in Newlands and GAPE. Additional formation renewal FY24 scope was also completed due to asset condition that had resulted in a TSR and weekly maintenance being imposed. This contributed to the higher than budget costs incurred.

Whilst the level crossing renewal near Sonoma was unable to proceed as a suitable road traffic detour could not be agreed with the relevant stakeholders, an additional level crossing at Abbot Point was completed due to earlier than anticipated deterioration.

5. Control Systems:

Aurizon Network incurred \$4.3m delivering Control Systems renewals in FY23 which was 0.6m below budget. Major factors that impacted the overall program include:

- The availability of key labour resources, both in design and construction, particularly during planned closures, has been impacted by the delayed completion of prior year scope. This has resulted in several scope items being deferred to future years, or only partially completed within FY23.
- Control Systems has been further impacted by above budget cost escalation particularly on material costs which have been impacted by global shortages in electrical components.

Specific variations to scope against the RSB were due to the following:

- **Interlocking:** Extra costs were incurred than budgeted due to some design tasks from FY22 still being completed in FY23.
- **Power Resilience:** Two items of scope were removed from the program and one was determined to not be in need of replacement.
- **Transmission & Data:** 49 sites were delivered against a budget of 57. Remaining scope has been deferred to FY24.
- **UTC/DTC System Upgrades:** Two sites were delivered against a budget of one due to the completion of prior year scope.

7.1.1 Separately identifying asset replacement and renewal expenditure constructed at GAPE

Aurizon Network has separately identified the asset replacement and renewal expenditure associated with Rail Infrastructure that was constructed as part of the Goonyella Abbot Point Expansion Project (**GAPE**). This includes asset replacement and renewal expenditure incurred:

- between North Goonyella Junction and Newlands Mine Junction (the GAPE Link); and
- on common-user Rail Infrastructure geographically located in the Newlands system but constructed as part of the GAPE project (i.e. the Newlands System Enhancements).

A breakdown of asset replacement and renewals expenditure on GAPE Rail Infrastructure is provided below:

Table 10 FY23 Asset Replacement and Renewals Expenditure – GAPE Rail Infrastructure

Activity	Value (\$m)
Permanent Way	2.8
Ballast Cleaning	0.7
Structures	0.6
Control Systems Assets	0.0
Total	4.1

7.2 Cost Incurred versus Claimed Amount

In line with Clause 1.3(a)(ii) of Schedule E of UT5, please refer to Table 11 below for detail on the costs incurred for the Year versus the claimed amount for the Newlands System and GAPE.

Table 11 Combined Newlands/GAPE System Costs Incurred versus Claimed Amount

Item	Total Costs Incurred in FY23 (\$m)	FY23 Scope Claimed in FY23 (\$m)	Prior Year Scope Claimed in FY23 (\$m)	Future Year / Multi-Year Scope Claimed in FY23 (\$m)	Total Claimed Expenditure (\$m)	IDC (\$m)	Total Claimed Amount including IDC (\$m)
Permanent Way	7.1	7.4	0.1	-	7.5	0.1	7.6
Ballast Cleaning	3.9	3.5	0.7	-	4.2	0.0	4.2
Structures	6.2	6.0	0.1	-	6.1	0.1	6.2
Civil Renewals	5.1	3.4	0.1	1.4	4.8	0.0	4.8
Control Systems Assets	4.3	1.5	2.0	-	3.5	0.1	3.6
Total	26.6	21.8	2.9	1.4	26.1	0.3	26.3

8. System Wide

8.1 Projects not included in the FY23 RSB

As part of this FY23 capital expenditure claim, Aurizon Network is seeking QCA approval to include capital expenditure of \$0.17m (excluding IDC) into the RAB which relates to the following key improvement initiatives:

8.1.1 Operational Data Communications Network Enhancement

The Operational Data Communications Network (**ODCN**) consists of telecommunications infrastructure and data communication elements which support an array of services including train control systems, signalling telemetry, wayside equipment, train radio communications, power supervisory systems and network monitoring tools.

As part of Aurizon Network's broader Control Systems Renewals programme, legacy Voice Frequency (**VF**) systems are being replaced with equipment requiring Internet Protocol (**IP**) networking. The ODCN enhancements are required to support the new IP networks and are intended to standardise and simplify the data network by reducing the requirement for multiple IP devices at the same site, which also enables easier configuration and supports more secure access to the operational network for a range of asset classes.

Aurizon Network initially contemplated the gradual completion of the ODCN enhancements over a period of 5 to 7 years (between FY19 and FY25). With the growth of data requirements and move towards automated asset monitoring, the scope of the ODCN enhancement project would see works completed at 98 sites, including a combination of renewals and new infrastructure. Works at 54 of these sites would involve the reconfiguration of the existing data network infrastructure to improve availability and security. The remaining 44 sites had no prior network capability and required the installation of additional data network devices. Aurizon Network delivered these sites through a capital renewal program during FY18, FY19 and FY20 to support the provision of services such as digital telemetry and provision of internet connectivity at corridor equipment rooms.

The ODCN enhancements improve services delivered over the data network infrastructure. Because this program accelerated the renewal of assets at some locations, the decision was made to claim this expenditure at the time where either:

- the assets would have been due for replacement had they not been a part of the accelerated renewal program;
or
- when the assets upgrade provided benefit to the entire network.

During FY22, it was noted that the asset upgrades were now providing benefit to the entire network through improved resiliency. With the renewal of the ODCN and updated communications systems being in line with the new data network management principles, Aurizon Network is able to better manage railway operations, communications and cyber security.

The QCA has already approved \$2.7m (excluding IDC) of ODCN as part of the FY22 Capital Expenditure claim. Aurizon Network is now seeking QCA approval of the remaining ODCN project costs as part of the FY23 Capex Claim. These costs are presented in Table 12 below.

8.1.2 Blackwater/Moura Stowage Project

Aurizon Network requires Train Operators to stow trains on sections of the network during maintenance closures and network disruptions. Stowage is a component of the provision of access under the Access Agreements and suitable infrastructure is provided by Aurizon Network for this purpose. Constraints to the efficient operation of the network due to both planned and unplanned stowage of Blackwater length consists were identified by Aurizon Network in FY21 as a result of:

- Stow location demand increasing due to new coal producers entering the system;
- Stow location demand in the Blackwater system increasing due to the utilisation of assets from other systems to manage customer demand; and
- Increased congestion at Callemondah Yard due to the abovementioned factors and repositioning of stowed consists during network closures.

The completed scope included four new ballast walkways at Wiggins Island Balloon Loop to enable stowage of up to four Blackwater length consists in one location, as well as single ballast walkways at both Aldoga and the Moura Loop. These new stow locations required infrastructure work including additional rolled ballast to ensure train drivers could safely access and apply the rollingstock handbrakes requires to stow a train consist.

The identified benefits to the Blackwater and Moura systems included:

- Estimation that the additional stowage locations would enable Train Operators to run on average at least 9.2 additional services per year;
- A reduction in Callemondah yard congestion by the repositioning of stowed consists during network closures; and
- Reduced constraints to the efficient operation of the network by providing sufficient stowage locations at interspersed locations.

Aurizon Network is now seeking QCA approval of the Blackwater/Moura Stowage Project costs as part of the FY23 Capex Claim. These costs are presented in Table 12 below.

8.2 Cost Incurred versus Claimed Amount

In line with Clause 1.3(a)(ii) of Schedule E of UT5, please refer to Table 12 below for details of the costs incurred for the Year versus the claimed amount for the projects not included in the FY23 RSB. These values have been accounted for in the individual system tables for consistency, however the total amount attributable to these projects has been presented here separately for clarity. Please note the amounts presented in Table 12 are not in addition to what has already been presented.

Table 12 Other Improvement Initiative (Non-RSB) Costs Incurred versus Claimed Amount

Item	Claimed Expenditure (\$'000)	IDC (\$'000)	Total Claimed Amount including IDC (\$'000)
ODCN Enhancement	42.6	6.5	49.1
Blackwater/Moura Stowage Project	123.7	12.7	136.5
Total	166.4	19.2	185.6

9. Procurement Strategy and Inventory

In completing asset replacement and renewals work for FY23, Aurizon Network has endeavoured to procure resources in an effective and efficient manner, an outcome that was supported through the execution of the procurement strategy and methodology outlined within the Approved MRSB for FY23. This approach saw Aurizon Network seek to maximise utilisation of its internal delivery teams and augment these internal resources with suitably qualified contractor staff and plant where additional resources were required to complete identified scope.

When engaging external resources, Aurizon Network utilised, wherever reasonably possible, a series of engineering and technical service contractor panels, established through its Enterprise Procurement group. These include asset-specific service panels, skilled labour hire, plant hire and plant transportation services. Where scope required a specific skill set or if the required plant was not held within the Aurizon Network group, Aurizon Network sought to engage pre-qualified contractors to perform work either under direct supervision or if approved, as principal contractor for short periods. Aurizon Network applies an assurance program and a performance-based governance framework for external contractors to ensure they meet the required business and safety processes and policies.

Aurizon Network will continue to work with our Customers and internal teams across the Aurizon business to assess our existing procurement practices with a view to identifying improvement opportunities that will deliver value to our business and to our Customers.

10. Capital Expenditure for inclusion into the RAB by System

This submission provides the QCA with the details of capital expenditure that Aurizon Network considers should be included in the RAB in accordance with Clause 2.2 of Schedule E of UT5. Details for each Coal System are contained within the following tables:

10.1 Blackwater System

Table 13 Blackwater System - Claimed Expenditure excluding IDC (\$m)

Project Number	Project Name	RIG Category	Claimed Expenditure (\$m)
IV.00448	Structures Renewal Package 3	Structures	0.2
IV.00455	Control Systems Renewal Package 1	Control Systems	0.1
IV.00456	Control Systems Renewal Package 2	Control Systems	0.3
IV.00457	Control Systems Renewal Package 3	Control Systems	2.1
IV.00460	Level Crossing Renewal Package 3	Civil Assets	0.0
IV.00463	Turnout Renewal Package 3	Permanent Way	0.7
IV.00505	Power Systems Renewal Package 3	Electrical	1.2
IV.00507	Electrical Overhead Renewal Package 2	Electrical	0.0
IV.00508	Electrical Overhead Renewal Package 3	Electrical	0.0
IV.00678	Optical Fibre Renewal	Control Systems	4.4
IV.00692	Train Detection Renewal Central Line	Control Systems	7.2
IV.00693	Interlocking Renewal - NCL	Control Systems	0.6
IV.00694	Control Sys Renewal Callemondah	Control Systems	5.8
IV.00801	FY22 Track Renewal	Permanent Way	0.2
IV.00802	FY23 Track Renewal	Permanent Way	22.2
IV.00804	FY22 Bridge Ballast Renewal	Ballast Cleaning	0.0
IV.00805	FY23 Bridge Ballast Renewal	Ballast Cleaning	2.8
IV.00806	FY24 Bridge Ballast Renewal	Ballast Cleaning	0.5
IV.00807	FY22 Formation Renewal	Civil Assets	1.1
IV.00808	FY23 Formation Renewal	Civil Assets	10.0
IV.00810	FY22 Level Crossing Renewal	Civil Assets	0.2
IV.00811	FY23 Level Crossing Renewal	Civil Assets	4.2
IV.00813	FY22 Turnout Renewal	Permanent Way	2.4
IV.00814	FY23 Turnout Renewal	Permanent Way	3.1
IV.00816	FY22 Culvert Renewal	Structures	1.0
IV.00817	FY23 Structures Renewal	Structures	11.4
IV.00819	Bridge Renewal	Structures	0.4
IV.00820	FY22 Control Systems Renewal	Control Systems	2.0
IV.00821	FY23 Control Systems Renewal	Control Systems	3.4

Project Number	Project Name	RIG Category	Claimed Expenditure (\$m)
IV.00823	FY22 Power Systems Renewal	Electrical	0.4
IV.00824	FY23 Power Systems Renewal	Electrical	0.7
IV.00826	FY22 Electrical Overhead Renewal	Electrical	0.8
IV.00827	FY23 Electrical Overhead Renewal	Electrical	0.5
IV.00831	FY22 Ballast Renewal	Ballast Cleaning	3.3
IV.00832	FY23 Ballast Renewal	Ballast Cleaning	34.7
IV.00834	FY22 Civil Renewals	Civil Assets	0.3
IV.00835	FY23 Civil Renewals	Civil Assets	0.1
RSB Project Totals			128.4
IV.00631	ODCN Renewal	Non-RSB approved project	0.0
IV.00790	Blackwater/Moura Stowage Project	Non-RSB approved project	0.1
System Total			128.5

10.2 Goonyella System

Table 14 Goonyella System - Claimed Expenditure excluding IDC (\$m)

Project Number	Project Name	RIG Category	Claimed Expenditure (\$m)
IV.00448	Structures Renewal Package 3	Structures	0.0
IV.00455	Control Systems Renewal Package 1	Control Systems	0.0
IV.00456	Control Systems Renewal Package 2	Control Systems	0.1
IV.00457	Control Systems Renewal Package 3	Control Systems	1.6
IV.00460	Level Crossing Renewal Package 3	Civil Assets	0.0
IV.00478	Track Renewal Package 3	Permanent Way	0.0
IV.00505	Power Systems Renewal Package 3	Electrical	0.6
IV.00507	Electrical Overhead Renewal Package 2	Electrical	0.0
IV.00508	Electrical Overhead Renewal Package 3	Electrical	0.0
IV.00678	Optical Fibre Renewal	Control Systems	10.0
IV.00691	Signalling Sys Renewal Goonyella Trunk	Control Systems	0.2
IV.00801	FY22 Track Renewal	Permanent Way	3.3
IV.00802	FY23 Track Renewal	Permanent Way	29.7
IV.00804	FY22 Bridge Ballast Renewal	Ballast Cleaning	0.6
IV.00805	FY23 Bridge Ballast Renewal	Ballast Cleaning	1.5
IV.00807	FY22 Formation Renewal	Civil Assets	2.0
IV.00808	FY23 Formation Renewal	Civil Assets	6.8
IV.00810	FY22 Level Crossing Renewal	Civil Assets	0.1
IV.00813	FY22 Turnout Renewal	Permanent Way	0.7
IV.00814	FY23 Turnout Renewal	Permanent Way	3.3
IV.00816	FY22 Culvert Renewal	Structures	3.2
IV.00817	FY23 Structures Renewal	Structures	6.2
IV.00820	FY22 Control Systems Renewal	Control Systems	2.4
IV.00821	FY23 Control Systems Renewal	Control Systems	6.4
IV.00823	FY22 Power Systems Renewal	Electrical	0.8
IV.00824	FY23 Power Systems Renewal	Electrical	1.1
IV.00826	FY22 Electrical Overhead Renewal	Electrical	2.5
IV.00829	Goonyella Ports Overhead Renewals	Electrical	0.0
IV.00831	FY22 Ballast Renewal	Ballast Cleaning	10.7
IV.00832	FY23 Ballast Renewal	Ballast Cleaning	27.9
IV.00834	FY22 Civil Renewals	Civil Assets	0.1
IV.00835	FY23 Civil Renewals	Civil Assets	0.2
RSB Project Totals			121.9
IV.00631	ODCN Renewal	Non-RSB approved project	0.0
System Total			121.9

10.3 Moura System

Table 15 Moura System - Claimed Expenditure excluding IDC (\$m)

Project Number	Project Name	RIG Category	Claimed Expenditure (\$m)
IV.00448	Structures Renewal Package 3	Structures	0.1
IV.00456	Control Systems Renewal Package 2	Control Systems	0.0
IV.00457	Control Systems Renewal Package 3	Control Systems	0.4
IV.00460	Level Crossing Renewal Package 3	Civil Assets	0.0
IV.00463	Turnout Renewal Package 3	Permanent Way	0.1
IV.00801	FY22 Track Renewal	Permanent Way	1.7
IV.00802	FY23 Track Renewal	Permanent Way	5.1
IV.00804	FY22 Bridge Ballast Renewal	Ballast Cleaning	0.0
IV.00805	FY23 Bridge Ballast Renewal	Ballast Cleaning	0.6
IV.00807	FY22 Formation Renewal	Civil Assets	0.0
IV.00808	FY23 Formation Renewal	Civil Assets	1.3
IV.00810	FY22 Level Crossing Renewal	Civil Assets	0.1
IV.00811	FY23 Level Crossing Renewal	Civil Assets	0.8
IV.00813	FY22 Turnout Renewal	Permanent Way	0.4
IV.00814	FY23 Turnout Renewal	Permanent Way	1.7
IV.00816	FY22 Culvert Renewal	Structures	0.0
IV.00817	FY23 Structures Renewal	Structures	1.6
IV.00819	Bridge Renewal	Structures	0.0
IV.00820	FY22 Control Systems Renewal	Control Systems	0.4
IV.00821	FY23 Control Systems Renewal	Control Systems	1.3
IV.00831	FY22 Ballast Renewal	Ballast Cleaning	0.0
IV.00832	FY23 Ballast Renewal	Ballast Cleaning	1.7
IV.00835	FY23 Civil Renewals	Civil Assets	0.1
RSB Project Totals			17.6
IV.00790	Blackwater/Moura Stowage Project	Non-RSB approved project	0.0
System Total			17.6

10.4 Newlands System and GAPE

Table 16 Newlands System and GAPE - Claimed Expenditure excluding IDC (\$m)

Project Number	Project Name	RIG Category	Claimed Expenditure (\$m)
IV.00448	Structures Renewal Package 3	Structures	0.1
IV.00455	Control Systems Renewal Package 1	Control Systems	0.0
IV.00456	Control Systems Renewal Package 2	Control Systems	0.0
IV.00457	Control Systems Renewal Package 3	Control Systems	0.4
IV.00463	Turnout Renewal Package 3	Permanent Way	0.0
IV.00801	FY22 Track Renewal	Permanent Way	0.1
IV.00802	FY23 Track Renewal	Permanent Way	6.9
IV.00804	FY22 Bridge Ballast Renewal	Ballast Cleaning	0.7
IV.00805	FY23 Bridge Ballast Renewal	Ballast Cleaning	0.6
IV.00807	FY22 Formation Renewal	Civil Assets	0.0
IV.00808	FY23 Formation Renewal	Civil Assets	2.3
IV.00809	FY24 Formation Renewal	Civil Assets	1.4
IV.00810	FY22 Level Crossing Renewal	Civil Assets	0.1
IV.00811	FY23 Level Crossing Renewal	Civil Assets	1.0
IV.00813	FY22 Turnout Renewal	Permanent Way	0.0
IV.00814	FY23 Turnout Renewal	Permanent Way	0.5
IV.00816	FY22 Culvert Renewal	Structures	0.0
IV.00817	FY23 Structures Renewal	Structures	6.0
IV.00820	FY22 Control Systems Renewal	Control Systems	1.6
IV.00821	FY23 Control Systems Renewal	Control Systems	1.5
IV.00831	FY22 Ballast Renewal	Ballast Cleaning	0.0
IV.00832	FY23 Ballast Renewal	Ballast Cleaning	2.9
IV.00835	FY23 Civil Renewals	Civil Assets	0.1
System Total			26.1

Appendix A: Incurred Renewal Expenditure vs Commissioned Asset System Graphs

Aurizon Network has included the following waterfall graphs to assist with the comparison of actual incurred Asset Renewals Expenditure to the value of commissioned assets for each program that is included within this submission.

Please note that the following graphs reflect the expenditure that Aurizon Network has incurred while delivering the FY23 Asset Replacement and Renewals program. While incurred expenditure provides an appropriate comparison against the approved RSB, in some circumstances this may differ from the amounts Aurizon Network is seeking QCA approval of through this Capex Claim (which reflects commissioned assets). Aurizon Network has sought to separately identify incurred versus claimed costs for comparison. Please note that variances between incurred and claimed expenditure can exist where incurred expenditure is awaiting an administrative process (e.g. receipt of a final invoice) before the asset in question can be commissioned and subsequently transferred to Aurizon Network's Fixed Asset Register (**FAR**).

The waterfall graphs illustrate for each coal system identified in the RSB, the following:

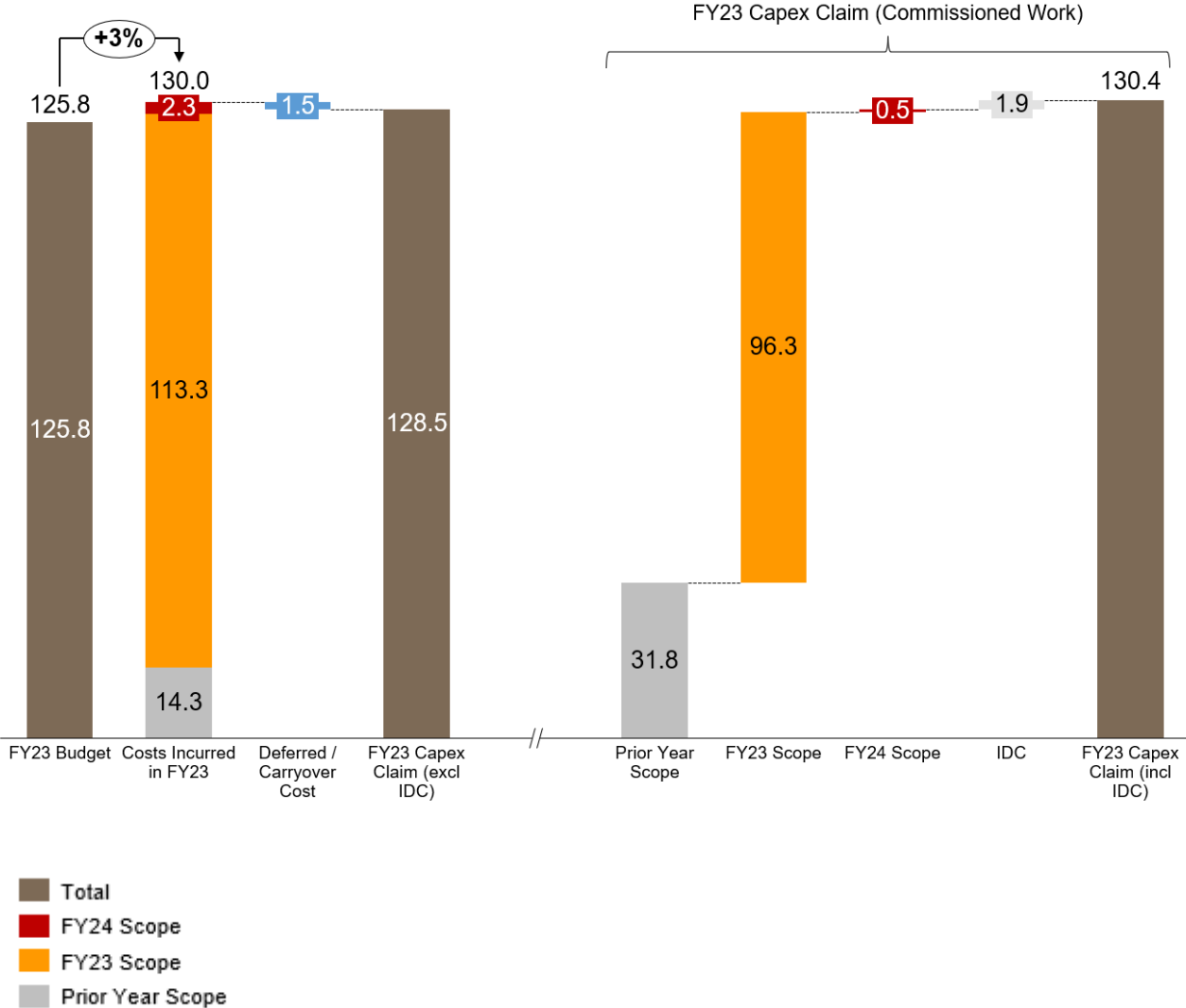
- FY23 RSB Budget
- Costs Incurred FY23 Scope, FY22 Scope, Multi Year Project Scope, FY24 Scope
- Deferred/Carry Over Costs
- FY23/Multi Year Project Capex (Claimed) \$m
- FY22 Carryover (Claimed) \$m
- FY24 (Claimed) \$m
- IDC \$m
- FY23 Capex (Commissioned Asset) \$m

Further waterfall graphs illustrating the above for each renewal category within each system are available upon request.

Blackwater

Figure 2 FY23– Blackwater System

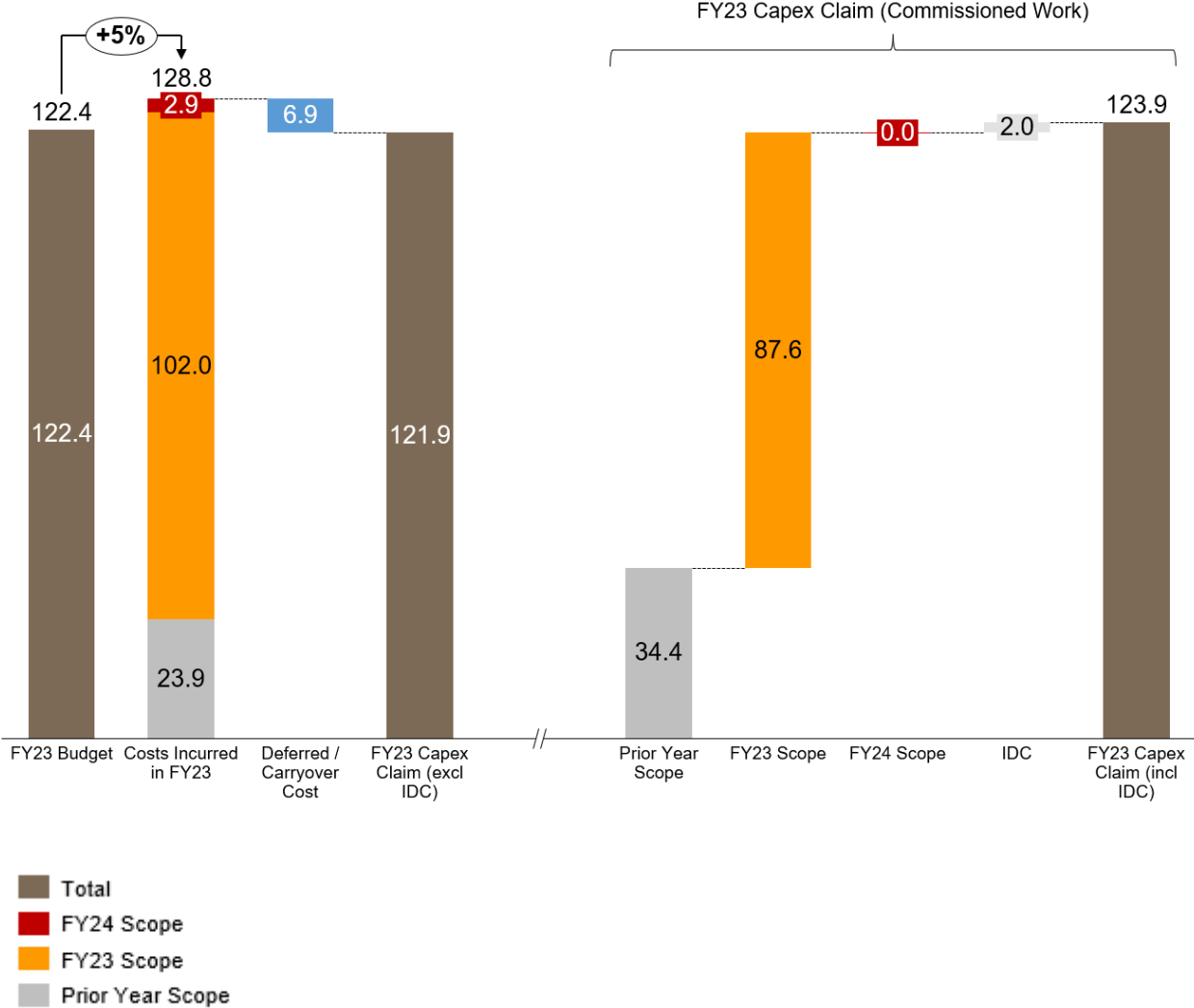
Blackwater - System Total



Goonyella

Figure 3 FY23 System - Goonyella

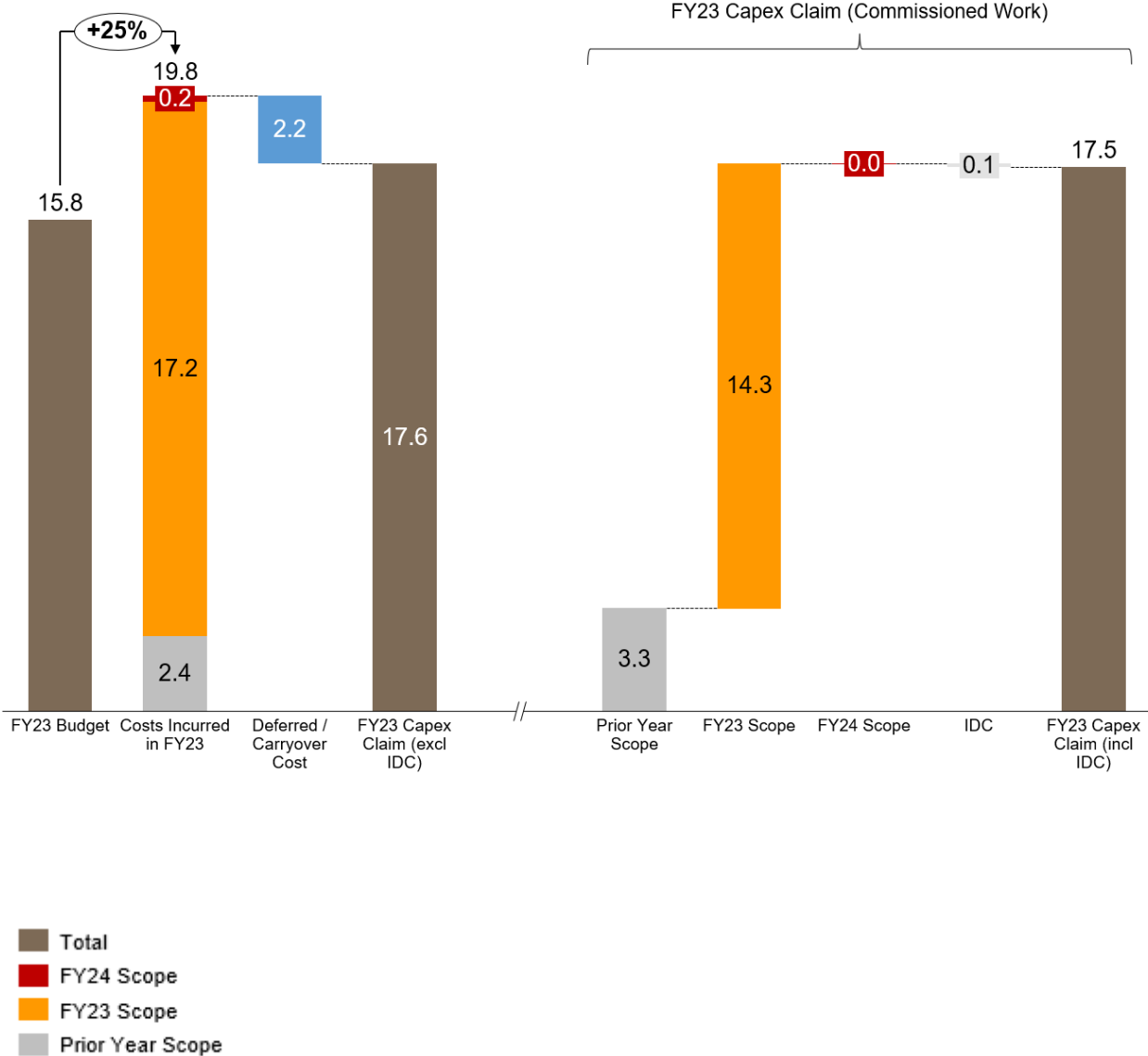
Goonyella - System Total



Moura

Figure 4 FY23 System - Moura

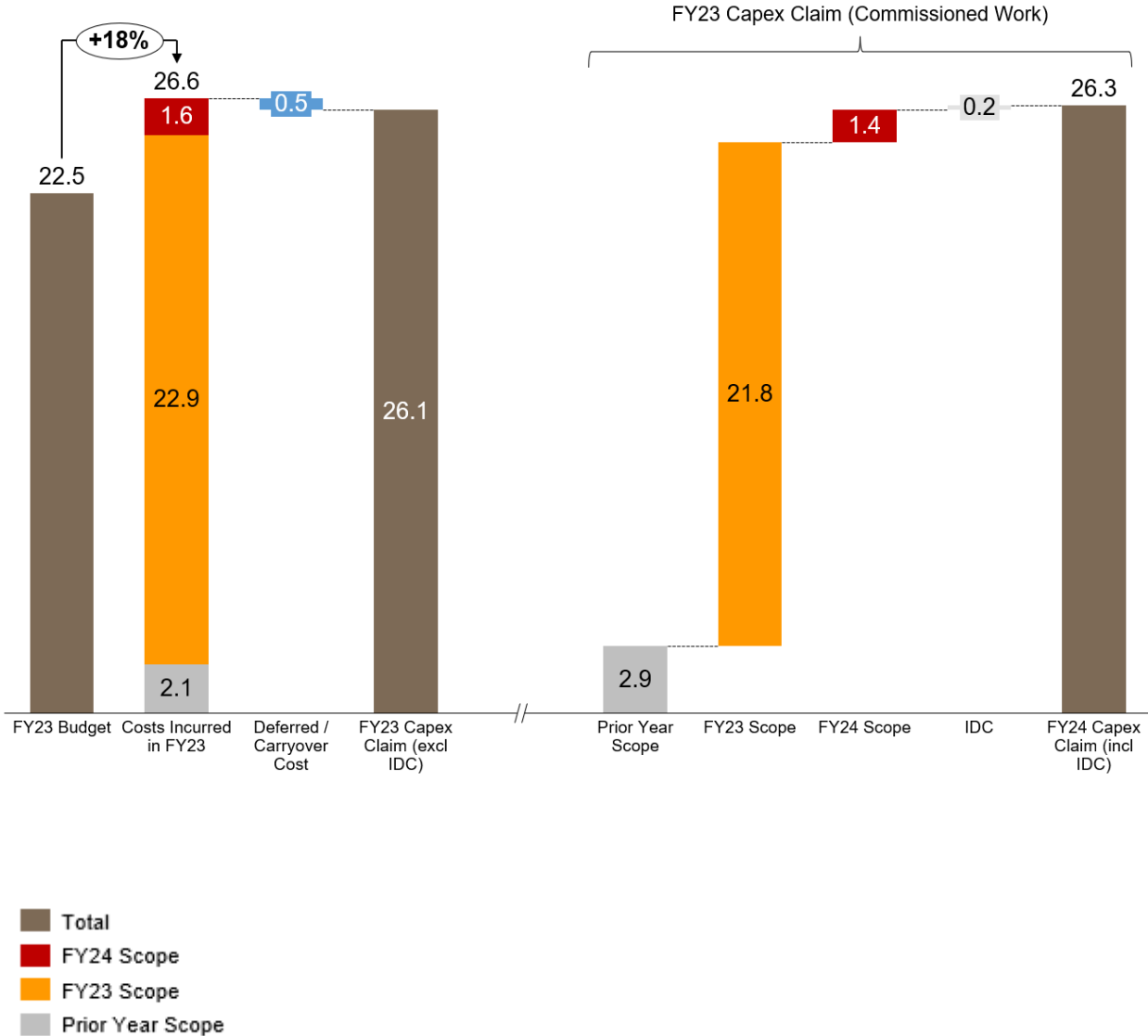
Moura System Total



Newlands and GAPE

Figure 5 FY23 System – Newlands and GAPE

Newlands System and GAPE Total



Appendix B: Supporting Documentation