

Aurizon Network: UT5 Maintenance Allowance & Practices response to the QCA

20 June 2018

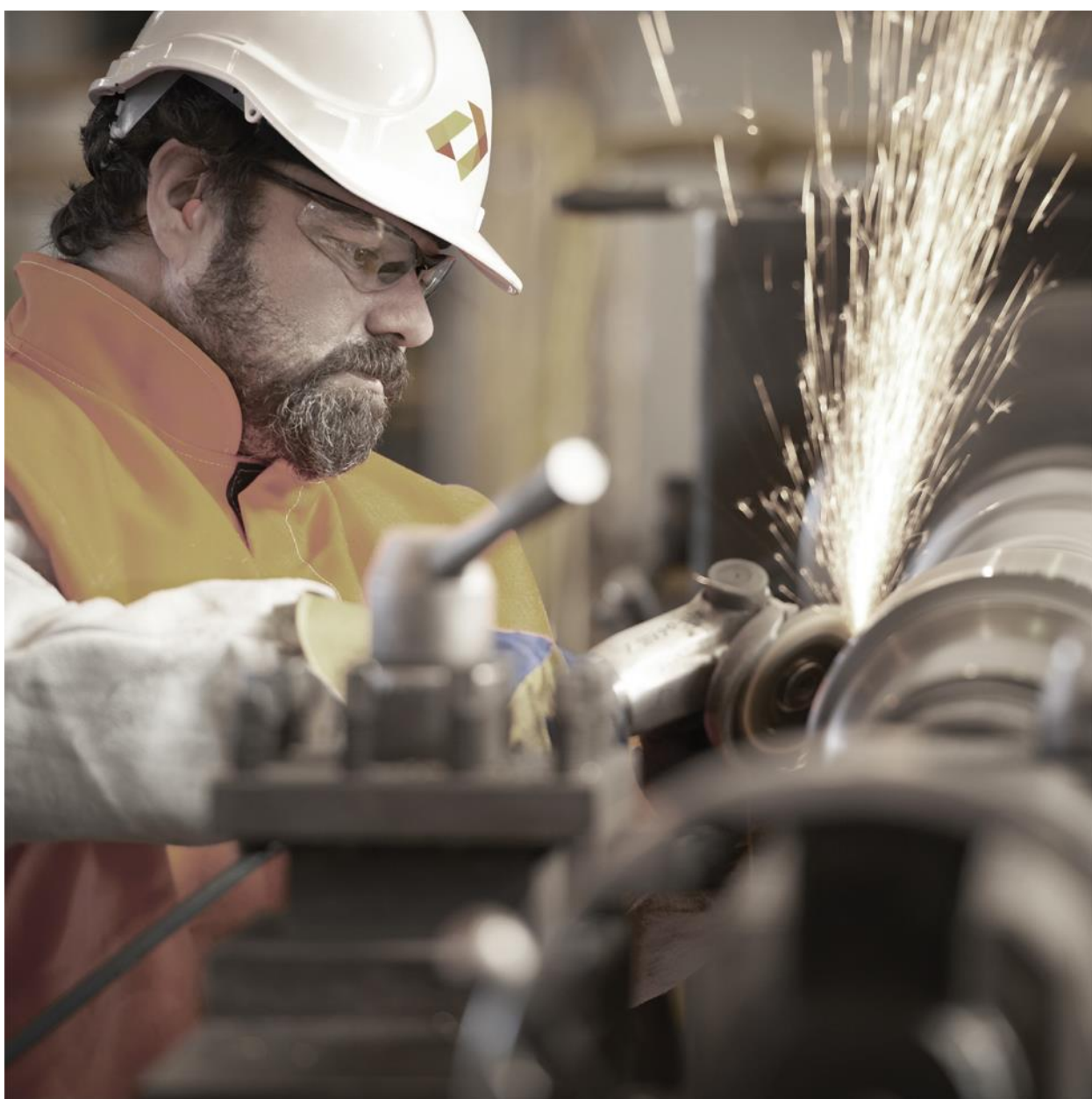


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Introduction

Aurizon Network welcomes the opportunity to provide further comments to the Queensland Competition Authority (QCA) in response to the its Consultation Paper – Request for comments: Aurizon Network’s 2017 Draft Access Undertaking: maintenance allowance and practices (**Consultation Paper**). Aurizon Network is encouraged by the QCA’s preliminary view that it is *“favourably disposed to accepting Aurizon Network’s revised claim for direct maintenance costs, subject to it providing sufficient justification and evidence”*.¹

Aurizon Network has provided a substantial amount of evidence to the QCA in support of its proposed maintenance costs for the Central Queensland Coal Network (**CQCN**), including in its initial 2017 Draft Access Undertaking submission (**UT5 DAU**), and responses to the QCA’s Draft Decision on the UT5 DAU (**UT5 Draft Decision**) and subsequent requests for information (**RFIs**). This evidence includes detailed bottom up cost and planning models for the Ballast Undercutting and Resurfacing operations. In light of this, it is unclear from the Consultation Paper what further *“justification and evidence”* is required by the QCA.

Aurizon Network is concerned that the Consultation Paper perpetuates a fundamental misconception. It suggests that the maintenance tasks, and the corresponding maintenance allowance, can be considered independently of the other critical elements in the operation of the CQCN. Maintenance is inextricably linked to investment in the CQCN assets and in the manner in which the CQCN is operated. Moreover, maintenance is fundamentally dependent on the extent of investment – lesser investment will generally result in a less reliable asset, with any required level of reliability necessarily having to be supported by a need to undertake increased maintenance. Similarly, operation of the CQCN in a manner that delivers flexibility for train services and other value for access holders, which itself requires greater planning, scheduling and day of operations support, results in maintenance having to be conducted in a manner that requires increased resources.

The operation of the CQCN to deliver optimal value to all stakeholders is dependent on the appropriate balance of investment, maintenance and operational support to deliver a network system that meets the needs of all stakeholders in the short and long term.

Aurizon Network’s UT5 DAU, and the submission made in response to the UT5 Draft Decision, recognises this interaction and the allowances submitted reflect the balance between each component necessary to deliver the outcomes expected by access holders and access seekers. The maintenance allowance submitted by Aurizon Network was determined with regard to the investment that was supportable based on the return proposed and the operational approach to be adopted with the operating costs submitted.

Aurizon Network notes that the Consultation Paper concentrates on the maintenance allowance and the prospect of greater prescription by the QCA of the maintenance obligations that it expects Aurizon Network to perform, supported by potential financial penalties and more onerous reporting and certification obligations. For Aurizon Network to assess whether the maintenance allowance contemplated in the Consultation Paper is adequate, it needs to understand the corresponding impacts to its return and the operating cost allowance proposed in response to the UT5 Draft Decision, and in particular the proposed Weighted Average Cost of Capital (**WACC**), inflation and gamma. A decision by the QCA that fails to recognise and address the issue of an appropriate rate of return, particularly in the context of the potential additional maintenance, reporting and certification proposals contained in the Consultation Paper, would not be appropriate or reasonable.

¹ Queensland Competition Authority. Consultation Paper: Aurizon Network’s 2017 draft access undertaking: maintenance allowance and practices. May 2018.

By not taking into consideration these impacts, the proposals as described within the Consultation Paper appear to disregard the pricing principles under the *Queensland Competition Authority Act 1997 (Qld) (QCA Act)* which the QCA is required to consider when it makes an access determination or decides whether to approve a draft access undertaking. Specifically, Section 168A of QCA Act requires that Aurizon Network should:

“generate expected revenue for the service that is at least enough to meet the efficient costs of providing access to the service and include a return on investment commensurate with the regulatory and commercial risks involved.”

Aurizon Network contends that the prospect of additional obligations in relation to its maintenance practices are not necessary. If any such obligations were to be introduced, then the additional risk and cost associated with these obligations would need to be considered in assessment of the other components of the QCA’s UT5 Final Decision. Should the QCA introduce any additional obligations into its UT5 Final Decision it should first publish an additional consultation paper describing in detail what is proposed so that stakeholders may respond accordingly. This would provide stakeholders with an opportunity to identify any other changes that would be required in the UT5 Final Decision in order to reflect the additional risks and costs associated with the additional obligations.

Aurizon Network’s proposed maintenance allowance

Aurizon Network’s asset management approach is structured with the aim of delivering critical network maintenance activities whilst minimising the consumption of network capacity. In other words, Aurizon Network seeks to strike an appropriate balance between cost, asset availability and asset reliability. In doing so, Aurizon Network considers the diverse operating modes, maintenance requirements and logistical challenges of the broader coal supply chain as part of its planning, scheduling and operational practices for each individual coal system.

Aurizon Network considers that the QCA’s approach to setting its maintenance allowance as it stands under the UT5 Draft Decision to be inconsistent with achievement of the objects of the QCA Act, being:

“to promote the economically efficient operation of, use of and investment in, significant infrastructure by which services are provided, with the effect of promoting effective competition in upstream and downstream markets.”²

Aurizon Network also notes the QCA’s claim in the Consultation Paper that Aurizon Network has mischaracterised the UT5 Draft Decision. As detailed later in this response to the Consultation Paper, the QCA’s assertion is rejected by Aurizon Network.

The QCA has relied upon the recommendations of its consultants to develop and justify the maintenance allowances within its UT5 Draft Decision. The consultant reports outlined maintenance practices that should be adopted by Aurizon Network as that of an ‘efficient railway infrastructure provider’. The UT5 Draft Decision, as it pertains to maintenance, is predicated on a view by the QCA and its consultants that an efficient maintenance regime simply minimises Aurizon Network’s maintenance and other operating costs without regard to how the maintenance regime will support the needs of Aurizon Network’s customers.

As stated in its response to the UT5 Draft Decision, Aurizon Network continues to believe that the maintenance practices in effect prior to the UT5 Draft Decision represent the most appropriate balance between:

² Queensland Competition Authority Act, 1997, s69e

- the economically efficient operation of the CQCN; and
- the economically efficient operation of the supply chain of which the CQCN is a component part,

as these practices accommodate the operational needs of the stakeholders within the Central Queensland coal supply chain. These practices afforded Aurizon Network with the necessary flexibility to work with its supply chain partners in order to optimise outcomes across the supply chain. Importantly, this approach recognised the implications of disruptions in a complex multi user environment which operates primarily on a cooperative model, given Aurizon Network's contractual interface is limited to access holders.

However, the UT5 Draft Decision does not permit Aurizon Network to recover at least the efficient costs of operating the CQCN in a flexible manner. This is emphasised by the regulatory and financial risks associated with anticipated retrospective application of the QCA's Final Decision to the commencement of the UT5 regulatory term on 1 July 2017. Aurizon Network has therefore sought to align its maintenance activities to the UT5 Draft Decision.

Aurizon Network notes the expectations of the QCA and its consultants in relation to the CQCN maintenance activities as they currently stand under the UT5 Draft Decision appear to be in complete contrast to the expectations of Aurizon Network's customers who have clearly expressed their desire for flexibility in approach in order to facilitate improved throughput across the coal supply chain.

It is not possible to identify any cogent reason in support of the need for even greater regulation of the manner in which Aurizon Network performs maintenance on its rail infrastructure, or for the additional risks and reporting obligations being considered by the QCA in its Consultation Paper. As noted previously, Aurizon Network consider the prospect of new obligations being introduced in relation to its maintenance practices to be unnecessary.

For these reasons and those detailed below, Aurizon Network supports the QCA's considerations to approve its revised maintenance allowance as detailed in the response to the UT5 Draft Decision dated 12 March 2018. Aurizon Network also notes the Queensland Resource Council (**QRC**) submission that has supported the QCA's 'favourably disposed' view on Aurizon Network's maintenance costs. Specifically, the QRC has stated that *"if the QCA consider it appropriate to increase Aurizon Network's maintenance allowance the QRC confirm that it supports that increase"*.³

Regulatory process

Having initiated the UT5 process on 11 May 2016, the QCA released its Statement of Regulatory Intent (**SORI**) in July 2016. The statement sought to outline how the QCA intend to manage the assessment of Aurizon Network's UT5 DAU. Importantly, the statement noted:

- *"An effective and timely assessment of Aurizon Network's 2016 draft access undertaking (2016 DAU) is a priority for the QCA";* and
- *"[the QCA] intend to deliver decisions within a reasonable timeframe and to administer consistent and predictable processes throughout this regulatory process."*⁴

³ Queensland Resource Council. Submission to the QCA titled: QCA consultation draft – maintenance allowances. 1 June 2018.

⁴ Queensland Competition Authority. Statement of Regulatory Intent. 22 July 2018

Further, the QCA stated its intention in the SORI was to minimise unnecessary burdens on stakeholders, specifically by avoiding:

- *“sequential consultation periods that may limit stakeholders' ability to provide submissions in a timely manner; and*
- *consulting on the same material on multiple occasions which may simply extend review timeframes for no benefit.”⁵*

Aurizon Network understands the QCA's desire to afford stakeholders an opportunity to comment on the maintenance aspects of Aurizon Network's UT5 DAU. However, the timing of the Consultation Paper and request for stakeholder comments goes against its objectives from within the SORI and comes almost:

- two years after the QCA's initiation of the UT5 process and release of the SORI; and
- approximately one year after the commencement of the UT5 regulatory period (being 1 July 2017).

Aurizon Network submits that the QCA's release of a consultation paper this late into the process, which contains proposals in relation to changing material matters to be unequivocally inconsistent with the QCA's stated intent regarding the timeliness of assessment and decisions and the predictability of regulatory outcomes.

Further, the QCA's investigation of the UT5 DAU has resulted in an unprecedented number of formal RFIs. As of 18 June 2018, the QCA has made a total of 306 individual RFIs with 170 of those specifically relating to Aurizon Network's maintenance practices. The magnitude in both number and scope of the RFIs is extraordinary in the context of previous undertakings and what is widely considered as a reasonable regulatory process.

It is Aurizon Network's view that its initial submission, subsequent response to the QCA's UT5 Draft Decision and substantive amount of information provided to the QCA and its consultants through the RFI process was comprehensive and sufficient for the QCA to approve or otherwise the UT5 DAU. Further consultation on Aurizon Network's maintenance activities, and the introduction of new “perceived” issues, results in additional risk through regulatory uncertainty, delays to the final decision, and substantial additional costs for all stakeholders.

The QCA could have avoided the need for this consultation process altogether had it waited and assessed Aurizon Network's most recent responses to the QCA's RFIs on its maintenance activities submitted on 5 June 2018 (after release of the Consultation Paper on 29 May 2018). Aurizon Network notes this overlap in the RFI process and the Consultation Paper is again in stark contrast to the QCA's SORI seeking to minimise unnecessary burdens on stakeholders.

Despite Aurizon Network's concerns with the QCA's process, it has provided this detailed response to the Consultation Paper to ensure that the QCA does not perpetuate in its Final Decision on UT5, the errors reflected in the UT5 Draft Decision and the matters foreshadowed in the Consultation Paper.

Finally, Aurizon Network continues to have significant concerns regarding other aspects of the UT5 Draft Decision. If the QCA is to consult with stakeholders, Aurizon Network considers the scope of the Consultation Paper does not accurately reflect the full breadth of outstanding issues raised as part of the UT5 Draft Decision, which warrant further consideration. The Consultation Paper addresses individual points raised by stakeholders, but does not seek to understand the flow on consequences or the overall reasonableness of the decision from those individual points being addressed. By not addressing the

⁵ Ibid.

consequences or reasonableness of its decision there is a real risk the QCA's assessment will contain fundamental flaws or errors.

Finally, Aurizon Network are concerned the QCA's fragmented approach to consultation on critical matters in relation to the UT5 does not allow all stakeholders to effectively assess the overall reasonableness of the QCA's decisions. Aurizon Network note such fragmentation is consistent with perceived flaws in the current regulatory regime and the process followed in assessment of the UT5 DAU.

Regulatory reform

While Aurizon Network would welcome the opportunity to pursue regulatory reform as part of a broader principle based discussion with relevant stakeholders including customers, regulators and government, it has considerable concerns regarding the proposed changes to the access regime framework raised by the QCA through this Consultation Paper. Specifically, the QCA's consideration of changes to maintenance allowances and practices appear to stand in complete isolation from other aspects of the wider regulatory framework and seek principally to impose penalties on Aurizon Network through incurring additional costs and/or increasing the risk profile of its operations without due compensation.

For example, proposed variations to Aurizon Network's materiality threshold in relation to the total number of train services where non provision of access occurred will impose an unreasonable asymmetric and uncompensated risk for Aurizon Network.⁶ It is important to recognise that, if this was implemented, Aurizon Network's modelling assumptions would need to change to a scenario where 100% of contracted train services would be met under all possible scenarios and supply chain disruptions. This is not an outcome which users have agreed to fund under their existing access contracts or through the investment which has been made in the regulated asset base (**RAB**). In addition, a unilateral decision by the QCA to reject the UT5 DAU and require amendments to this effect would be contrary to the pricing principles and Aurizon Network's legitimate business interests.

Finally, the QCA's proposed accountability requirements in relation to the activities of Aurizon Network's Board provide a clear illustration of the QCA acting beyond its powers under the QCA Act. The QCA's obligation is to approve or refuse to approve an access undertaking by considering whether it is "appropriate" having regard to the factors listed in section 138(2) of the QCA Act. It is not within the power of the QCA to require additional matters to be included in an access undertaking, or to draft its own version of an access undertaking for Aurizon Network, on the basis that the QCA considers the alternative to be more appropriate, or because in the QCA's view the alternative undertaking would achieve a better or more preferable outcome.

Aurizon Network notes that this has previously been an issue throughout the UT5 regulatory process and one raised by Aurizon Network in its response to the UT5 Draft Decision.⁷ As noted in its submission in response to the UT5 Draft Decision, Aurizon Network considers that any proposal put forward by the QCA in relation to its Board's certification of future maintenance activities – beyond those in accordance with their existing fiduciary duties – to be beyond its power and therefore invalid.

⁶ The materiality threshold (currently set at 5%) is measured across the number of train services for each single origin to destination pair under an access agreement, not any relevant train operations deed. In accordance with the Access Undertaking, Aurizon Network's revenue is adjusted in a relevant year if a breach of an access agreement or negligence in the provision of below rail services results in the non-provision of 5% or more of the total number of train services for a single origin-destination pair.

⁷ Aurizon Network. Response to the QCA UT5 Draft Decision. 12 March 2018.

QCA's characterisation of its UT5 Draft Decision

Aurizon Network rejects the notion that it has in anyway mischaracterised the QCA's UT5 Draft Decision in its considered responses to the QCA. Aurizon Network has responded directly to the QCA's comments below.

Reliance on independent consultant reports in relation to maintenance matters

The QCA states that it:

“does not agree with Aurizon Network's characterisation of the QCA's draft decision including, amongst other things, alleged reliance on independent consultant reports in relation to maintenance matters.”

Aurizon Network has carefully considered all aspects of the UT5 Draft Decision, and considers that the intent of the UT5 Draft Decision was very clear. The reports of both GHD and B&H Strategic Services were referenced on multiple occasions throughout the UT5 Draft Decision. Furthermore, the UT5 Draft Decision specifically states:

*“The QCA has considered the advice from GHD and B&H Strategic Services in determining an appropriate level of efficient maintenance costs for the regulatory period. **Using this information** [emphasis added] the QCA proposes an efficiency factor for a target level of annual maintenance cost reduction.”⁸*

*“The **QCA has sought to leverage off** [emphasis added] GHD's analysis in forming its view on the appropriate maintenance allowance to approve in UT5.”⁹*

“Assessing the efficiency of the FY2017 benchmark costs would require an assessment of whether the maintenance activities delivered in FY2017 could have been delivered at a lower cost. And in this context, GHD has provided evidence of the inefficiencies in Aurizon Network's operating work practices, including the utilisation of fixed assets and labour resources, and possession management practices. The QCA does not consider that the selection of the FY2017 base year, with proposed adjustments alone, is sufficient to address the inefficiencies that were identified by GHD.”¹⁰

“GHD and B&H Strategic Services' analyses provide compelling evidence based on a bottom-up and top down assessment that efficiency gains of 3 per cent per annum are achievable by Aurizon Network in UT5.”¹¹

Aurizon Network contends that the QCA did indeed rely on reports prepared by both GHD and B&H Strategic Services in concluding that Aurizon Network's operational practices, as they pertain to maintenance, were not efficient and subsequently setting a maintenance allowance predicated on the purportedly 'efficient' practices advocated by those consultants. This is despite the fact B&H Strategic Services did not at any time seek to engage or consult with Aurizon Network on matters contained in their report. Aurizon Network therefore strongly refutes the QCA's suggestion that it did not rely on the independent consultant reports in relation to maintenance matters.

⁸ Queensland Competition Authority. Draft Decision - Aurizon Networks 2017 Draft Access Undertaking, pg. 290-291

⁹ Queensland Competition Authority. Draft Decision: Aurizon Network's 2017 draft access undertaking. December 2017

¹⁰ Queensland Competition Authority. Draft Decision - Aurizon Networks 2017 Draft Access Undertaking, pg. 288

¹¹ Queensland Competition Authority. Draft Decision - Aurizon Networks 2017 Draft Access Undertaking, pg. 290-291

Use of FY2017 actual maintenance costs

The QCA states that it:

“Used Aurizon Network's FY2017 actual maintenance costs, reflecting Aurizon Network's current operating and maintenance service level standards and realised cost savings from various productivity improvements implemented by Aurizon Network.”

The GHD report outlined the Terms of Reference (**TOR**) provided to it by the QCA. At no stage does GHD make any suggestion that the QCA's TOR sought an understanding of whether the costs proposed by Aurizon Network were appropriate in the context of existing service levels, or the broader requirements of the Central Queensland coal supply chain. The underlying themes of GHD's engagement included efficiency and prudence, achievability, measurability, transparency and accountability.

GHD has stated that it has:

“considered the tasks in the context of the need to prioritise maintenance cost categories and their associated maintenance products”.¹²

As a consequence, GHD's conclusions around Aurizon Network's perceived cost efficiency (or lack thereof) are inadequate as they give no consideration to existing or required service level standards to promote the efficient operation of the CQCN as part of a supply chain. The QCA's application of a 'cost-minimising' efficiency factor is fundamentally inconsistent with the basis upon which FY2017 costs were incurred.

In its response to the UT5 Draft Decision, Aurizon Network provided evidence to demonstrate the impact of several unusual circumstances during FY2017, which had the effect of temporarily, and somewhat artificially, reducing FY2017 maintenance costs. Aurizon Network submits to the QCA, as set out in its previous submissions and response to RFIs, that the QCA must normalise the cost base for these factors when setting appropriate maintenance allowances for the UT5 regulatory period.

Prioritising maintenance activities over train services

The QCA states that it:

“Did not prescribe that Aurizon Network change its maintenance programme nor the operation of its maintenance practices. The QCA did not advocate giving priority to maintenance activities rather than train services.”

While the QCA did not explicitly advocate this practice, it was a key factor underpinning GHD's conclusion that Aurizon Network's operational practices (and therefore, maintenance costs) were inefficient. By adopting the GHD recommended maintenance allowance QCA is implicitly (if not expressly) indicating that Aurizon Network should adopt the practices identified by GHD as necessary to achieve 'efficient maintenance costs'. The QCA explicitly states:

“Assessing the efficiency of the FY2017 benchmark costs would require an assessment of whether the maintenance activities delivered in FY2017 could have been delivered at a lower cost. And in this context, GHD has provided evidence of the inefficiencies in Aurizon Network's operating work

¹² GHD, Review of the Prudence and Efficiency of Aurizon Network's Proposed UT5 Maintenance Expenditure, Nov 2017, pg. 1

practices, including the utilisation of fixed assets and labour resources, and possession management practices”¹³

and that:

“The QCA has considered the advice from GHD and B&H Strategic Services in determining an appropriate level of efficient maintenance costs for the regulatory period. Using this information, the QCA proposes an efficiency factor for a target level of annual maintenance cost reduction...”¹⁴

The language of the UT5 Draft Decision is unequivocal and confirms that, in applying an efficiency factor and setting the proposed maintenance allowance in the UT5 Draft Decision, the QCA did in fact rely on and reflect the factors upon which GHD reached its conclusions.

For clarity, Aurizon Network is adhering to the scheduled time of planned possessions, as advocated in the UT5 Draft Decision by the QCA and its consultants, to better utilise the possession times available to realise additional production. For example, GHD concluded in its report that:

“We have observed that Aurizon Network does not exploit its possession times in a prudent and efficient manner in that it allows access holders' train services to interrupt planned maintenance tasks. Drivers of this efficiency gain will come from such activities as preparation time, equipment-inspection time and travel time being conducted before the possession time begins, in addition to not allowing interruptions to maintenance tasks.”¹⁵

Information provided to consultants and efficiency factor

The QCA states that it:

“Did not simply adopt recommendations outlined by independent consultants. Although, this advice noted that Aurizon Network's proposal was not sufficiently justified and, based on the information available, was materially greater than that required to maintain the below-rail service for coal-carrying trains. The QCA proposed an aggregate efficiency factor to allow Aurizon Network to retain control over how and when it might implement any initiatives to reduce costs and/or improve its productivity.”

As noted above, Aurizon Network contends that the QCA's Draft Decision makes clear that the QCA did indeed rely on, and adopt recommendations from, reports prepared by both GHD and B&H Strategic Services. It therefore strongly refutes the QCA's suggestion that it did not adopt recommendations from the independent consultant reports in relation to the efficiency factor or Aurizon Network's maintenance allowance.

Aurizon Network provided a substantial volume of supporting information and evidence to both the QCA and GHD through an extensive RFI process and a series of interviews. This process took place between March and May 2017. During this time a substantial number of Aurizon Network's operational and non-operational personnel were made available to meet with QCA staff and GHD, to answer detailed questions and provide additional information where required.

¹³ Queensland Competition Authority. Draft Decision - Aurizon Networks 2017 Draft Access Undertaking, pg. 288

¹⁴ Queensland Competition Authority. Draft Decision - Aurizon Networks 2017 Draft Access Undertaking, pg. 290

¹⁵ GHD Advisory. Review of the prudence and efficiency of Aurizon Network's proposed UT5 maintenance expenditure. 15 November 2017, pg. 16

Despite these efforts, GHD's analysis was inadequate and contained many errors, particularly in relation to Aurizon Network's Ballast Undercutting and Resurfacing activities. These errors were material enough to invalidate GHD's conclusions and undermine the very basis upon which the QCA justified imposing the efficiency factor. Aurizon Network refers the QCA to its response to the UT5 Draft Decision, for a critique of the analysis prepared by both GHD and B&H Strategic Services.¹⁶

Promoting economic efficiency where costs are commensurate with existing service level standards

The QCA states that it:

“Did not require Aurizon Network to pursue cost minimisation at the expense of operational flexibility by requiring maintenance activities take priority over train services. Rather, the QCA's approach sought to promote economic efficiency, in which costs are commensurate with existing service level standards.”

Please refer to comments raised in relation to use of FY2017 actual maintenance costs and prioritisation of maintenance activities above.

Day of operations trade-off

The QCA states that it:

“Identified concerns as to how Aurizon Network manages the trade-offs between maintenance costs and network path availability.”

Aurizon Network refers the QCA to its response in relation to its supply chain co-ordination obligations with regard to the planning and scheduling of maintenance activities below.

Incentives

The QCA states that it:

“Sought submissions from interested parties on opportunities to develop incentives that encourage Aurizon Network and its customers to work together to realise efficiencies and cost savings, while preserving service level standards expected when obtaining access to the declared service”

Aurizon Network refers the QCA to its response in relation to the introduction of network performance incentives below.

¹⁶ Aurizon Network. Response to the QCA UT5 Draft Decision. 12 March 2018. Page 226

Determining the UT5 Maintenance Allowance

Aurizon Network is encouraged by the QCA's preliminary views to accept its revised maintenance cost proposal, but troubled by the timing of the QCA's suggested changes to the access regime framework – namely the potential introduction of asymmetric network performance incentives and further reporting obligations under a maintenance performance monitoring framework.

The QCA's UT5 Draft Decision provides for “lowest cost” maintenance delivery, without considering the operational and logistical changes that would be required to give effect to such a strategy. Given the retrospective application (to 1 July 2017) of the maintenance allowances, which will ultimately be provided under the UT5 Final Decision, Aurizon Network has had no choice but to align the way in which it delivers maintenance activities to the approach advocated in the UT5 Draft Decision by the QCA and its consultants. These changes are likely to have an impact to the future operation of the CQCN and importantly the throughput outcomes expected by Aurizon Network's customers.

Aurizon Network considers its revised maintenance cost proposal, as outlined in its response to the UT5 Draft Decision and supported by further evidence provided to the QCA in response to multiple RFIs, to reflect the efficient practices of a network owner seeking to optimise overall supply chain efficiency and consistent with the expectations of its customers.

For Aurizon Network to assess whether the maintenance allowance contemplated in the Consultation Paper is adequate, it needs to understand how it interacts with other aspects of our proposal such as the proposed return and operating cost allowance. Similarly, without a detailed understanding of the QCA's position on more prescriptive matters proposed throughout the Consultation Paper (for example additional compliance reporting or performance based incentive obligations), it is difficult to appropriately and accurately comment on what maintenance allowance is necessary. The QCA must recognise the additional risks and costs associated with such obligations and the corresponding increases required to proposed return and operating cost allowances from those proposed in Aurizon Network's response to the UT5 Draft Decision.

Establishing an appropriate base year for maintenance costs

Aurizon Network reiterates its position (as articulated in its response to the UT5 Draft Decision), that the bottom-up methodology provides a comprehensive, and both prudent and efficient representation of the costs Aurizon Network will incur to deliver the ballast undercutting program for the UT5 regulatory period. To understand the rationale for the variation in ballast undercutting costs between the UT5 DAU and Aurizon Network's response to the UT5 Draft Decision, the QCA (and stakeholders) must understand the basis upon which the cost proposals under both submissions were derived.

Ballast undercutting costs – UT5 Initial Proposal

At the time of drafting the UT5 DAU, the QCA had only recently issued final approval of the UT4¹⁷, which was to approve a unit rate for mainline ballast undercutting of \$400,000 per kilometre in FY2015 (**QCA's Unit Rate**).

In its explanatory note accompanying its UT5 DAU submission, Aurizon Network highlighted that in setting the QCA's Unit Rate, the QCA failed to appropriately consider a number of operational factors that are reasonably required to deliver an effective ballast undercutting program.¹⁸ Aurizon Network clearly stated that its own (internal) cost forecasts for the UT5 regulatory period exceeded the allowance that would be

¹⁷ UT4 Final Approval was granted on 11 October 2016.

¹⁸ Aurizon Network. Submission 2017 Draft Access Undertaking. 30 November 2016 (specifically pages 167-168)

provided by retaining the QCA's Unit Rate. In other words, Aurizon Network's UT5 proposal to retain the QCA Unit Rate represented a substantial efficiency challenge in itself.

While acknowledging that it would not provide adequate compensation for the ballast undercutting program, Aurizon Network proposed to retain the QCA Unit Rate (with appropriate escalation at the Maintenance Cost Index (MCI)) for the UT5 regulatory period, in the interests of expediting the approval of the UT5 DAU. Using this methodology, Aurizon Network requested an allowance for mainline undercutting (direct costs, excluding costs of the GPR survey) of \$250.3m over the four-year regulatory period as shown in Table 1.

Table 1. UT5 Initial Proposed Ballast Undercutting Costs

Ballast Undercutting – Mainline (\$m)	2017/18	2018/19	2019/20	2020/21	TOTAL
Aurizon Network - 2017DAU	59.0	60.0	65.0	66.2	250.3

QCA UT5 Draft Decision (December 2017)

The UT5 Draft Decision refused to approve Aurizon Network's proposed methodology for mainline undercutting. A common theme in stakeholder submissions was that *"the approval of maintenance expenditure in UT4 does not necessarily mean that it is appropriate for UT5"*.¹⁹

Ultimately, the UT5 Draft Decision provided for a ballast undercutting allowance that was fundamentally aligned to Aurizon Network's actual expenditure in FY2017, and incorporated a cumulative "efficiency factor", which had the effect of further reducing the funds that would be available to deliver this CQCN ballast undercutting program. Under the UT5 Draft Decision, the total allowance for mainline undercutting (direct costs, excluding costs of the GPR survey) was \$214.2m over the four-year regulatory control period as shown in Table 2.

The effect of the QCA's proposed efficiency factor is to reduce Aurizon Network's allowance for Ballast Undercutting - Mainline activities by a further \$6.5m between FY2019 – FY2021.

Table 2. QCA UT5 Draft Decision – Ballast Undercutting

Ballast Undercutting – Mainline (\$m)	2017/18	2018/19	2019/20	2020/21	TOTAL
Aurizon Network - 2017DAU	59.0	60.0	65.0	66.2	250.3
<i>QCA DD – excluding efficiency factor</i>	<i>52.1</i>	<i>53.1</i>	<i>53.9</i>	<i>55.0</i>	<i>214.2</i>
DD variance to 2017DAU	(6.8)	(6.9)	(11.1)	(11.2)	(36.1)

Aurizon Network's Response to the QCA Draft Decision (March 2018)

In response to the UT5 Draft Decision, Aurizon Network sought to address the concerns raised by the QCA and stakeholders regarding a lack of specific detail within the UT5 DAU. Aurizon Network has provided a summary of its response to these concerns below.

Bottom-up costing estimate

Aurizon Network submitted a revised proposal for mainline undercutting, that was based on a detailed, bottom-up model which incorporated factors relevant to operational plans and associated costs to execute those plans. The bottom-up models were prepared by experienced personnel in the Mechanised Production and Network Finance teams, who have the detailed understanding, knowledge and experience of all aspects of the ballast undercutting operation from both a planning and execution perspective. Factors such

¹⁹ QCA, Draft Decision, Aurizon Network's 2017 Draft Access Undertaking, December 2017, pg. 267

as fouling levels, track access, geography, distance from stow location and climatic conditions (moisture, rainfall, heat) will all play a role in determining the costs that ballast undercutting activities can ultimately be delivered for.

As articulated in Aurizon Network’s response to the UT5 Draft Decision, the bottom-up models have also made provision for a number of cost and productivity challenges which will be targeted during the UT5 regulatory period, and expected operational/plant maintenance requirements associated with the introduction of the high-production undercutter (the RM902) from FY2020.

Aurizon Network has provided these detailed models to the QCA for review, as it provides tangible evidence of the effort and rigour of Aurizon Network’s cost forecasts for mechanised production activities for the UT5 regulatory period. In response to the UT5 Draft Decision, Aurizon Network has proposed a total allowance for mainline undercutting (direct costs, excluding costs of the GPR survey) of \$262.0m as shown in Table 3. The \$11.7m variance between the initial UT5 submission and Aurizon Network’s response to the UT5 Draft Decision reflects the difference in ‘unit rate’ and ‘bottom-up’ costing methodologies. It further supports Aurizon Network’s claims that its UT5 proposal was an inherent efficiency challenge.

Table 3. Aurizon Network – Response to the UT5 Draft Decision

Ballast Undercutting – Mainline (\$m)	2017/18	2018/19	2019/20	2020/21	TOTAL
Aurizon Network – 2017DAU	59.0	60.0	65.0	66.2	250.3
<i>QCA DD – excl efficiency factor</i>	<i>52.1</i>	<i>53.1</i>	<i>53.9</i>	<i>55.0</i>	<i>214.2</i>
Aurizon Network DD response	62.0	62.4	67.6	69.9	262.0
DD response variance to 2017DAU	3.0	2.4	2.6	3.7	11.7
DD response variance to QCA DD – excl efficiency factor	9.9	9.3	13.7	14.9	47.8

As articulated in Aurizon Network’s response to the UT5 Draft Decision, the cost uplift Aurizon Network is seeking in FY2020 and FY2021 is primarily driven by increased plant maintenance costs associated with the introduction of the high-production undercutter.

The business case documentation supporting the procurement of the RM902 (and provided to the QCA during the period March to May 2017 as part of its detailed investigations), and the primary motivation for purchasing a high-production undercutter was to minimise the supply chain impact of ballast undercutting production. Aurizon Network considers this to be of importance where demand is such that maximising supply chain throughput is paramount. Through its improved productive capability, the RM902 is expected to require shorter possession times to complete undercutting tasks relative to the RM900.

Table 4. QCA UT5 Draft Decision - Comparison of key attributes of Aurizon Network’s Ballast undercutter

RM900	RM902
11 belts	37 belts
2 screeners	4 screeners
3 engines	17 engines
3km of hydraulic hose	17km of hydraulic hose
The requirement for pneumatics, electronics and electrics of the RM902 is approximately double the requirement of the existing undercutter	

To achieve this increase in productive capability, the RM902 is a larger, more complex machine than the RM900. This difference is illustrated in the table above, which has been reproduced from Aurizon Network’s

response to the UT5 Draft Decision.²⁰ The difference in scale and physical characteristics and the associated increase in plant maintenance requirements are the primary drivers of the cost differential between FY2019 and FY2020.

FY2017 base year approach

As articulated in its response to the UT5 Draft Decision, Aurizon Network submits that maintenance costs incurred in FY2017 were lower than average due to a number of unique factors. Allowances for the UT5 regulatory period that are based on an extrapolation of FY2017 costs would not be sufficient to permit Aurizon Network to recover the efficient costs of ballast undercutting.

Aurizon Network subsequently sought to normalize these unit rates for the various ‘unique’ factors outlined in its response to the UT5 Draft Decision. It should be noted that even with ‘normalisation’, the application of the FY2017 base year would not adequately account for additional costs attributable to the introduction of the new ballast undercutter (RM902), which is expected to be operating in the CQCN from FY2020 onwards.

Aurizon Network submits that its bottom-up costing model is the most appropriate reflection of the efficient costs for the CQCN ballast undercutting program during the UT5 regulatory period. For clarity, the normalisation adjustments for ballast undercutting and resurfacing activities will only be relevant if the QCA refuses to approve Aurizon Network’s detailed bottom-up costing and scope models.

Prudent adjustments to Aurizon Network’s actual cost base

Table 5 details Aurizon Network’s comments in relation to the prudent adjustments to be made to its actual cost base as raised by the QCA.

Table 5. Aurizon Network – Comments on adjustments to base-year

Aurizon Network’s proposed adjustments to the base-year	QCA’s understanding at the draft decision stage	Aurizon Network Comment
Flood rectification work post Tropical Cyclone Debbie has resulted in understated labour costs for general track activities.	The QCA’s draft decision included a proposed adjustment to FY2017 general track costs equivalent to \$2m (FY\$2015) to reflect an increase in volumes in FY2018 to, amongst other things, give consideration to Cyclone Debbie impacts on ordinary labour forecast requirements.	<p>The QCA’s UT5 Draft Decision states:</p> <p><i>“The QCA has increased the general maintenance category to account for the QCA’s draft decision on forecast coal volumes during the UT5 undertaking period. To do this, we have increased the proposed allowance for general maintenance by assuming that 50 per cent of costs as measured on a \$/GTK basis are variable.”</i> (QCA, Draft Decision Aurizon Network’s 2017 Draft Access undertaking, December 2017, pg 287)</p> <p>Among other drivers, the scope of some maintenance works is a function of volume; i.e. for a number of maintenance tasks, as volume increases, so too does the wear and tear on rail infrastructure, which will ultimately require additional work to remain safe and fit for purpose.</p> <p>The adjustment proposed by the QCA is not unreasonable in the context of allowing for the expected</p>

^{20 20} Aurizon Network. Response to the QCA UT5 Draft Decision. 12 March 2018. Page 215

Aurizon Network's proposed adjustments to the base-year	QCA's understanding at the draft decision stage	Aurizon Network Comment
		<p>increase in the maintenance scope that is variable with volume. Nevertheless, the methodology applied by the QCA to determine the associated cost adjustment has the effect of under-compensating Aurizon Network for the labour costs attributable to maintenance workers who would be responsible for performing the additional scope.</p> <p>Essentially, the unit rates calculated by the QCA are artificially low, by virtue of the fact that they exclude \$1.613m of ordinary labour, which would (in the absence of a major flood event) be performing 'business as usual' maintenance tasks on the CQCN.</p> <p>At no stage does the UT5 Draft Decision appear to contemplate that the proposed unit rate adjustment accounts for ordinary labour costs that were booked to flood rectification work. All costs attributable to the flood rectification (including ordinary labour costs) were booked to Cost Centres which were separate and distinct from 'business as usual' CQCN maintenance tasks. As a consequence, these ordinary labour costs were omitted from the General Track Maintenance costs considered by the QCA when setting the forecast base year for the UT5 Regulatory Period.</p> <p>Aurizon Network contends that the unit rate adjustment proposed by the QCA does not in any way compensate Aurizon Network for the efficient cost of labour within the General Track Maintenance category.</p> <p>Should the QCA fail to approve this normalization, Aurizon Network may (rationally) seek to outsource all future flood rectification work, with internal labour resources directed to remain focused on 'business-as-usual' Network Maintenance Plan (NMP) work even in the face of severe weather-related network disruptions. As a consequence, this may adversely impact the time taken to recover from such weather-related disruptions.</p>
<p>For the structures cost category, applying FY2017 costs is appropriate as they include costs related to the 'flood-readiness' programme.</p>	<p>The QCA's draft decision applied Aurizon Network's proposed 2017 DAU costs for structures. We note these costs allowed for increased scope to support what was referred to as a 'storm readiness' regime in Aurizon Network's 2017 DAU proposal.</p>	<p>The effective maintenance of structures such as culverts, drains and bridges is critical for promoting the stability and integrity of track infrastructure.</p> <p>If water can pool/pond around track infrastructure, it considerably weakens the surrounding soil upon which track infrastructure is built, directly impacting its resilience to force. If left unchecked, formation, embankments and culverts are more likely to be adversely impacted and suffer significant damage (including formation failure, scour and complete washout) from heavy rainfall and extreme weather events. The impacts of complete washout are significant both in terms of financial impact and supply chain interruption (lost throughput).</p> <p>In the context of flood readiness and wet weather preparation, the identification and remediation of</p>

Aurizon Network's proposed adjustments to the base-year	QCA's understanding at the draft decision stage	Aurizon Network Comment
		<p>blockages in culverts and drains throughout the CQCN is an essential preventative maintenance activity.</p> <p>Aurizon Network has, in recent years, diverted additional funding to the structures cost category in FY2016 and FY2017 to clear blockages and keep water away from track. This expenditure has helped to mitigate the severity and extent of track rectification works from recent tropical cyclones.</p> <p>The Structures category was one of the only maintenance task where the QCA retained FY2015 as the forecasting base year. Aurizon Network submits that FY2017 expenditure for the Structures category provides a more appropriate reflection of future structure maintenance requirements.</p>
<p>Ballast screenability during FY2017 was 3 per cent higher than the UT4 average of 71 per cent, resulting in reduced ballast costs. The UT4 average should be applied.</p>	<p>The QCA's draft decision did not provide an adjustment for this factor.</p>	<p>The costs of each ballast undercutting job can vary depending on a number of site-specific factors, including fouling levels, track access, geography, distance from stow location and climatic conditions (moisture, rainfall, heat). Similarly, the mode of undercutting (whether by the RM900, or by excavator) is also a key determinant of the unit rates that can be achieved.</p> <p>These factors can vary from year-to-year and by individual job site. Basing an allowance on FY2017, a year characterised by higher than average screenability, has the effect of understating costs associated with the ballast cleaning operation. For instance, it is likely to understate the quantum of ballast material required to be purchased in an average year.</p> <p>Given this annual variability, Aurizon Network's response to the UT5 Draft Decision seeks an allowance for mainline ballast undercutting that reflects the average rate of screenability/total excavation achieved during the UT4 regulatory period.</p>
<p>Stockpiles of cascaded ballast (ballast material not fully utilised in FY2016) was used in FY2017, reducing ballast costs in FY2017.</p>	<p>Aurizon Network's FY2017 Maintenance Cost Report did not mention the once-off savings resulting from cascaded ballast, hence the QCA's draft decision did not make an adjustment for this factor.</p>	<p>Aurizon Network's evolving ballast procurement method involves the following key aspects:</p> <ul style="list-style-type: none"> • compressing job planning timeframes so that pre-digs are conducted closer to the date of planned job execution. This enables the Mechanised Production teams to plan with greater accuracy as the worksite is less likely to be impacted by factors (such as weather) that can have a material impact on site condition (and hence, quantum of ballast required); • incorporating more conservative contingency factors for ballast consumption within the planning models; and

Aurizon Network's proposed adjustments to the base-year	QCA's understanding at the draft decision stage	Aurizon Network Comment
		<ul style="list-style-type: none"> initiating regular monthly meetings with procurement – around ballast quality, upcoming work and changes in programmed locations. <p>Through a process of continual learning and refinement, the Mechanised Production team has adjusted its planning models with a view to 'right-sizing' the quantum of ballast ordered for each planned job. The effect of which is to achieve greater forecasting accuracy around future ballast requirements, thereby reducing the probability that excess (or insufficient) ballast will be ordered.</p> <p>As a result of the above process refinements, Aurizon Network has incorporated expected savings into its bottom-up costing for Ballast Undercutting proposed in response to the UT5 Draft Decision.</p>
<p>The expected average costs of plant maintenance for ballast undercutting and resurfacing is expected to be greater in UT5, due to varying maintenance cycles and new machinery with different physical characteristics. This will result in an increase to the UT5 cost base by \$5.1m and \$2.4m respectively.</p>	<p>Aurizon Network's FY2017 Maintenance Cost Report did not make clear savings experienced through reduced plant maintenance costs in FY2017 were once-off occurrences. The QCA's draft decision therefore did not make adjustments for this factor.</p>	<p>Aurizon Network has provided the QCA with detailed maintenance schedules for all mechanised production machinery for FY2017, and for the duration of the UT5 regulatory period.</p> <p>Aurizon Network expects an increase in plant maintenance with the introduction of the RM902.</p> <p>In the context of the Resurfacing operation, savings were realised in FY2017, because some of Aurizon Network's high production resurfacing fleet were still under warranty, hence costs of relevant repairs were covered by the Original Equipment Manufacturer (OEM). This warranty does not extend into the UT5 regulatory period.</p>

Introducing network performance incentives

As noted in our response to the QCA's Issues Paper on the Review of Declared Services in the CQC dated 30 May 2018, Aurizon Network submits that *"the nature and application of the existing regulatory framework acts as a disincentive for investment in long-term rail infrastructure"*, and *"short-term innovation is being impaired due to the lack of incentive or reward within the current regulatory regime"*.²¹

Aurizon Network therefore agrees that an opportunity exists to introduce some form of symmetrical performance incentives into the access regime framework, however to do so at such a late stage in the process of approving UT5 is inappropriate. Any discussion regarding the inclusion of an incentive

²¹ Aurizon Network. Submission to the QCA titled Review of Declared Services in the Central Queensland Coal Network. 30 May 2018.

framework should have occurred at the commencement of the UT5 process following the QCA's Initial Undertaking Notice in May 2016 to Aurizon Network.

Further, and as previously noted in response to the UT5 Draft Decision, Aurizon Network contends that the grounds for inclusion of an efficiency factor into the UT5 Draft Decision appear to be based on erroneous or unsubstantiated and arbitrary assumptions by the QCA's consultants in relation to our maintenance allowances.²² Aurizon Network has already incorporated forecast efficiencies in its revised proposed maintenance costs, as a result there is no basis for further application of an efficiency factor.²³ The application of an efficiency factor as it currently stands under the UT5 Draft Decision will result in an outcome whereby Aurizon Network will not be permitted to recover its efficient cost of maintaining the declared service.²⁴ Aurizon Network considers that the QCA's assessment of its maintenance allowance as outlined in the UT5 Draft Decision contains material errors and therefore the notion of building an incentive scheme around a proposed efficiency factor to be equally flawed at this point in time.

Aurizon Network also notes that the efficiency factor involves an inherent downward bias based upon the QCA's own review methodology as the QCA has not also undertaken a top down assessment to consider the overall efficiency of the maintenance program. The QCA's current methodology, applying a bottom-up approach, only makes downward adjustments on any submitted costs, which reflect the current cost of service delivery. A bottom-up review process is orientated towards identifying inefficiencies rather than a more balanced top-down approach which would consider the firm's efficiencies against peers in other aspects of the maintenance program. Given this inherent bias in assessing efficiencies, it would seem that any network performance scheme imposed by the QCA is likely to be subject to error resulting in material impacts to the regulated entity.

The QCA has also acknowledged that the design of a performance scheme is inherently complex.²⁵ Targeting a single element of the Aurizon Network operations is unlikely to achieve the objectives associated with this type of scheme and deliver the desired efficient outcomes associated with Aurizon Network's overall performance. Instead an incentive framework must be holistic, and will therefore likely provide for a combination of approaches accounting for individual elements of the cost base (such as its approach to capital, operating and maintenance planning), over which Aurizon Network has direct control.

Importantly, an incentive framework should be designed from a commercial perspective, not just based on theoretical economic principles.²⁶ Incentives that work best are those that are designed to recognise the commercial realities of operating the CQCN and seek to find an appropriate balance between the service provider and users of the declared service. Without an understanding of the commercial drivers facing Aurizon Network, an incentive framework may be at risk of being both ineffective and creating perverse outcomes. On this basis, Aurizon Network does not consider the QCA, as a regulator, to be best placed to design an incentive framework applicable to maintenance activities (or other activities) in the CQCN.

Incentive mechanisms will be significantly more effective and enduring where they are the outcome of bilateral negotiations between the service provider and its customers. The outcomes of these negotiations would also ensure that the framework provides an appropriate balance of interests and will be mutually beneficial by targeting those areas of most value and relevance to the parties. The complexity and

²² For example, and as previously highlighted in response to the UT5 Draft Decision, Aurizon Network consider the basis for GHD's assumptions in relation to the production rate of the RM900 to be unclear and without basis for support. GHD has not provided the QCA with sufficient evidence supporting its choice of linear production rate, nor any evidence to demonstrate that this rate is an achievable average given expected operating conditions.

²³ Ibid.

²⁴ Ibid.

²⁵ Queensland Competition Authority. Consultation Paper: Aurizon Network's 2017 draft access undertaking: maintenance allowance and practices. May 2018.

²⁶ KPMG. Optimising Network Incentives: Alternative approaches to promoting efficient network investment. A report for the Energy Market Transformation Project Team. January 2018

timeframes associated with implementing an incentive mechanism which does not have bilateral agreement is evident in the QCA's review of the 2012 Draft Incentive Mechanism which was ultimately withdrawn in May 2015 without the QCA having made a draft decision on the proposal.

Aurizon Network instead proposes that the best solution for the implementation of an incentive mechanism is through the collaboration with access holders and operators directly. The basis of this collaboration should be around measures for a proposed performance scheme that operates to deliver outcomes for over and under-performance.

Introducing a maintenance performance monitoring framework

While Aurizon Network is open to discussions with the QCA, access holders and operators, regarding a maintenance performance monitoring framework, it is important to recognise that there is a detailed framework already in existence as part of the 2016 Access Undertaking (**UT4**) which was subsequently carried over into the UT5 DAU. Importantly, the levels of communication provided to operators and access holders through this process was unquestioned until the QCA UT5 Draft Decision was received.

Specifically, Part 10 of the Access Undertaking (Section 10.3) requires Aurizon Network to publish multiple reports/briefings periodically regarding its network performance including its annual maintenance plan, quarterly and annual maintenance cost reports and quarterly network performance reports. Table 6 provides a summary description of those reports relating to Aurizon Network's maintenance. The format and content of each of these reports is approved by the QCA prior to being published on Aurizon Network's website. Further, in certain cases such as the annual maintenance costs report, it is an obligation under Part 10 for Aurizon Network's Chief Executive Officer to certify the accuracy of the report.

Each report prepared in accordance with the Access Undertaking passes through Aurizon Network's own internal quality assurance process ensuring the accuracy of the data and information provided to readers. This process entails review and approval by either Aurizon Network's Manager Network Regulation, Head of Finance and Regulation or Aurizon Network's Chief Executive Officer. In addition to Aurizon Network's own internal quality assurance process, all of these reports prepared under Section 10.3 are subject to an independent annual compliance audit performed by an external third party.

Throughout the UT5 process, Aurizon Network has been transparent on its maintenance allowance and has provided stakeholders with granular detail relating to its maintenance practices. This coupled with the UT4 reporting framework provides access holders with substantial levels of information.

Table 6. Aurizon Network Reporting Obligations

Report	Description	Recipients
Annual maintenance plan (10.3.1)	Details Aurizon Network's planned scope of maintenance and renewals for the forthcoming year and the contents of the maintenance cost reports for the previous year, three months before the commencement of each year.	Provided to the QCA, publicly available at Aurizon.com.au
Quarterly maintenance cost report (10.3.2)	Details Aurizon Network's quarterly maintenance performance by comparing scope delivered and costs incurred for the quarter.	As above
Annual maintenance cost report (10.3.3)	Details Aurizon Network's annual maintenance performance by comparing scope delivered and costs incurred for the quarter	As above
Quarterly network performance report (10.3.4)	Details Aurizon Network's quarterly network performance for the quarter providing information in relation to: <ul style="list-style-type: none"> number and reliability of Train Services that operated; 	As above

Report	Description	Recipients
	<ul style="list-style-type: none"> • average transit times of Train Services; • availability of the network for Train Services; • safety of Train Services and number of major reportable incidents; • network service quality (e.g. speed restrictions and measures of track quality); • coal carrying Train Services; • aggregate number of Train Paths used for planned / unplanned maintenance; • outcomes of Contested Train Path decisions; and • purpose of operation of train services. 	

Changes to the maintenance performance monitoring framework need to be considered in the context of our existing reporting obligations. It may be argued that via these existing reports Aurizon Network is already providing access holders and operators the information it desires and only minor improvements are required to how the information is displayed or reported. Aurizon Network therefore continues to welcome comments from stakeholders on ways in which such reports / framework may be improved.

Finally, when defining reporting obligations or setting a performance monitoring framework, it is imperative that a clear objective be set upfront for what material is desired and why and how such reports are set to benefit access holders or operators. Aurizon Network notes that persistent reporting, particularly where there is clear duplication in the information provided by the business, can create undue regulatory burden upon the business – ultimately resulting in the business incurring additional costs. Duplication in reporting is also inefficient, especially where there is no identifiable benefit to network users.

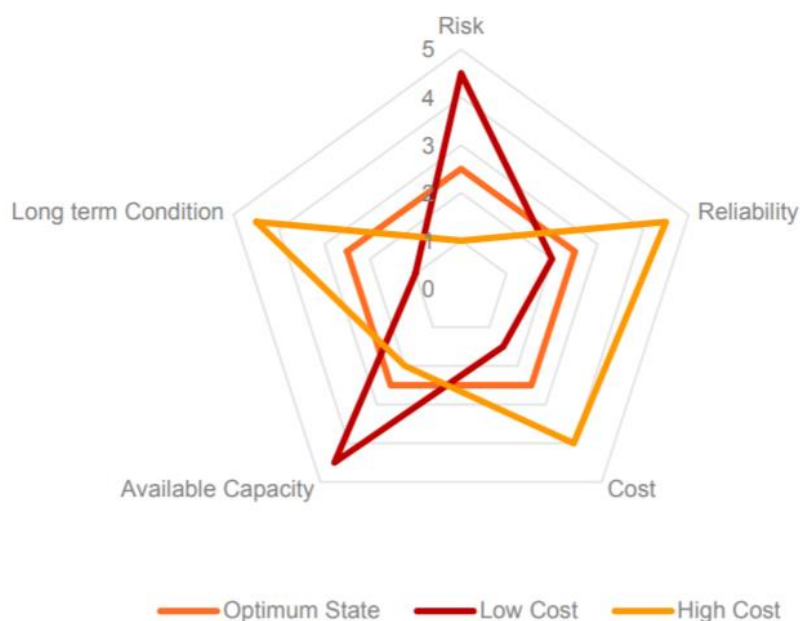
Asset management paradigm

Aurizon Network notes the QCA's ongoing concerns regarding its understanding of the asset management paradigm as presented in its initial UT5 submission. The paradigm (shown in Figure 1) graphically represents the trade-offs considered when implementing effective asset management namely:

- Maintenance costs;
- Network safety and reliability;
- Number of track possessions required to complete maintenance work and associated impact to available network capacity;
- Changes in risk profile; and
- Impact on long term condition and life of the asset.

In effect, the paradigm highlights the need for Aurizon Network to manage or balance its maintenance activities (costs and possession) recognising the potential impacts to overall network reliability, available network capacity, long term asset condition and general risk profile of the network. For example, Aurizon Network can incur substantial maintenance costs and with that maintain or make marginal improvements to overall network reliability. As a result of this process, Aurizon Network may be able to improve the condition and extend the life of critical assets. To do so would minimise the overall risk profile of the network, however would come at the expense of available network capacity (through higher number and length of possessions) and therefore potential throughput targets for our stakeholders. When Aurizon Network has discussed the trade-off between its maintenance activities and throughput expectations of its stakeholders it is this dilemma in which it is required to manage as part of its overall asset management strategy.

Figure 1. Asset Management Paradigm



To better understand this further, Aurizon Network has provided a summary of its asset management approach in relation to maintenance activities in Appendix 1. Aurizon Network also refers the QCA to its early RFI responses provided between March and May 2017 where it has previously outlined in further detail its planning processes, including key supporting controls (plans, policies and sign-off processes).

Calculation of non-coal allocations towards network maintenance

Aurizon Network reiterates its position as outlined in Section 8.6 of its response to the UT5 Draft Decision that it would be inappropriate for the QCA to seek to apply a further maintenance cost reduction for non-coal train services.

The maintenance scope and costs proposed in the UT5 DAU were developed with reference to forecast coal volumes only, i.e. the UT5 maintenance cost proposal already excludes all maintenance costs attributable to non-coal volume.

Furthermore, the incremental maintenance costs that are imposed on the network by non-coal services are considered incidental for the following reasons:

- the dynamic wheel force exerted by non-coal train services on track infrastructure is materially lower relative to coal train services, meaning that the rate of asset degradation attributable to non-coal train services is materially lower than that of coal train services; and
- non-coal train services predominantly run on only 120km of network track kilometres; being the North Coast Line (NCL) between Parana (near Gladstone) and Rocklands (near Rockhampton).

Addressing UT5 Maintenance Accountability Mechanisms

Aurizon Network contends that the QCA and its consultants' strict interpretation of its maintenance activities prior to the UT5 Draft Decision are diametrically opposed to the objectives it has been working towards in partnership with the supply chain to ensure efficiency in the operation of the CQCN rail network.

Despite this, the fact that the UT5 Draft Decision if implemented in a Final Decision will have retrospective effect from 1 July 2017, has meant that Aurizon Network has had no choice but to align its maintenance activities with the expectations and intended outcomes advocated by the QCA and its consultants in the UT5 Draft Decision. These changes have been made in line with Aurizon Network's existing contractual rights and obligations as provided under the Access Undertaking and individual access agreements with customers.

Aurizon Network does not consider these changes to be an appropriate trigger for introducing further accountability mechanisms into the access regime framework. Particularly as these maintenance activities have been made to align with the QCA's own Draft Decision and do not contravene any of Aurizon Network's contractual obligations.

Finally, Aurizon Network considers the QCA is purporting to act beyond its powers under the QCA Act in relation to the proposals made within the Consultation Paper with regard to the certification by the Aurizon Network Board on maintenance matters.

Obligation to maintain our network and minimise disruptions to train services

Aurizon Network agree with the emphasis placed by the QCA on "*sustaining the ability to appropriately maintain the network, but also the importance of doing so in a manner that minimises disruptions to train services*".²⁷ Aurizon Network's day of operations engagement with mines, operators, coal export terminals and Aurizon Network's own teams occurs in "real time", which is critical in terms of managing operational variations in a way that minimises supply chain disruption. Through this engagement, Aurizon Network balances its own business interests (in terms of ensuring that rail infrastructure is safe and fit for purpose) and the interests of access seekers and holders within the confines of the access regime framework.

Aurizon Network contends that maintaining the network and minimising disruptions to train services are fundamental legal and regulatory obligations under the access regime framework. The way in which Aurizon Network meets these obligations is already embedded in the Access Undertaking, as well as in existing asset management practices. Specifically, Section 7A.2 and Schedule G of the Access Undertaking sets out the Network Management Principles and System Rules with which Aurizon Network is required to comply. These principles/rules set out the requirements, among others, associated with development of Strategic Train Plans (**STP**), Master Train Plans (**MTP**), Intermediate Train Plans (**ITP**), Daily Train Plans (**DTP**), scheduled alterations and broader control of the network during a day of operation. Such plans are developed in conjunction with stakeholders across the supply chain and communicated to all parties once finalised.²⁸

These regulatory requirements are prescriptive in nature and are the basis for Aurizon Network's management of the CQCN and its daily interaction with its customer base. For example, Schedule G sets out the requirements Aurizon Network must meet in preparing and publishing its STP, MTP, ITP and DTP,

²⁷ Queensland Competition Authority. Consultation Paper: Aurizon Network's 2017 draft access undertaking: maintenance allowance and practices. May 2018.

²⁸ The Access Undertaking also provides for a defined process for handling disputes in relation to these plans.

including the way information is to be provided both to and from Aurizon Network. Similarly, Section 4.2 of the System Rules outlines the requirements of Aurizon Network where it requires an alteration to the DTP due to a possession (e.g. modification of existing planned position, urgent possession or other operational constraint). Under this scenario, and where an access holder's train services may not be met – Aurizon Network must first reach agreement with the access holder prior to making a change.

The QCA's consultant has chosen to interpret Schedule G such that *“any alteration to the MTP, ITP and DTP must not cause a Planned Possession to be interrupted (i.e. a Train Service in the CQCN should never take priority over a Planned Possession)”*.²⁹ The QCA's consultant further notes, *“this requirement is consistent with the practices of a railway operator that employs a preventative-maintenance regime efficiently and prudently”*.³⁰

This interpretation, and the QCA's adoption of this interpretation through (amongst other things) the adoption of a compounding 'efficiency factor' in the UT5 Draft Decision, will effectively result in additional supply chain interruptions as Aurizon Network adheres strictly to the scheduled time of planned possessions (as advocated by the QCA and its consultants) and ensures its ongoing compliance with the obligations imposed by the QCA. It is clear this approach does not readily account for real world realities of managing a dynamic rail freight network.

It is also highly unlikely that 'minimising disruptions' in the day of operations could be practically defined and would result in an open-ended and unquantifiable exposure. This is particularly the case in the context of a fixed ex-ante maintenance allowance where the costs associated with minimising that disruption are not incorporated into prices. Such an outcome is contrary to ensuring prices recover the efficient costs of providing the declared services. The inherent flaw in an obligation to minimise disruptions to train services is that those disruptions are typically not the consequence of Aurizon Network actions and the obligation would make the access provider liable for disruptions elsewhere in the supply chain without recourse to third parties for the costs associated with managing, responding or minimising those disruptions. For this reason alone, the proposed obligation would be unreasonable, contrary to the access provider's legitimate business interests and inappropriate.

Reporting requirements to assist access holders to identify reasons for disruption to train services

Aurizon Network notes there is substantial overlap in the QCA's request for stakeholder comments in relation to both our reporting requirements in light of a disruption to train services, as well as our current practices in relation to coordination of the supply chain and specifically the planning and scheduling of maintenance activities.

Aurizon Network has therefore combined its response to the QCA's request for comments in detail below in discussion of our planning and scheduling activities, including its existing process for providing written communication to all impacted stakeholders in response to operational activities occurring across the network.

The QCA, by not acknowledging the role of other stakeholders in the CQCN, appears to have characterised Aurizon Network's operational activities as the sole source of disruptions to train services across the CQCN. Aurizon Network considers it important to recognise that its maintenance activities are only one factor

²⁹ GHD. Review of the prudence and efficiency of Aurizon Network's proposed UT5 maintenance expenditure. 15 November 2017.

³⁰ Ibid.

across the supply chain that may led to a disruption to train services, which Aurizon Network has outlined within its previous submissions.³¹ Aurizon Network’s maintenance practices provide for targeted planning and execution of maintenance activities to reduce below rail delays and cancellations while delivering the planned maintenance activity with minimal impact on supply chain throughput and at the most efficient cost.

By failing to acknowledge the ability for other stakeholders in the CQCN to disrupt train services, the QCA proposed introduction of additional reporting obligations only seeks to penalize Aurizon Network, for example through incurring additional compliance costs.

Aurizon Network does not expect a written statement from each participant operating in the CQCN every time they are accountable for a disruption and as a result do not consider the same should be expected of itself beyond its existing reporting obligations.

Aurizon Network's Board and maintenance matters

Aurizon Network strongly opposes the QCA’s proposal that the Aurizon Network Board be involved in certifying Aurizon Network’s compliance with its obligations relating to maintenance and related performance outcomes. Specifically, the Consultation Paper suggests that these certification obligations (whatever they might be) “*could be separate and additional to the obligations in clause 10.7.3 of Aurizon Network’s 2017 DAU*”.³²

The Consultation Paper does not state what “maintenance and related performance outcomes” are intended to be the subject of the proposed Board certification obligations. Aurizon Network can only assume that the QCA is intending to refer to the high-level maintenance obligations referred to in general terms in other parts of the Consultation Paper. It is also unclear what the QCA means when it refers to “related performance outcomes”.

This lack of clarity as to the nature of the matters which are intended to be the subject of the certification obligation adversely affects Aurizon Network’s ability to fully and appropriately respond to the general concepts floated in the Consultation Paper. Consequently, this submission is made subject to that circumstance and Aurizon Network reserves all of its rights in relation to the proposal in Section 2.3 of the Consultation Paper, including its right to raise additional matters if and when the QCA proceeds to create a specific set of “maintenance and related performance outcomes”, and in response to any specific compliance certification proposals proposed by the QCA.

The basis for seeking submissions

The Consultation Paper states that the QCA is interested in seeking stakeholder views on the certification concept:

*“[g]iven the adverse impacts maintenance work can have on an access holder’s ability to utilise their access rights and the concerns raised by stakeholders as to changes to Aurizon Network’s maintenance practices since the draft decision”.*³³

Aurizon Network notes that:

- concerns raised publicly by stakeholders on numerous occasions about the potential impacts on access rights in relation to contractual capacity (as opposed to throughput) as a result of the

³¹ Aurizon Network submission, 2017 Draft Access Undertaking, November 2016, Page 27

³² Queensland Competition Authority. Consultation Paper: Aurizon Network’s 2017 draft access undertaking: maintenance allowance and practices. May 2018.

³³ Ibid.

measures taken by Aurizon Network to align its maintenance practices with the QCA's draft decision on UT5, have not occurred;

- Aurizon Network is not aware of any lost or hindered contracted access rights, and no access holder has identified to Aurizon Network any actual lost or hindered access right; and
- despite the QCA's apparent justification for raising the prospect of the compliance certification obligation, and despite an earlier information request issued under section 150AA of the QCA Act, in part seeking information from Aurizon Network on any impact on access rights, the Consultation Paper does not identify any example of lost or hindered access rights as a result of Aurizon Network's maintenance practices or otherwise.

Against that background, and in light of the other matters discussed below, there is no factual justification for seeking to impose an obligation for a compliance certification on members of the Board of Aurizon Network.

Compliance is already adequately addressed

The QCA's obligation is to approve or refuse to approve an access undertaking by considering whether it is "appropriate" having regard to the factors listed in section 138(2) of the QCA Act. It is not within the power of the QCA to require additional matters to be included in an access undertaking, or to draft its own version of an access undertaking for Aurizon Network, on the basis that the QCA considers the alternative to be more appropriate, or because in the QCA's view the alternative undertaking would achieve a better or more preferable outcome.

The QCA states that any specific compliance certifications that might be required of members of the Aurizon Network Board "*could be separate and additional to the obligations in clause 10.7.3 of Aurizon Network's 2017 DAU*".³⁴

Clause 10.7.3 of UT5 does not contain any certification obligations; it sets out provisions designed to protect Aurizon Network's chief executive officer in the giving of the numerous certifications required from the chief executive officer on a range of matters found in other provisions of the 2017 DAU. We therefore assume that the QCA's Consultation Paper should have referred to those numerous other certifications required of the chief executive officer to which clause 10.7.3 refers.

On this basis, Aurizon Network has significant concerns that the QCA is now considering the inclusion of a certification obligation in addition to the myriad of existing compliance-based obligations already contained in the UT5 DAU submitted by Aurizon Network.

The range of provisions already contained in the UT5 DAU designed to ensure and confirm compliance with the access undertaking, including obligations volunteered by Aurizon Network and which would be beyond the power of the QCA to require or impose, are many but include:

- clause 10.3 which sets out a number of detailed reports that Aurizon Network must provide in respect of network performance, including an annual maintenance plan provided to access holders and quarterly and annual maintenance cost reports, and a comparison between actual scope and actual cost against forecast scope and forecast cost of maintenance;

³⁴ Ibid.

- clause 10.5.1 which obliges Aurizon Network to appoint a compliance officer to manage the governance framework and ensure Aurizon Network complies with its obligations in the access undertaking;
- clause 10.5.2 which requires Aurizon Network to publish an annual compliance report, including data on compliance with access agreements;
- clause 10.5.3 which requires Aurizon Network to report to the QCA breaches of the access undertaking within specified time limits, and to keep a register of breaches; and
- clause 10.6 which obliges Aurizon Network to appoint an independent auditor to conduct an annual (and as otherwise required by the QCA) audit of compliance with the access undertaking on terms approved by the QCA.

The Consultation Paper questions whether there is “an appropriate level of Board involvement” in relation matters relevant to maintenance. The proposal to impose a certification obligation on members of the Aurizon Network Board in relation to maintenance fails to appreciate that Aurizon Network’s Board members already have personal, statutory obligations outside the access regime to ensure that the rail network is maintained so as to operate safely. Members of the Board take their legal responsibilities seriously and are actively involved in assessing and understanding Aurizon Network’s obligations (including its maintenance obligations), including by understanding statutory obligations and their interaction with Aurizon Network’s contractual obligations to access holders.

In any case, in light of all the compliance protections already contained in the current Access Undertaking and the UT5 DAU, including express obligations to report on breaches of the access undertaking, there can be no reasonable basis for the QCA to require a further compliance certification from members of the Aurizon Network Board. Such a certification requirement is not necessary to make the 2017 DAU “appropriate”.

Certification requirement would be beyond power

The Consultation Paper refers to a certification obligation “on the Aurizon Network Board”. As a board of directors is not a separate legal entity, this reference in the Consultation Paper can only be read as referring to the individual directors that sit on the board of directors of Aurizon Network.

The QCA does not have power under the QCA Act to impose access undertakings on any person that is not an owner or operator of a declared service. Members of the Aurizon Network Board are neither an owner or operator of the coal systems comprising the declared services.

Supply chain co-ordination obligations with regard to the planning and scheduling of maintenance activities

The planning and scheduling of train services and possessions across the CQCN occurs at different intervals and to varying levels of granularity throughout the planning cycle. Aurizon Network has outlined the key steps associated with coordination of its maintenance activities a) during the initial planning and scheduling phases and b) during the day of operation.

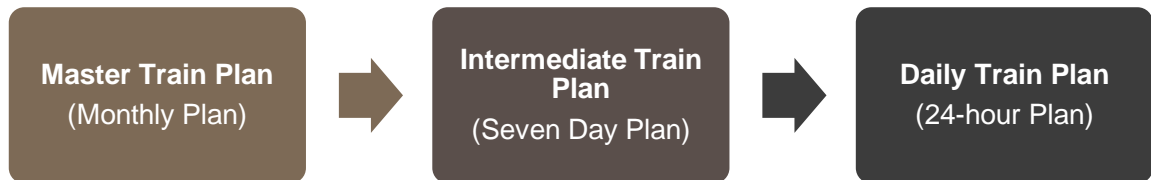
Planning and scheduling

As the QCA is aware, Schedule G of the Access Undertaking sets out the Network Management Principles describing the planning and scheduling processes for Train Services in the CQCN. Figure 2 summarises this process. In developing these plans, Aurizon Network consult directly with access holders and operators in relation to all aspects of its proposed plans including key inputs such as its proposed planned, urgent and emergency possessions (to the extent they are known) and their impacts to planned train services.

These plans are communicated to stakeholders once they are finalized and in accordance with the requirements stipulated in Scheduled G of the Access Undertaking.

As the principal objective, Aurizon Network will aim to ensure delivery of Access Holders' contracted Train Service Entitlements with the objective of an equitable outcome maximising the ability of each coal system to meet contractual entitlements.

Figure 2. Aurizon Network train planning process



Further, these plans are supported by Aurizon Network's System Rules, which relate to the ITP and DTP, and provide additional details of the processes and systems used to plan and schedule train services. Aurizon Network does not intend to outline in further detail the requirements of Schedule G or the System Rules – and instead refers the QCA and stakeholders to the Access Undertaking and its website for further details of the planning arrangements.

While the requirements under the Access Undertaking in relation to planning the network are prescriptive in nature, they reflect only part of the actual actions taken by Aurizon Network in planning and scheduling train services (and possessions) across the CQCN. Specifically, the dynamism of the CQCN requires Aurizon Network to be in constant communication with stakeholders at all times in relation to planning and scheduling activities.

As a result, Aurizon Network has established monthly, weekly, daily, and in some instances hourly communication protocols with access holders and operators.³⁵ These protocols provide a forum for Aurizon Network to communicate, among other matters, changes to established plans including where required amendments to planned possessions or need for urgent or emergency possessions of the network. For example, minor amendments to an MTP may be released and highlighted on a weekly basis, whereas major changes to an MTP are communicated as soon as reasonably possible.

Aurion Network considers these activities best reflect the actions of a prudent operator of a dynamic the rail freight business and do not advocate for their inclusion in an already overly prescriptive Access Undertaking.

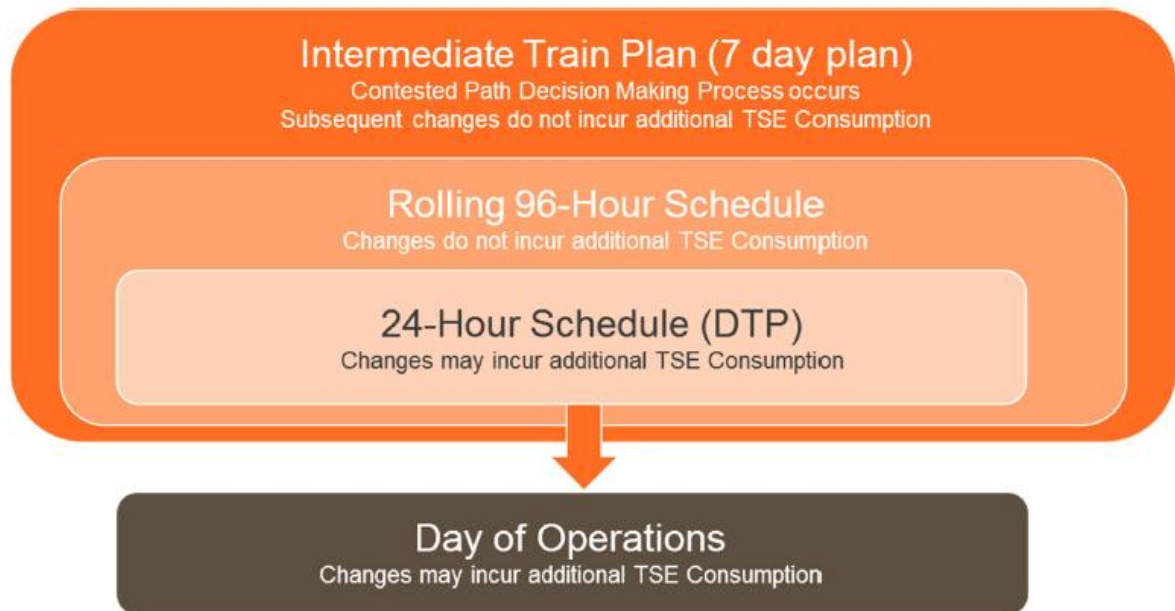
Aurizon Network contends that its activities (both those stipulated in the Access Undertaking and its own business processes) provide stakeholders with substantive information in relation to its maintenance activities. Despite this, Aurizon Network recognises the importance that timely and accurate communication can play for stakeholders in managing their own operations. Aurizon Network therefore welcomes any suggestions on ways in which it can improve the provision of information to stakeholders, which can be adopted as part of its overall engagement with the supply chain without having to be incorporated into the Access Undertaking.

³⁵ For an understanding of Aurizon Network's hourly communication with stakeholders, refer to the discussion below regarding Aurizon Network's scheduling activities during a day of operation.

Day of operation

Aurizon Network schedules train services on behalf of access holders in accordance with the ITP as shown in Figure 3. This schedule is developed a minimum 96 hours in advance of the day of operation (**DOO**). The 96-hour schedule includes 24 hours of finalised train schedules and a pathing plan for train services departing in the >24 to 96-hour period. Access holders and infrastructure service providers are provided a copy of the 96-hour schedule daily at 20:00 hours.

Figure 3. Aurizon Network scheduling process



Source: Aurizon Network System Rules – Central Queensland Coal Network

Aurizon Network's Train Control Centre (**TCC**) is responsible for managing all train services during a DOO. The finalisation and handover of the DTP to the TCC occurs at 14:00 hours on the business day prior to the DOO. The TCC's engagement with mines, operators, coal export terminals and Aurizon Network's own teams also occurs in "real time", which is critical in terms of managing operational variations in a way that minimises supply chain disruption.

As part of its role the TCC maintain four hourly conference calls with access holders, port operators and Aurizon Network. These calls are utilised to among other things:

- identify and consult with the relevant supply chain stakeholders to determine the cause of the delay to a train service in exception to the DTP;
- identify and consult with the relevant supply chain stakeholders to determine the cause of a cancellation of a train service from the DTP; and
- consult with access holders where an alteration is proposed to the DTP due to a possession by Aurizon Network.

These conference calls afford Aurizon Network the opportunity to inform access holders and port operators in a timely manner of the status of the system's operation and future changes, if any, from the DTP. Further, where a deviation from the DTP has occurred for example in response to a cancellation or emergency possession, the TCC during such calls will seek to provide guidance to stakeholders on potential opportunities or options to return the system back to the DTP. In many instances the TCC cannot enforce its proposed options, for example via enforcement of a cancellation of a train services, even if a proposed

option will enable the system to return to the DTP sooner. It is therefore often up to an individual stakeholder to action an appropriate response.

In addition to the scheduled four hourly conference calls, the TCC is in immediate contact with stakeholders where an incident has occurred on the network requiring a direct response or urgent possession not accounted for under the DTP. A similar process to that described above will occur in these instances whereby possessions (healthy or unhealthy) are treated as the same as train services. A delay in commencement of a possession may mean that a train service can take precedence, since the DTP includes all planned and urgent possession and are also managed (although silent) with the principles outlined in the Traffic Management Decision Making Matrix (**TMDMM**) of the Access Undertaking. A major consideration for Aurizon Network in all instances is the length of the delay (or potential length of the delay).

Finally, the TCC already has a written communication protocol in place through publication of its Form 103 reports to all external stakeholders whom may or may not be impacted by a change to the DTP. Specifically, a Form 103 is a written record of the information provided and key decisions made in response to a deviation (cancellation, possession or otherwise) from the DTP and is a representation of the outcomes of the four hourly and/or ad hoc conference calls with stakeholders. A Form 103 report is prepared and published in a timely manner and often before the next four-hourly conference call is set to begin (subject to the timing of the incident).

Adjustments to Aurizon Network's revenue-cap arrangements

As per our comments above in relation to the introduction of network performance incentives, Aurizon Network considers the introduction of potential amendments to its revenue cap at such a late stage in the UT5 regulatory process to be inappropriate.

Any variation in the materiality threshold imposes an unreasonable asymmetric and uncompensated risk, and a unilateral decision by the QCA to reject Aurizon Network's UT5 DAU and require amendments to this effect would be contrary to the pricing principles in the QCA Act and Aurizon Network's legitimate business interests.

Aurizon Network note there are a considerable number of complications in how the QCA could overcome the asymmetry problem. For example:

- Increase the WACC. The asymmetric risk proposed by the change in materiality threshold is not compensated via Aurizon Network's asset beta considered by either Aurizon Network or the QCA. It would therefore be necessary to introduce an additional risk premium into the WACC commensurate with the value at risk.
- Impose penalty charges on maintenance possession disruptions. Aurizon Network would receive additional compensation payments for being required to cancel or compress the available maintenance window. This will need to occur at a system level as rail haulage agreement will not have provisions for recovery of the penalty payments.

It is important to recognise that Aurizon Network's modelling assumptions would need to change to a scenario where 100% of contracted train services would be met under possible scenarios and supply chain disruptions. This is not an outcome which users have agreed to fund under their existing access contracts or through the investment which has been made in the RAB.

Specifically, capacity is modelled on a simulated basis of the likelihood of the network being able to achieve that performance given the significant number of variables in an export supply chain. Therefore, the alternate to the above is to change the network utilisation assumptions or make additional capacity available for maintenance activities. This has significant consequences as this would require:

- Further investment in the network to ensure the contracted capacity can be delivered with 100% probability under all feasible scenarios. Aurizon Network is not incentivised to undertake this investment given the low WACC provided by the UT5 Draft Decision and the inherent asset stranding risks; or
- If existing access holders want to change the performance thresholds in their agreement then they will need to fund the additional investment or relinquish access rights to rebalance the capacity against the performance obligations.

Finally, Aurizon Network notes the QCA's recommendations create further asymmetric risk as it will not allow for offsets where Aurizon Network has acted to increase throughput by taking actions to mitigate losses caused in other parts of the supply chain.

Appendix 1. Asset management practices

As noted in the UT5 DAU, Aurizon Network's maintenance regime emphasizes sustainable, long-term asset management practices, delivered in accordance with regularly audited standards and processes and robust cost and budget controls.

The scope of Aurizon Network's proposed maintenance cost allowances reflects a "bottom up" process informed by qualitative and quantitative elements including Aurizon Network's Safety Management System (**SMS**), Asset Maintenance and Renewal Policy (**AMRP**), Network Strategic Asset Plan (**NSAP**) models, data from track recording vehicles, Ground Penetrating Radar (**GPR**) data and real-time site-specific knowledge and expertise of Aurizon Networks asset managers, engineers and maintainers.

Aurizon Network's General Manager Network Operations (**GMNO**) and Head of Asset Management (**HAM**) together share overall accountability for SMS and AMRP, as well as the development of all scope and budgets associated with Aurizon Network's maintenance activities. Both the GMNO and HAM report directly to the Group Executive Network and are supported by Aurizon Network's broader asset management teams including:

- Manager Infrastructure Maintenance;
- Manager Mechanised Production;
- Manager Infrastructure Delivery; and
- Maintenance Superintendents (by depot /geography and/or product).

Each asset manager and superintendent has accountability for their own individual scope of works and budgets. Aurizon Network tracks the financial and operational performance of each team relative to planned maintenance activities and budgets.

Aurizon Network's asset management and network operation teams are supported by Aurizon Network's finance partners, specifically Aurizon Network's Finance Partner. The finance partner provides overall cost control associated with Aurizon Network's maintenance activities, and is responsible for review of maintenance costs, ensuring data integrity, and track/interrogate performance to planned cost and scope. Together these elements, along with Aurizon Network's internal financial control / budgeting processes, form the governance framework supporting decisions in relation to its maintenance activities.

The NSAP forms the basis for Aurizon Network's determination of the scope of all its major maintenance products, except for unplanned, corrective maintenance activities and mainline ballast undercutting. The cornerstone of the NSAP modelling process is Aurizon Network's AMRP. The AMRP collates all maintenance processes and intervention triggers necessary for Aurizon Network to meet its legislative and regulatory obligations. Specifically, the AMRP is the collation of the general rationale for maintenance intervention intervals accompanied by the planned renewal life of the various assets considering the maintenance intervention intervals. The main purpose of the document is to gather all relevant information, research, investigations, historical background to support the maintenance and renewal intervals in one document.

The AMRP was developed to ensure maintenance intervention intervals for the full range of Aurizon Network's assets in the CQCN accounting for planned asset renewals, thereby ensuring Aurizon Network's SMS is complied with over the life of an asset.

The AMRP is a living document that is reviewed, update periodically and approved by the HAM. Where changes occur to SMS Standards that detail the maintenance and renewal intervals and where policies are created for each Asset Class, the AMRP will be updated and changed to reflect these changes. Aurizon

Network’s Asset Engineers contribute to the AMRP which is then approved by the Asset Managers for each network asset.

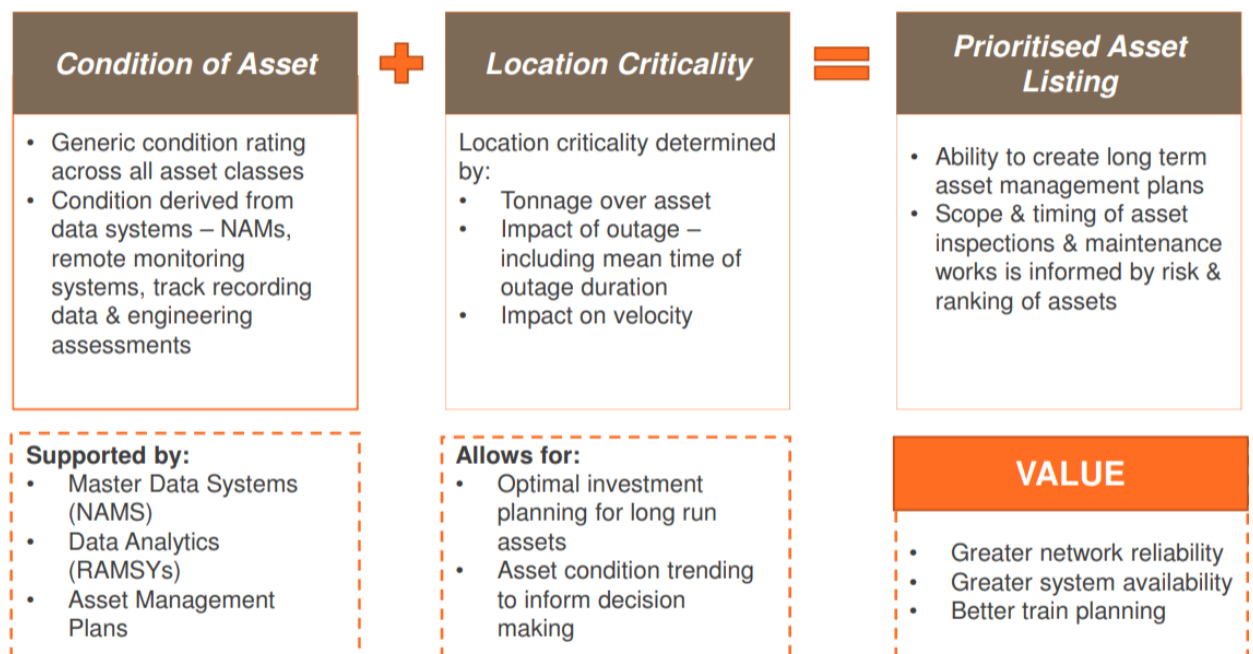
The AMRP provides the rationale for the intervention levels necessary for each maintenance discipline. These intervention levels are defined for Aurizon Network’s assets in each individual coal system and are used to estimate the planned renewal life of the various assets. Intervention levels can be:

- usage-based (for example, track resurfacing is required every 50 million gross tonnes);
- time-based (for example, turnouts require weekly visual inspections and a detailed annual inspection);
- age-based (for example, 22.5 tonne axle load PSC concrete sleepers are required to be replaced every 40 years); or
- fix on failure.

The NSAP model then takes this information and overlays the relevant intervention levels specified in the AMRP to determine the scope of preventative activities for each maintenance discipline. The outcomes from NSAP provide for consistency of intervention and decision making and therefore a strategic steady state scope of maintenance activities consistent with Aurizon Network’s SMS.

Further refinement of this scope is required to reflect the asset condition and critically of maintenance activities. This refinement occurs through condition based asset inspection and management of the asset in question. This process accounts for the actual condition of the asset, providing Aurizon Network with the ability to review and refine its maintenance activities including prioritisation subject to the asset condition and deemed criticality. Figure 4 highlights the approach and benefits associated with this condition based assessment approach.

Figure 4. Condition and critically based assessment



Through overlay of the condition and critically based assessment to the outputs of the NSAP, Aurizon Network is able to prioritise and allocate its maintenance scope of work in a given year. In considering the scope of work, an allocation is based first on condition and then prioritisation. Once asset engineers have

confirmed that the scope complies with the AMRP, they are required to approve the final scope in their capacity as a registered professional engineer of Queensland.

Finally, this process extends to Aurizon Network's finance and budgeting processes, whereby subject to the overall scope of maintenance activities, approval must be sought for funds in relation to the proposed maintenance activities.