2019
Electric Traction Draft Amending Access Undertaking Submission

17 May 2019

Contents

1 Executive Summary

Aurizon Network Pty Ltd (**Aurizon Network**) has developed the Electric Traction Draft Amending Access Undertaking (**2019 Electric Traction DAAU**) to address the risk of asset stranding arising under the existing electric traction regulatory framework. Aurizon Network is legally obliged to make electrical infrastructure available to all access holders in the Goonyella and Blackwater systems. To fulfil this obligation Aurizon Network has invested in and maintained the electric traction network across the Goonyella and Blackwater systems, facilitating optionality and competition in above rail markets.

Asset stranding risk arises where users exercise the option to switch from electric to diesel traction. The current pricing framework quarantines electric infrastructure costs to electric users only, creating a situation where users operating diesel traction can switch to electric traction at any point, but do not contribute to the ongoing costs of maintaining this optionality. Consequently, electric users must pay all costs associated with the electric traction network, including the costs of maintaining, and investing in, the system to the benefit of future users.

On 21 March 2019, the Queensland Competition Authority (**QCA**) published its notice that it could no longer consider Aurizon Network's previous Electric Traction Draft Amending Access Undertaking (**2018 DAAU**) submitted under the 2016 Access Undertaking, following the approval of Aurizon Network's 2017 Access Undertaking (**UT5**). In addition to its notice, the QCA's Response to the 2018 DAAU was published, outlining the QCA's preliminary views on the 2018 DAAU (**Preliminary View**).

In the Preliminary View, the QCA recognised the merits of the 2018 DAAU but raised concerns about the proposed mechanism for socialising the under-recovery of electric infrastructure costs. The 2019 Electric Traction DAAU is consistent with the 2018 DAAU however seeks to address the QCA's concerns around the utilisation thresholds. The key differences between the 2019 Electric Traction DAAU and the 2018 DAAU are:

- Adjustment of the Blackwater System socialisation threshold from 68% to 65%
- Adjustment of the Goonyella System socialisation threshold from 85% to 71%

These changes are consistent with the thresholds proposed by the QCA in its Preliminary View.

Aurizon Network notes that the thresholds proposed in the 2018 DAAU reflected extensive stakeholder engagement and Aurizon Network's considered view that they were set at a level where the risk of price distortion was balanced against the need for flexibility. The majority of submissions received in relation to the 2018 DAAU were supportive of the thresholds proposed in the 2018 DAAU. In some cases, submissions suggested they should be higher to prevent one customer's traction choice detrimentally affecting another's competitiveness. Aurizon Network remains concerned that the thresholds outlined by the QCA in its Preliminary View are too low.

Nevertheless, Aurizon Network recognises there is benefit in providing certainty to our customers and implementing a framework that allows for the commencement of a process to manage stranding risk of the electric network and the consequential financial impact to electric users of any transition from electric to diesel traction. Aurizon Network has therefore adjusted the thresholds to align with the Preliminary View.

The 2019 Electric Traction DAAU seeks to rebalance the pricing framework to address the risk of asset stranding and ensure that each access holder contributes equitably to its portion of the cost of providing electric traction, whether that be by using the infrastructure, or by maintaining the option of traction choice.

2 Background

2.1 Aurizon Network's 2017 and 2018 Electric Traction DAAU

Aurizon Network first submitted the 2017 Electric Traction DAAU (**2017 DAAU**) on 1 December 2017. The QCA published its final decision on 16 August 2018.

Aurizon Network submitted the 2018 DAAU on 5 November 2018 under the 2016 access undertaking (**UT4**). That submission was developed to address the concerns raised by the QCA in its decision on the 2017 DAAU, and to incorporate the feedback received from stakeholders. On 21 February 2019, the QCA approved Aurizon Network's 2017 Access Undertaking (UT5), and as a consequence UT4 was terminated.

On 21 March 2019 the QCA provided notice that it could no longer consider the 2018 DAAU and issued the Preliminary View. In the Preliminary View, the QCA recognised the merits of the 2018 DAAU but raised concerns about the proposed mechanism for socialising the under-recovery of electric system costs. Aurizon Network has considered the Preliminary View and has identified that the QCA's key concern relates to the utilisation threshold proposed by Aurizon Network. Aurizon Network has addressed this concern in the 2019 Electric Traction DAAU.

The 2019 Electric Traction DAAU is largely consistent with the 2018 DAAU with amendments made to address the concerns raised by the QCA in its Preliminary View. This submission provides a summary of the key changes, and outlines Aurizon Network's proposed 2019 Electric Traction DAAU.

2.2 Legal and statutory obligations

Aurizon Network refers to section 2.1 of 2017 DAAU Submission (Attachment 2) which sets out in detail its legal obligations to operate, maintain and provide access to electric traction infrastructure under UT4. These obligations are unchanged under UT5. In summary, the legal framework by which Aurizon Network provides access and maintains the electric traction infrastructure is comprised of the following:

1. **The declared service** - Aurizon Network is obliged to provide open access to the declared service, which pursuant to the *Transport Infrastructure Act 1994* (Qld), includes the electric traction infrastructure;

2. **Tenure Obligations** - Aurizon Network's infrastructure leases place obligations on it to manage, operate and maintain infrastructure, expressly including electric traction infrastructure; and

3. **Standard Access Agreements** - QCA Approved Standard Access Agreements provide for both electric and diesel traction types, and do not limit what an operator can use.

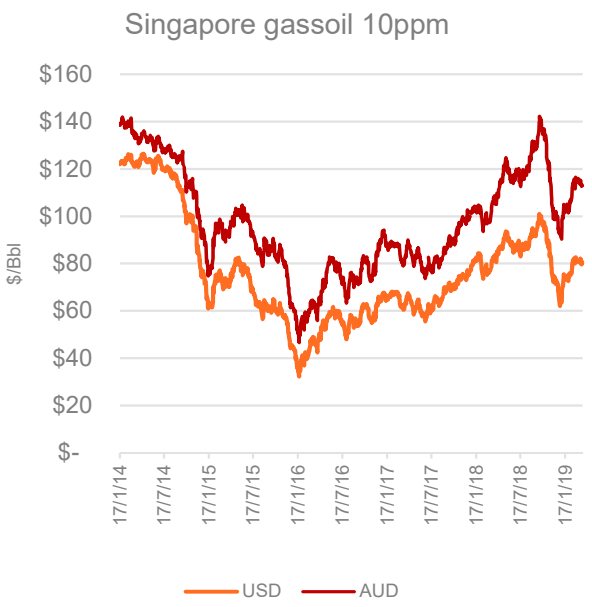
These obligations provide the context in which Aurizon Network is required to invest and continue to operate electric traction infrastructure.

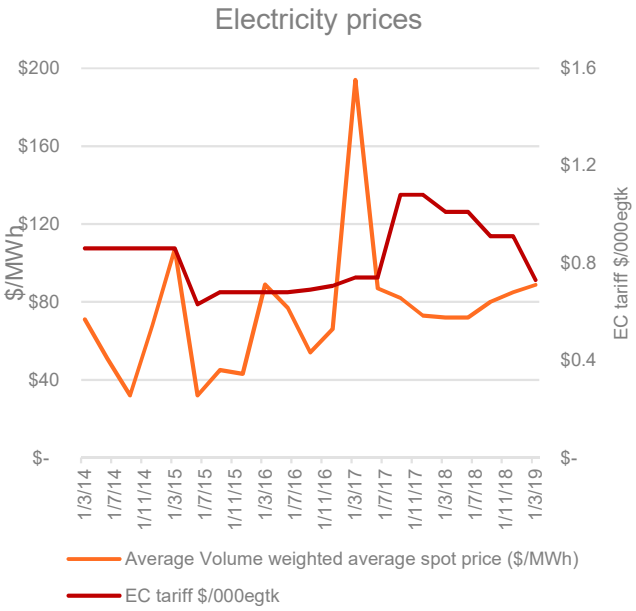
2.3 External Market Factors

Over the last five years, both oil and electricity markets have experienced significant price volatility. Electricity markets are also facing unprecedented regulatory reform and are a major focus of government policy. The high Queensland prices experienced in 2017-18 were reflected in the EC tariff. However, Aurizon Network's approach to electricity procurement has allowed it to capture the decline in electricity prices over the subsequent period.

Energy market volatility together with ongoing uncertainty about the Australian electricity sector pose a challenge for the competitiveness of electric traction. Volatility risk is exacerbated where individual short-term decision drivers (e.g. to switch from electric to diesel) can raise costs for remaining electric users. The potential for higher

AT5 prices resulting from producers or operators switching to diesel to exploit short-medium term uncertainty comes at the expense of remaining electric users. The current AT5 pricing structure will be ineffective in the event of incremental moves to diesel traction.





3 The Electric Traction Pricing Problem

3.1 Existing electric traction pricing

Aurizon Network refers to section 2.2 of 2017 DAAU Submission (Attachment 2) which sets out in detail the pricing mechanism of AT5 and the EC under UT4. Electric traction costs are treated consistently with UT4 under UT5 and are recoverable through the AT5 component of access charges.

The costs recovered under AT5 include the operation, provision and maintenance of the electric traction infrastructure which comprises overhead lines, transformers, track sectioning equipment and high voltage connection points. The AT5 component of access charges is an average price, calculated in accordance with the pricing principles set out in UT5 and payable by electric train services only.

3.2 Incremental Switching affect

The effect of the average cost methodology for calculating the AT5 charge is that, if utilisation in electric traction volumes decrease, the AT5 charge applicable to the remaining electric services increases. This pricing methodology creates a situation where the choice of one rail operator or Access Holder can directly increase Access Charges for all other Access Holders. As more Access Holders incrementally choose a diesel operation, the price of remaining electric operations increases. Ultimately, this would lead to increasingly rapid declines in electric utilisation and result in stranding of Aurizon Network's electric traction assets and the electric locomotives of rail operators.

The existing pricing framework creates uncertainty for electric traction pricing in the future. This discourages future investment in electric locomotives going forward, and consequently use of Aurizon Network's electric traction assets. While rail operators do have an incentive to continue to use electric traction for the life of their electric rollingstock, in circumstances where rail operators are investing in new locomotives, there is a higher risk that electric utilisation may fall. These new locomotive investment decisions may be triggered by, for example:

- existing electric locomotives reaching the end of their lives or requiring major overhaul;
- haulage contracts being re-tendered and won by a different rail operator, or won on the basis of a diesel only operation; or
- when total coal haulage volumes are expanding.

3.3 Stakeholder Feedback

During consultation regarding the 2019 Electric Traction DAAU and 2018 DAAU, a number of customers raised concerns about the ability of incumbent or new competitors to manipulate haulage pricing and the AT5 tariff for individual benefit which would impact supply chain competitiveness. A number of customers have indicated that the pricing framework should provide contract flexibility but limit the ability for that flexibility to impose costs on competitors. This would be more effective (particularly in the Goonyella System) if the thresholds were higher.

Aurizon Network consulted broadly with stakeholders prior to submission of the 2018 DAAU, and there was general support for that submission. Whilst Aurizon Network recognises that there are some stakeholders that have concerns with the proposal, primarily focused around prior investments made in rollingstock, and individual commercial considerations, the majority of submissions were supportive, and Aurizon Network still considers

that to be the case based on discussions that have been had with the individual stakeholders that made those supporting submissions.

Given the competing commercial interests of producers, and their haulage providers, a consensus view is not likely to be achieved through consultation with an industry body alone.

Aurizon Network considers that the QCA should not construe any non-response to the 2019 Electric Traction DAAU process to reflect a lack of support for the proposal. Given the closeness in time of the submission of the 2018 DAAU and the 2019 Electric Traction DAAU, and the fact that the submissions are almost identical, we would expect the QCA to have strong regard to the submission made on the 2018 DAAU as reflective of their current position. Further, if other stakeholders do not provide a submission, in Aurizon Network's view, this reflects a neutral view regarding the impact of the 2019 Electric Traction DAAU. In the absence of specific evidence that non-response means lack of support, Aurizon Network considers it would be erroneous for the QCA to make any other inference in this regard.

3.4 Public Interest Considerations

Public interest considerations

Aurizon Network does not make any assertion in relation to whether electric traction is better than diesel traction as a tractive type, but notes that electrified transport is consistent with broader public policy goals (eg. Climate Change policies). To the extent that the 2019 Electric Traction DAAU protects against asset stranding, it is in the public interest.

The Queensland Government has committed to a range of climate targets including a 50% renewable energy target by 2030, zero net Queensland emissions by 2050[1] and an electric vehicle strategy[2]. The electric vehicle strategy is focused on road vehicles but does identify a range of benefits that can be derived from electric vehicles. These include reduction in greenhouse gas emissions, supporting renewable energy, reducing oil dependency, improving grid utilisation, and increasing climate resilience.

Electric traction is aligned with these benefits. Should the electric network no longer exist, approximately 500,000 electric road vehicles (100x the total number of electric road vehicles in Australia[3]) would be required to offset the emissions from the diesel locomotives that would replace the current electric locomotive fleet.

In the recent Australian parliamentary inquiry considering innovating transport across Australia, the Committee agreed that the electrification of transport is important:

"Electrification will lower costs, reduce the environmental impacts of land transport and enhance fuel security. By investing in zero-emissions technologies, Australia could eliminate greenhouse gas emissions related to transport, significantly reduce noise pollution associated with land transport, make vehicles simpler and safer to operate and maintain, and largely eliminate reliance on fuel imports."[4]

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[1] https://www.qld.gov.au/environment/assets/documents/climate/qld-climate-transition-strategy.pdf

[2] https://publications.qld.gov.au/dataset/the-future-is-electric-queensland-s-electric-vehicle-strategy/resource/7e352dc9-9afa-47ed-acce-2052cecfec8a

[3] Electric Vehicle Sales in Australia 2010-2016; estimated using VFACTS and vehicle registration data – QLD's Electric Vehicle Strategy - https://publications.qld.gov.au/dataset/the-future-is-electric-queensland-s-electric-vehicle-strategy/resource/7e352dc9-9afa-47ed-acce-2052cecfec8a

[4] Innovating Transport across Australia: Inquiry into automated mass transit, House of Representatives Standing Committee on Infrastructure, Transport and Cities, March 2019, p. 68

The Committee also noted that:

"the potential for automation and electrification to substantially improve the management and handling of freight—light freight becoming integrated with shared mobility passenger movement and heavy freight transport becoming quieter and more efficient thanks to electric motors and platooning of vehicles. Alongside passenger transport, the benefits of automation and electrification of freight transport should be considered by governments."[5]

https://parlinfo.aph.gov.au/parlInfo/download/committees/reportrep/024279/toc_pdf/InnovatingTransportacrossAustralia.pdf;fileType=application%2Fpdf

[5] Ibid. p. 49

4 Aurizon Network's proposed 2019 Electric Traction DAAU

Aurizon Network's 2019 Electric Traction DAAU builds on the previous 2018 and 2017 DAAUs.

Consistent with the approach adopted in the 2018 DAAU, Aurizon Network's 2019 Electric Traction DAAU seeks to make changes to UT5 to address the deficiencies with the current electric traction pricing framework. Specifically, the 2019 Electric Traction DAAU seeks to make the following changes:

- variable connection charges will be reallocated from the AT5 tariff to the electric consumption tariff (EC) ensuring all variable costs for electric traction are recovered from electric users only;
- a mechanism is proposed to provide a series of 'demand deterioration tests' prior to any socialisation occurring;
- AT5 will continue to only be payable by electric traction services;
- any under-recovery of revenue from AT5 tariffs due to a demand deterioration would be recovered across all access holders through a revenue cap adjustment process, adjusting the AT3 tariff accordingly in two years' time; and
- future significant electric investments in the electric network will require Aurizon Network to undertake a customer vote, and pre-approval by the QCA.

Aurizon Network's 2019 Electric Traction DAAU also seeks to address all concerns raised by the QCA in its Preliminary View. The Preliminary View provided commentary on six distinctive elements of the mechanism proposed by Aurizon Network in the 2018 DAAU. These elements and any changes proposed by Aurizon Network are discussed below.

4.1 Reallocating variable connection charges

The QCA's preliminary view is that the approach outlined by Aurizon Network in the 2018 DAAU appears reasonable.

In its 2019 Electric Traction DAAU, Aurizon Network has replicated the mechanism in the 2018 DAAU and does not propose to make any further amendments. Details of the mechanism are outlined below in section 5.

4.2 Process for future electric infrastructure investment

The QCA's preliminary view is that the proposed process for electric infrastructure investment appears reasonable, and improves transparency of, and trust in, investment decisions for electric traction networks.

In its 2019 Electric Traction DAAU, Aurizon Network has replicated the mechanism in the 2018 DAAU and does not propose to make any further amendments. Details of the mechanism are outlined below in section 5.

4.3 Recovery of Electric System Costs

4.3.1 The Socialisation mechanism

The QCA's preliminary view is that the there is merit in the approach proposed in the 2018 DAAU in principle, but that its effectiveness in practice ultimately depends on implementation, in particular the choice of various threshold levels.

In its 2019 Electric Traction DAAU, Aurizon Network does not propose to change the mechanism set out in the 2018 DAAU. However, Aurizon Network has considered and responded to the QCA's preliminary view regarding appropriate threshold levels and the electric capacity factor. This is discussed further in sections 4.3.2 - 4.3.3.

4.3.2 Electric capacity factor

The QCA's preliminary view is that the proposed electric capacity factors for both the Blackwater and Goonyella Systems may be reasonable. However, the QCA is seeking transparency regarding the inclusion of push/pull diesel traction hauls in the electric capacity factor.

In its 2019 Electric Traction DAAU, Aurizon Network does not to propose to change the Electric Capacity Factor from that set out in the 2018 DAAU. However, for clarity, Aurizon Network has provided an additional explanation regarding push/pull operations. As per the 2018 DAAU, the Electric Capacity Factor is calculated using the following process:

1. Using Aurizon Network's proposed volume reset for the year ending 30 June 2019 (as outlined in the Reference Tariff Variation DAAU submitted to the QCA on 7 May 2019) as a base, the maximum eGTKs that could operate have been calculated for all electrified origin-destination pairs on the Rail Infrastructure. Attachment 2 provides a map of Aurizon Network's electrified network.

2. The capability of the electric network has been reviewed by Aurizon Network. This has confirmed that both the Goonyella and Blackwater Systems can run the maximum forecast train paths. Attachment 3 provides the capability reports for each system.

3. To determine the applicable Electric Capacity Factor, Aurizon Network has divided the maximum eGTKs determined under step 1 above, multiplied this by the capability percentage (100%), and divided that by the total system forecast GTKs.

A push-pull service is used where rail infrastructure does not readily exist for a train to travel the opposite direction to its normal route (i.e. travelling north from a Blackwater System mine to a port in the Goonyella System. These operations consume more capacity than a standard service, as they require additional movements, often including reversing onto the mainline, and turning the train to ensure the wagons are in the correct direction for unloading. Aurizon Network recognises that push/pull operations, while not conforming to the reference train characteristics, are sometimes required for flexibility. The majority of push/pull services that do operate in the CQCN are opportunistic, picking up spot tonnes, or providing alternate pathways to ports in the rare case of significant weather-related events.

It is possible to run an electric consist from all electrified locations. The choice to operate a push-pull service comes down to the commercial decision making of that producer or operator, being a capital vs. operating cost trade off. An electric traction service could be operated if a new angle was built to support turning the opposite direction, or a train can travel further and turn at a different location that supports its movement. However, in most cases, the decision favours a diesel service as the lower cost option.

Aurizon Network therefore confirms that where a push-pull service is contracted to use an electrified section of track, the GTKs associated with those hauls have been included in the calculation of the Electric Capacity Factor. However, where push-pull service are contracted to use a non-electrified section of track, the GTKs associated with these hauls have been excluded from the calculation of the Electric Capacity Factor.

4.3.3 Electric utilisation floor

QCA's Preliminary View

The QCA's preliminary view is that the utilisation floors for both the Blackwater and Goonyella Systems appear to be too high – so socialisation could occur in response to short-term changes in electric traction usage,

rather than in response to ongoing year-on-year reductions that suggest a real and present likelihood of stranding.

Aurizon Network notes that the selection of the thresholds proposed in the 2018 DAAU reflected extensive stakeholder engagement and Aurizon Network's considered view that they were set at a level where the risk of price distortion is balanced against the need for flexibility. The majority of submissions received in relation to the 2018 DAAU were supportive of the thresholds proposed in the 2018 DAAU. In some cases, submissions suggested they should be higher to prevent another customer's traction choice detrimentally affecting another's competitiveness. In developing those thresholds, careful consideration was given to the QCA's previous guidance including that they were set low enough so that:

- Triggering of socialisation during one-off shocks that do not represent a bypass of electric infrastructure was avoided;
- Technology neutrality remained ensuring that increases in non-electric traction use, without an associated decline in electric usage, do not result in lower electric utilisation; and
- A persistent decline in electric traction use was addressed but high enough so that bypass is avoided.

In its Preliminary View, the QCA advised it undertook a bottom-up approach and conducted sensitivity testing on the floors proposed in the 2018 DAAU. The QCA disagreed that each incremental switch brought the system closer to an AT5 demand deterioration spiral. They were concerned that the threshold proposed in the 2018 DAAU could mean that socialisation occurs in response to short-term falls in electric traction usage, rather than ongoing year-on-year reductions which would suggest bypass was occurring. The results of the QCA's analysis suggested that:

- floors proposed by Aurizon Network are unlikely to reflect a real and present stranding risk, and
- the difference between an appropriate floor in the Blackwater System and in the Goonyella System is likely to be smaller than proposed by Aurizon Network.

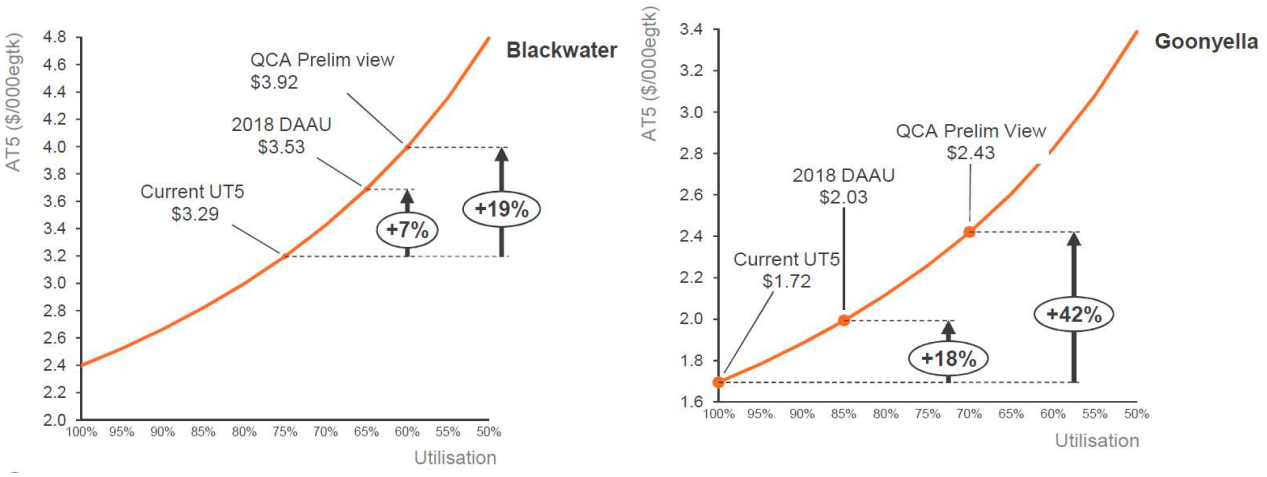
The QCA's Preliminary View suggested that a reasonable floor would more likely have an upper bound of 65% in the Blackwater System and 71% in the Goonyella System.

Aurizon Network's review

Aurizon Network has sought further clarity from the QCA in terms of the "bottom-up approach" undertaken. Aurizon Network understands that the QCA undertook extensive modelling to develop an appropriate range.

Although not having the full detail of the modelling, Aurizon Network has assessed the impacts of the QCA's proposed thresholds, and the potential for price distortion that will occur prior to any socialisation. The below graphs show the impact to AT5 tariffs associated with a change in utilisation levels based on FY19 UT5 Final Decision data.

Figure 2: AT5 Price at proposed socialisation thresholds



If electric utilisation fell to levels close to the QCA's proposed thresholds, the tariff would increase significantly. This effectively communicates to market participants contemplating investment in electric locomotives that the price they would pay for access to the network could rise by as much as 19% in the Blackwater System and 42% in the Goonyella System.

Aurizon Network's Proposed 2019 Electric Traction DAAU Position

Aurizon Network is concerned that the thresholds proposed by the QCA in its Preliminary View are too low. However, Aurizon Network recognises there is benefit in providing certainty to our customers and developing a framework that allows for a commencement of a process to manage the stranding risk of the electric network. Aurizon Network has therefore proposed the following thresholds:

- Blackwater socialisation threshold at 65%
- Goonyella socialisation threshold at 71%

In setting the thresholds at the levels proposed in the QCA's preliminary view Aurizon Network recognises that the stranding risk of the asset will be reduced, however at these levels, Aurizon Network does note that there remains the potential for electric utilisation to fall, and price distortion to occur. Following completion of this process, Aurizon Network will continue to work with our customers to address concerns around the electric traction pricing framework.

4.4 Other matters

In its Preliminary View, the QCA proposed that the definition of the term 'Decline in Electric Utilisation' as "the sum of" factors that require multiplication does not reflect Aurizon Network's intent and may be misinterpreted.

Aurizon Network intends for 'Decline in Electric Utilisation' to be determined using the following equation:

If (Actual eGTK) < (GTK Forecast x Electric Capacity Factor x Electric Utilisation Floor) = Decline in Electric Utilisation.

Aurizon Network agrees that this drafting could be somewhat confusing and has therefore amended the drafting to make the definition clearer.

The definition of 'Decline in Electric Utilisation' is proposed to be amended to include the term 'the *product* of'.

5 Summary of Drafting Changes

The proposed drafting changes incorporated into the 2019 Electric Traction DAAU and to be incorporated into UT5 are outlined below.

Changes for recovery of electric infrastructure costs

Summary of 2019 Electric Traction DAAU Drafting Changes	
AT5 Revenue Shortfall	**AT5 Revenue Shortfall** means: For a Year, where the Total Actual Revenue for AT5 (calculated under clause 4.3(g) of Schedule F) in relation to that System Reference Tariff for that Year is less than the Adjusted Allowable Revenue for AT5 (calculated under clause 4.3(c) of Schedule F) for the relevant System Reference Tariff for that Year.
AT5 Revenue Shortfall Amount	**AT5 Revenue Shortfall Amount** means: For a Year, where there is an AT5 Revenue Shortfall, the amount by which Total Actual Revenue for AT5 (calculated under clause 4.3(g) of Schedule F) in relation to the relevant System Reference Tariff for that Year is less than the Adjusted Allowable Revenue for AT5 (calculated under clause 4.3(c) of Schedule F) for the relevant System Reference Tariff for that Year.
Decline in Electric Utilisation definition	**Decline in Electric Utilisation** means: For a year: (a) Where the Electric Utilisation Level is less than the Electric Utilisation Floor for the relevant System Reference Tariff for that year; and (b) where the aggregate actual egtk for that Year in the Coal System to which the relevant System Reference Tariff applies is less than the total resulting from the multiplication of A and B and C where: A = the Gtk Forecast for that Year in the relevant Coal System; B = the Electric Capacity Factor for the relevant Coal System; and C = the Electric Utilisation Floor for the relevant Coal System.
Electric Capacity Factor definition	**Electric Capacity Factor** means: The maximum capability of the electric traction on the Rail Infrastructure, expressed as a percentage of the average annual forecast gtks for the relevant regulatory period, being: a) 98% in Goonyella; and b) 94% in Blackwater, or such other percentage as may be approved from time to time by the QCA.
Electric Utilisation Floor definition	**Electric Utilisation Floor** means: a) For the System Reference Tariff applicable in the Goonyella System, 71% (being the fixed percentage threshold of the gtk in the Goonyella System using electric traction for the purposes of the Electric Revenue Adjustment); and b) For the System Reference Tariff applicable in the Blackwater System, 65% (being the fixed percentage threshold of the gtk in the Blackwater System using electric traction for the purposes of the Electric Revenue Adjustment).
Electric Utilisation Level definition	**Electric Utilisation Level** means: For a Year, the aggregate actual egtk for that Year in the Coal System to which the relevant System Reference Tariff applies as a percentage of the aggregate actual gtk for that Year in that Coal System.
Electric Revenue Adjustment definition	**Electric Revenue Adjustment** means: The amount calculated under **clause 4.3(h)** of **Schedule F**.
Variable Connection Charge definition	Variable Connection Charge means:

	Any variable charges associated with *the connection of Aurizon Network's electrical traction system to an electricity transmission or distribution network* billed on an energy consumed basis as approved each year by the QCA under **clause 2.2(a)** of **Schedule F**
Changes to Schedule F – modification to cl. 4.3 (a) and (b) to adjust the calculations of Revenue Adjustment Amounts, taking into consideration the Electric Revenue Adjustment	(a) an AT2-4 Revenue Adjustment Amount for that Reference Tariff by subtracting: (i) the Adjusted Allowable Revenue for AT2-4 (calculated under clause 4.3(c)) for that Reference Tariff; from (ii) the Total Actual Revenue for AT2-4 (calculated under clause 4.3(d)) in relation to that Reference Tariff, for that Year less, where clause 4.3(h) applies, the Electric Revenue Adjustment; and (b) an AT5 Revenue Adjustment Amount for that Reference Tariff by subtracting: (i) the Adjusted Allowable Revenue for AT5 (calculated under clause 4.3(c)) for that Reference Tariff; from (ii) the Total Actual Revenue for AT5 (calculated under clause 4.3(g)) in relation to that Reference Tariff, for that Year, except that where clause 4.3(h) applies, the AT5 Revenue Adjustment Amount must be adjusted by adding the Electric Revenue Adjustment.
Changes to Schedule F – new clause 4.3 (h)	**Calculation of Electric Revenue Adjustment** (h) Where: (i) the relevant Reference Tariff is a System Reference Tariff; (ii) there is a Decline In Electric Utilisation for the relevant Year; and (iii) there is an AT5 Revenue Shortfall for the relevant Year, the Electric Revenue Adjustment is the lesser of: (iv) the amount calculated by multiplying the following amounts together: (A) the amount calculated by subtracting the Electric Utilisation Level from the Electric Utilisation Floor for the relevant Reference Tariff; (B) the aggregate actual gtk for the relevant Coal System that was used to calculate the Electric Utilisation Level; and (C) the relevant AT5 Reference Tariff; and (v) AT5 Revenue Shortfall Amount.

Changes for electric infrastructure investment

Summary of 2018 DAAU Drafting Changes	
Significant Electric Investment Definition	**Significant Electric Investment** means: All capital projects for a Year for the: (i) enhancement (including by way of the replacement of life-expired, obsolete, less efficient, lost, damaged or destroyed infrastructure); or (j) expansion, of electric Rail Infrastructure on the Goonyella Coal System or Blackwater Coal System, in either case, where the aggregate anticipated costs are more than $20 million.
Schedule E - cl. 2.1(f)	Inclusion of clarifying drafting to ensure Aurizon Network must seek QCA pre-approval in respect of a Significant Electric Investment project.
Schedule E - Cl. 4.1	Inclusion of drafting requiring Aurizon Network to see a vote on all Significant Electric Investment projects.

Changes for reallocation of Variable Costs to EC

Summary of 2018 DAAU Drafting Changes	
TUOS Charge definition	**TUOS Charge** means: The transmission use of system charge payable by Aurizon Network as part of its connection costs.
Schedule F. Cl. 2.2(a)	EC is the electric energy charge and includes the Variable Connection Charge which is initially (from the Commencing Date) as specified as the EC input for the nominated Reference Train Service as specified for the relevant Reference Tariff (for example, as specified in clauses 7.2 and 8.2, as applicable), and after the Approval Date as otherwise published by Aurizon Network on the Website on or about each 31 May during the Term after Aurizon Network seeks and obtains the QCA's approval for a new electric energy charge and Variable Connection Charge (taking into account any over or under recovery in the previous Year),
Schedule F. Cl. 2.2(e)	(e) When Aurizon Network publishes the EC, it must separately identify the level of the Environment Compliance Charge and Variable Connection Charge within the EC.
Schedule F. Cl. 2.2(f)	(f) In obtaining and seeking approval for the Variable Connection Charge discussed in Cl. 2.2(e) Aurizon Network shall provide to the QCA supporting invoices and calculation sheets clearly demonstrating the cost items and amounts that will be included in the Variable Connection Charge along with underlying assumptions used in identifying these cost components and how they are consistent with the definition of a Variable Connection Charge.
Variable Connection Charge definition	Any variable charges associated with the electric connections, billed on an energy consumed basis as approved each year by the QCA under clause 2.2(a) of Schedule F.

Attachments

1. Aurizon Network's 2018 Electric Traction DAAU

Aurizon Network's 2018 Electric Traction DAAU, and relevant submissions and QCA response are available at:

http://www.qca.org.au/Rail/Aurizon/Intro-to-Aurizon/2016-Access-Undertaking/Variations/Electric-Traction-DAAU/Final-Report/2018-Electric-Traction-DAAU-(1)#finalpos

2. Aurizon Network's 2017 Electric Traction DAAU

Aurizon Network's 2017 Electric Traction DAAU is available at:

http://www.qca.org.au/getattachment/ecea63ba-680a-4a72-bf6d-9a5ee11d6745/Aurizon-Network%E2%80%94submission-supporting-DAAU.aspx

Aurizon Network's response to the QCA's Draft Decision on the 2017 Electric Traction DAAU is available at:

http://www.qca.org.au/getattachment/287a9337-cb19-493a-8f18-cb07ce723f68/Aurizon-Network%E2%80%94submission-on-QCA-draft-decisi-(2).aspx

3. Aurizon Network's Proposed Access Draft Amending Access Undertaking

See attached Clean and Marked Up Draft Amending Access Undertaking