

Dr Malcolm Roberts
Chairman
Queensland Competition Authority
Level 27, 145 Ann Street
BRISBANE QLD 4000

21 August 2013

Dear Dr Roberts,

Energy Economics Blackwater Volume Forecast (Electric Traction DAAU)

Aurizon welcomes the opportunity to comment on the volume forecast that the QCA has commissioned from Energy Economics (June 2013). The forecast will inform the consideration of Aurizon Network's second DAAU on Electric Traction (24 April 2013) (**the April DAAU**).

As you are aware, Aurizon Commercial & Marketing has supported AT5 tariff reform since it was first proposed to the QCA in 2008.¹ In the years since then, Aurizon has consistently advocated that the current arrangements inefficiently penalise users of the electric infrastructure in Blackwater, and continue to put at risk the efficient operation of the network in Goonyella.

Aurizon is therefore encouraged that the QCA is proactively taking steps to investigate and address the issue, and supports the effort to implement a sustainable pricing framework.

Aurizon maintains that the main objective of tariff reform is promoting the efficient use of, and investment in, the regulated electric network. Central to this is maintaining AT5 at a level consistent with an efficiently utilised network, such that electric users benefit from the economies of scale that make electric traction services competitive. Further, Aurizon continues to support reform which actually addresses the underlying cause of the problem, namely, the coordination failure which is undermining the viability of electric traction in Blackwater and, prospectively, Goonyella.

I. The main objective must be to set an efficient AT5 tariff

The QCA's main objective must be to set an efficient AT5 tariff, as it is the fact that AT5 has been set inefficiently in Blackwater for a sustained period, and remains vulnerable to a similar effect in Goonyella, which has given rise to this issue in the first place.

In determining such a tariff, the most crucial factor to keep in mind is that realised economies of scale are vitally important to the efficiency, and indeed, viability of an electric network. To electrify a network is to replace the variable cost of on-board electric power plants with the fixed cost of an electric distribution network. Given adequate scale, this has the effect of reducing average cost by capturing the scale economies associated with distributed and centralised power generation. When overhead is efficiently and fully utilised at the scale for which it is designed, as in Goonyella, the unitised cost (tariff) of the infrastructure can result in electric services outperforming diesel by a wide-margin.

However, as discussed in previous Aurizon submissions, the current open access arrangements have not sought to capture these scale economies in Blackwater. Instead, the regulated tariffs protect and enable 'traction choice' in the above-rail market, making electric economies of scale continually vulnerable to coordination failure. That is, when a single user elects to 'bypass' the electric overhead by operating diesels, the impact on economic welfare can be negative, as the total cost of the system

is raised and the viability of the asset undermined. This classic failure of coordination is made possible only by the regulatory arrangements, as a vertically-integrated supply-chain would coordinate traction choice in the above-rail market to ensure the lowest total-cost outcome.

Put another way, under the current regulatory arrangements, the application of 'market forces' to the problem of traction choice is not likely to result in the lowest cost outcome for the supply-chain. Instead, it will result in a perpetually hybrid system, where the system bears the ongoing cost of coordination failure, without any appreciable benefit in terms of increased above-rail competition. That is to say, regardless of whether diesel or electric is in fact the most efficient, to allow that question to be continually subject to the preferences of an individual user rather than a matter for coordinated choice, will not result in a competitive supply-chain. In a market environment where the productivity of the supply-chain is critical to competitiveness against global competition, this is of some considerable concern.

Resolving this issue requires AT5 to be set and maintained at a level that provides a consistent and stable price signal for efficient utilisation. Given that the fundamental economics of the electric overhead are driven by scale, it seems obvious that AT5 must reflect the economies of scale that would be achieved if the asset was efficiently and fully utilised.

II. Volume forecasts are not a sound basis for long-term fixed prices

Reiterating the importance of these scale economies, Aurizon considers that using forecast volumes (whether the Energy Economics report, or any other estimate) as the basis for setting a long-term fixed price path is unlikely to be a sound basis to determine an efficient AT5 tariff.

The electrical assets in Blackwater are inefficiently utilised through both depressed volumes and continued bypass by diesel operations. To forecast a perpetuation of that inefficiency, and then lock in that inefficiency for eight years through AT5, is not likely to result in efficient outcomes. While this approach will indeed result in a *lower* tariff, simply because throughput will eventually improve, it will still rely on volume data which is polluted by the same economic problem as the current volume data. That is, any forecast in the present market, will reflect an underutilised asset, and therefore result in an average cost tariff that sits above the efficient, scaled tariff (even if scale is subsequently realised through volumes increasing and the asset being efficiently utilised).

Of course, this loss of scale is a reasonable approach to regulated pricing for assets where bypass is not available. This is because, in normal regulated pricing for natural monopoly assets, the temporary loss of scale (i.e. short-run fluctuations in average cost) to achieve revenue adequacy does not result in the inefficient use of the infrastructure. For example, short-run loss of scale in the AT2-4 tariffs is not generally considered problematic, because there is no available short-run alternative to the track assets and coal production is inelastic to normal variance in below-rail tariffs. Thus, revenue adequacy can be maintained without any likelihood of creating inefficiencies in dependent markets.

However, for so long as the option to run a diesel service on an electric path remains available, then the prospect of coordination failure means that the loss of scale in the electric tariff is much more likely to result in inefficient outcomes. It is for this reason that setting AT5 efficiently must be the predominate objective of the DAAU process.

III. Alternatives to the use of forecast volumes

Where average cost pricing is retained, there would seem to be at least two alternatives to using volume forecasts, both of which would provide for a considerably more objective approach to long-term pricing than the Energy Economics report. In this respect, the alternatives are:

- market evidence, primarily derived from contracted tonnes, being a market-based measure of the capacity that the electric assets were built to accommodate, and the capacity that the users were prepared to pay for in the relevant CRIMP votes; and,

- technical evidence as to the capacity of the overhead to accommodate a given number of train services, which could be used to derive a price that would reflect what would be paid in a system where the technical capacity of the system was being optimally utilised.

The particular advantage of using a measure of contracted tonnes, as per what has been proposed by Aurizon Network in Schedule K, cl 3(b)(i), is that such a measure is an objective indication of how many tonnes the market expected to rail at the time the investments were made, and therefore provides a market-based indication of the economies of scale that would be available were the network efficiently utilised. In other words, using a derivative of contract will give an AT5 that reflects the average cost of the asset were it being used by the coal industry at the scale for which it was built.

Perhaps the other most significant benefit of using an objective, market-based measure like contracted volumes, is that it removes the subjectivity (and gaming) associated with volume forecasts. It would also provide a relatively adaptable approach that could be used for AT5 tariff reform in Goonyella, in the event the AT5 in that system ever exceeds an efficient level.

IV. Relevance of the 'competitiveness' of electric with diesel in setting AT5

As the QCA considers alternative efficient pricing methodologies, it is important to highlight that Aurizon would not consider it appropriate for the competitiveness of diesel traction with electric traction to be considered in the context of setting AT5. Most fundamentally, where coordination failure is recognised and solved for as the underlying problem, there is no continuing competition between traction types – thereby making the question essentially irrelevant. More specifically, for at least three key reasons, the competitiveness of one traction type as against another even in an environment of traction-based competition, is not directly relevant to the consideration of the April DAU:

- First, Aurizon does not consider that such a calculation is relevant to the task of setting efficient below-rail tariffs. As noted above, an efficient AT5 fully captures the economies of scale that are essential to making electric supply-chains efficient. This can be calculated without any reference to the cost-structure of a diesel service, and indeed, may result in an AT5 that is much lower than the point of 'diesel equivalency' (i.e. as in Goonyella, where diesel operation is not currently competitive), or indeed, much higher.

Indeed, any approach which allows diesel and electric pricing to have a bearing on one another, raises a number of issues:

- a perception that it is necessary to 'equalise' the competitiveness of each traction option to protect a competitor rather than competition;
 - the difficulties associated with setting a series of perfectly calibrated access prices that allow for efficient consumption of substitutable regulated services;¹¹ and
 - a perception there is "headroom" to increase the AT5 above an efficient level, in order to avoid the likelihood that a levy will be required to ensure revenue adequacy.
- Second, Aurizon does not consider that there is such thing as a readily identifiable 'diesel-equivalent tariff'. Above-rail cost structures vary over time and as between different firms, and it is not possible to identify with sufficient certainty for price-setting the point at which the electric tariff renders diesel out of the money. In any case, the question is a moot point, given that the system has committed to major sunk investments in electric traction, with exit costs potentially overwhelming any incremental benefit from a move to diesel.
 - Third, any such estimation would be procedurally difficult in the context of being used for price-setting, as Aurizon would not – nor could it reasonably be anticipated would its competitors – provide the QCA with cost and margin data without comprehensive confidentiality (including usage) restrictions. Aurizon would not agree to its confidential cost or margin information being used in a regular or public process for the setting of below-rail tariffs.

VI. Solving the revenue adequacy problem

Of course, capping AT5 at an efficient level may give rise to revenue adequacy problems, given the likelihood of depressed system volumes over UT4. This will necessitate the use of revenue management to ensure that the principle of revenue adequacy in s 168A(a) is not breached. In this respect, Aurizon has consistently expressed a preference for the QCA to manage revenue deficits by addressing the underlying cause of the shortfall, namely, actual or potential coordination failure as regards traction choice. Aurizon's position remains that, in dealing with any shortfall, the QCA should ensure it is treating the disease not the symptoms.

Consequently, Aurizon has expressed cautious support for the UUP proposal, which is in effect a traction-neutral levy on the system that will preserve the economic option to run diesel services. Given the QCA's objective of retaining hybrid operations across the CQCN, a traction neutral levy (or some similar annuity type payment) is likely to be the only way of dealing with the revenue adequacy problem. Nevertheless, as pointed out in the November 2012 submission,ⁱⁱⁱ it will be complex, potentially inequitable (particularly for existing electric users), and far less likely to result in an efficient supply-chain outcome than each system adopting a single traction mode.

Acknowledging that, Aurizon would nevertheless draw the QCA's attention to the arguments made in its November 2012 submission, on the difficulties of seeking to address coordination failure through the pricing mechanism. As noted then, Aurizon does not see what interest is served by preserving a distinct 'diesel option' in Blackwater through the regulated tariff arrangements. In other words, there is as yet no clear rationale for promoting 'traction choice' by exempting diesel users from paying for the cost of all installed capacity in the system through access charges. By preserving hybrid operations, the regulatory arrangements will continue to destabilise the economics of electric traction – including in Goonyella – to the detriment of the supply-chain.

Last, it should be noted that Aurizon would be strongly opposed to an AT5 being fixed at an inefficiently high level in order to minimise the likelihood of a UUP payment, as that would penalise electric users by depriving them of the scale that makes electric train services competitive. It would not be appropriate to goal-seek a tariff for such a purpose, as to do so would not evidence appropriate regard to the requirements of efficient pricing.

VII. Specific issues with the Energy Economics report

Turning to the specifics of the Energy Economics report, Aurizon is uncertain as to why the QCA has commissioned a forecast of Blackwater coal volumes over the next eight years. The QCA's website indicates that Energy Economics was asked to "assess the coal volume forecasts Aurizon Network used to derive its proposed AT5 tariff", given that "the volume forecast is a key input to the proposed AT5 estimate and to assessing the likelihood of an under-utilisation payment". This suggests that the volume forecast is intended to be used by the QCA for one of two purposes, each discussed below.

First, it is implied that volume forecasts are being tested which have been used, or will be used, to set the AT5 tariff. However, if this is the case, it is difficult to reconcile with the text of the DAAU:

- First, the draft of the April DAAU indicates that Aurizon Network will use a percentage of contracted volumes, not forecast volumes, to calculate an indicative tariff (as per Schedule K, cl 3(b)(i)). Given the previous discussion, Aurizon considers this to be a reasonable basis on which to price AT5. However, this aspect of the drafting is not noted by the public statements made by Energy Economics and the QCA. Alternatively, if an amendment to Schedule K is being contemplated under s 142(3), Aurizon requests that the QCA make this clear in a transparent and reasoned way, with reference to both the Act and the Schedule, such as to facilitate consultation. At present, stakeholders do not know the economic or statutory basis for any such change, nor its impact on the estimated tariff.
- Second, as noted in Aurizon's earlier submission,^{iv} there is an issue with the Explanatory Notes to the DAAU being inconsistent with Schedule K, in that forecast volumes (not contract volumes) have been partly used in the explanatory modelling.^v Aurizon has queried why this is the case and been advised by Aurizon Network that it remains open to a preferred AT5 pricing

methodology and that the use of UT4 volume forecasts in the indicative modelling was in response to early discussion, but was not intended to bind them to a particular approach (with the text of the DAAU reflecting the actual regulatory proposal).

- Third, Aurizon Network has not set out a “proposed AT5 tariff”. Rather, as noted in Aurizon’s original submission,^{vi} and it seems acknowledged by the QCA in describing the DAAU as an “AT5 estimate”, Aurizon Network has advised industry that the actual level of the tariff will only be determined during the UT4 process, once the detail of the indicative AT5 methodology is better developed and allowable revenues are approved. It intends for this process on the April DAAU to instead be used to devise an efficient methodology for the calculation of the tariff. Given this, it is unclear how these volume forecasts will be used in the UT4 process.

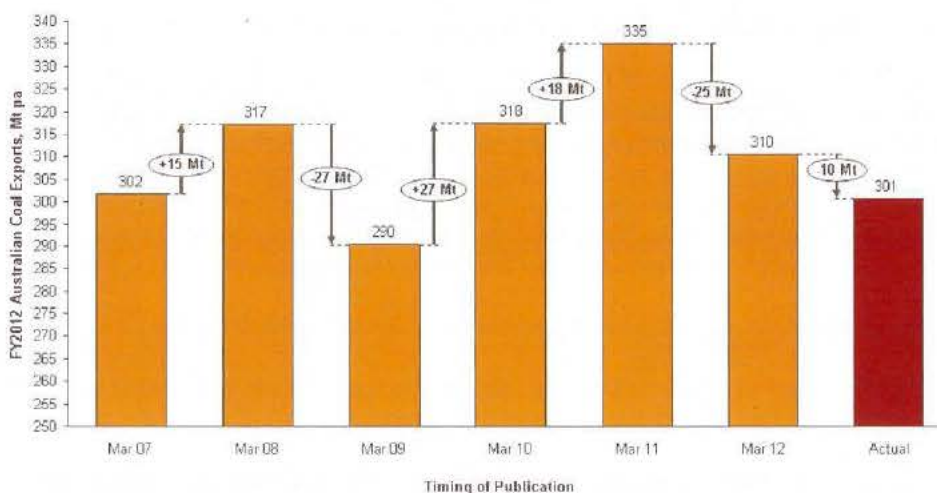
Second, the other apparent, though less clearly stated, use for the Energy Economics work is to gauge the materiality of any UUP liability. In this respect, Aurizon acknowledges that it is reasonable for the QCA to make such an assessment, but considers this a secondary issue after ensuring that AT5 is set at a level which promotes efficient use of the infrastructure.

Noting that uncertainty over the QCA’s intended use of the Energy Economics report, Aurizon wishes to comment briefly on specific issues with the document.

- Energy Economics has provided little supporting evidence for its bearish outlook. Given a forecast that the installed capacity of the system will be very substantially underutilised for such a lengthy period of time, it would be difficult to accept the report as reliable unless supported by multiple independent forecasts.
- Providing point estimates for such a long forecast period suggests a level of accuracy that is unreasonable. The usual practise for long-term macroeconomic forecasting is to provide a range or confidence interval, or alternatively, the averaging of multiple independent forecasts.
- Energy Economics does not appear to incorporate the increased utilisation of rail infrastructure by producers due to downward unit cost initiatives and take-or-pay costs. Despite the low coal price environment and current margin squeeze, the size of fixed costs can incentivise coal producers to increase rather than reduce production to reduce the cost per tonne of production. This is observed in increased railings through RG Tanna over the last quarter of FY13.
- In the report, Energy Economics states that “Energy Economics has been more bearish than Aurizon Network in terms of the speed of development of mining projects destined to utilise the new Wiggins coal Export Terminal, and in some cases the ultimate production levels of these mines.” However, in making that statement, Energy Economics appears to be discounting the incentive effect of take-or-pay charges. As soon as WICET is in operation, take-or-pay charges are expected to commence. The existence of take or pay charges is supportive of an optimistic ramp-up profile.

Lastly, it is worth noting the near certainty of forecasting error in such a long-term forecast. Particularly in UT5, it is improbable that any forecaster is able to give an accurate point estimate of the Blackwater coal volumes. To illustrate this, the figure below shows individual BREE forecasts for FY2012, going back to 2007. As can be seen, there is a large degree of volatility in the forecast, with the FY2012 prediction changing every year by an average of 20Mt (5%-9%).

Figure 1: BREE/ABARE Forecast for FY2012 Australian Coal Exports (Mtpa)^{vii}



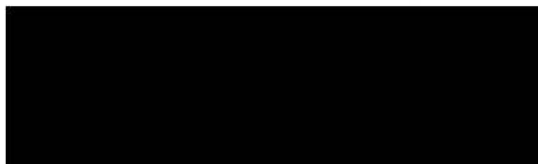
VIII. Conclusion

Aurizon understands that the DAAU was intended by Aurizon Network to be a vehicle by which the QCA could determine high-level principles, before being engaged in the process for setting tariffs through UT4. Aurizon supports that approach, and notes the industry expectation that the QCA will need to resolve the AT5 issue for UT4 to proceed in a timely way.

As part of such a decision, Aurizon considers that the QCA should make clear that the main purpose of the DAAU is to determine an efficient AT5, and provide a high-level indication on the economic characteristics of such a tariff. Aurizon would also seek clarity from the QCA in any such decision on the intended use of the Energy Economics forecast, and what bearing the report will have on UT4 pricing outcomes.

If you have any queries on this submission, please contact Robin Laver on 0428 998 381 or Robin.Laver@aurizon.com.au.

Yours faithfully,



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ⁱ As outlined in Aurizon's submission to the QCA in September 2012, Aurizon Network first proposed reforming the tariff arrangements during the course of UT3, with the support of key stakeholders, including Asciano. This proposal was rejected by the QCA.
ⁱⁱ QR National, *Submission to the QCA's July Draft Decision*, 25 September 2012, p. 47
ⁱⁱⁱ QR National, *Further Submission on the QCA's July Draft Decision*, 23 November 2012, p.p.10-12
^{iv} Aurizon, *Submission on Aurizon Network's April DAAU*, 10 June 2013, p.13
^v Aurizon, *Submission on Aurizon Network's April DAAU*, 10 June 2013, p.9
^{vi} Aurizon, *Submission on Aurizon Network's April DAAU*, 10 June 2013, p.7
^{vii} BREE Resource and Energy Quarterly June 2013, March 2012; ABARES Australian Commodities Mar Quarter 2007-2011