Monday, 16 April 2012

John Hall
Chief Executive Officer
Queensland Competition Authority
GPO Box 2257
Brisbane QLD 4001

Dear Mr Hall

Asciano Submission to the QCA on QR Network DAAU Relating to Electric Traction

Please find attached Asciano's submission on the QR Network Draft Amending Access Undertaking ("DAAU") Relating to Electric Traction.

Asciano has strong concerns with the DAAU proposal. The proposal is based on an assumption that electric trains are more efficient than diesel trains. Asciano believes that this assumption is incorrect. On the basis of this incorrect assumption the DAAU effectively discriminates against diesel trains in favour of electric trains in order to encourage increased usage of electric trains.

While the DAAU is put forward as being required to address efficiency concerns, the real impact of the DAAU is on above rail competition. QR National has a significant fleet of excess electric locomotives, and the DAAU could be viewed as an attempt to advantage the vertically integrated QR National by pricing competing diesel trains out of the Blackwater system and allowing these QR National electric locomotives to take their place.

As you are aware the consultation period for this DAAU was extended upon request by QR Network so that they could conduct consultation with various industry participants, including Asciano.

The attached submission is made in response to the DAAU as submitted by QR Network in December 2011. It does not explicitly address issues which have been raised by QR Network in the current consultation process.

Following from its involvement in the current consultation process Asciano understands that the position put forward in the DAAU may be varied in coming months as options currently being discussed are finalised.

Asciano is of the view that any variation or resubmission of the DAAU will result in further delays and uncertainty in the market. The current extension has added to pricing and contracting uncertainty and any further delays resulting from a variation or resubmission will further delay investment and operational decisions. As such Asciano are seeking that QCA act to decide on this issue as soon as possible to allow investment and operating decisions to be made in an environment of relative certainty regarding future approaches to electric infrastructure tariffs.

However, in the event that the DAAU is varied or resubmitted Asciano is seeking that QCA provides an opportunity for industry participants to comment on any varied or resubmitted

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DAAU.

If you wish to discuss this submission could you please contact me on (03) 9248 7274 or Stuart Ronan on (02) 8484 8056.

Yours sincerely

[redacted]

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QR Network Draft Amending Access Undertaking – Electric Traction Services

Asciano Submission to the QCA

April 2012

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1 EXECUTIVE SUMMARY

Asciano Limited (Asciano) welcomes the opportunity to provide this submission in response to issues relating to electric access as contained in the QR Network Draft Amending Access Undertaking (DAAU) which was submitted to the Queensland Competition Authority (QCA) in December 2011. Asciano understands that the DAAU seeks to:

- introduce a single electricity infrastructure tariff across the Goonyella and Blackwater system;
- require operators to pay this electricity infrastructure tariff for at least ninety per cent of services that could be operated with electric trains, even if the trains operated are diesel trains; and
- limit tariff adjustments for this electricity infrastructure tariff to five per cent.

Asciano strongly opposes the first two of these proposed amendments. In summary, Asciano's reasons are as follows.

QR Network bases its DAAU on QR Network analysis which purportedly strongly favours electric trains as being more efficient than diesel trains. Following such analysis, QR Network has acted to provide disincentives for the operation of diesel trains. This QR Network analysis is flawed.

QR Network only materially consulted with QR National in developing this position. The above rail operator that will benefit from a move towards electric trains is QR National. As such, the DAAU may be seen as unreasonably favouring QR National's operations, distorting competition in the above rail market and having an anti-competitive impact. QR National will benefit from the DAAU in the following ways:

- a single AT_5 tariff across both systems increases the AT_5 tariff in the Goonyella system, where both operators operate electric trains and so the competitive situation is not impacted but has the effect of decreasing the AT_5 tariff in the Blackwater system where only QR National operate electric trains and so the competitive pricing situation is shifted in the favour of QR National in the Blackwater system;

- requiring diesel trains to pay the AT_5 tariff even though these trains do not use electric infrastructure will competitively disadvantage Asciano in the Blackwater system and competitively benefit QR National in the Blackwater system as only QR National operate electric trains in the Blackwater system;
- capping the AT_5 tariff adjustment to five per cent will competitively benefit QR National in the Blackwater system as future pricing will be more stable than may otherwise be the case; and
- QR National currently has excess electric locomotive capacity whereas Asciano does not, thus the DAAU favours QR National as QR National is in a position to respond to any price signals in a short time frame whereas Asciano could not.

The proposed DAAU amendments are based on QR Network analysis which purportedly demonstrates that electric trains are more efficient than diesel trains for both above and below rail operations than diesel trains. As such, QR Network's proposed DAAU seeks to provide disincentives for the operation of diesel trains. Asciano's position is that this analysis is flawed, for the following reasons:

- it is based on an implicit assumption that centralised planning is preferable to allowing market participants to make their own decisions;
- it is based solely on data from QR National's above rail operations. No data based on Asciano's operations was used. Asciano trains differ to QR National trains and as such performance outcomes are different. Based on observations of actual running times Asciano diesel trains perform better than the QR Network modelling indicates that they should perform. In particular the observations of Asciano diesel trains show that in relation to cycle times diesel trains are as efficient as electric trains in the Blackwater system, both overall and on sections where there are relatively steep and / or numerous gradients. These performance outcomes raise concerns with the QR Network modelling approach and conclusions;
- it treats electric infrastructure and electric trains as costless;
- it does not allow for the stranding or impairment of electric infrastructure, electric trains or diesel trains;
- it does not allow for further technology developments with diesel trains, and in effect locks in electric technology for the next twenty to thirty years regardless

of developments in technology or other factors which may impact the attractiveness of diesel and electric trains;
- it does not take full account of the complexity and capital intensive nature of electricity production and delivery systems and the potential for outages in these systems; and
- it does not take account of the operational flexibility of diesel trains.

In addition, the DAAU proposals do not meet requirements that access prices be economically efficient for the following reasons:

- a single AT_5 tariff across both systems would result in a cross subsidy between the Goonyella system and the Blackwater system, with users in the Goonyella system paying for Blackwater system infrastructure. As such the AT_5 tariff in both systems does not reflect costs and is inefficient;
- requiring diesel locomotives to pay the AT_5 tariff is inefficient as the price being charged does not reflect the costs incurred in providing the service. The price includes additional costs for infrastructure which is not used in providing the service;
- capping the AT_5 tariff adjustment may create some inter temporal efficiencies, however the efficiency impact of this proposed amendment may not be as great as the efficiency impact of the other two proposals.

In addition, dynamic efficiency requires that the asset should only have been built if it was *ex ante* efficient, the *ex post* treatment of the capital costs of electricity infrastructure as sunk costs removes incentives for prudent and efficient *ex ante* investment, and hence reduces dynamic efficiency.

In developing and presenting this DAAU proposal QR Network has engaged in behaviours which are not conducive to good regulatory outcomes. In particular QR Network have only consulted with related parties in developing the proposal and have sought to bind the regulator by requiring that any consultants appointed by the regulator be approved by QR National.

In considering the DAAU the Queensland Competition Authority Act 1997 (Qld) (QCA Act) requires the QCA to consider numerous factors. The QCA may only approve a draft access undertaking if it considers it appropriate to do so having regard to the

factors contained in the QCA Act[1]. Asciano believes that, with the possible exception of the five per cent tariff adjustment cap proposal, the DAAU does not meet the requirements contained in these factors and so must be rejected.

In considering the DAAU proposals Asciano believes that the only proposal that is potentially acceptable at the current time is the capping of the AT_5 tariff adjustment by five per cent, although Asciano believes that more information should be provided by QR Network in relation to this proposal. Asciano submits that the other DAAU proposals are not acceptable and should be rejected by the QCA.

[1] Section 138 of the QCA Act and the pricing principles contained in section 168A of the QCA Act

2 INTRODUCTION AND BACKGROUND TO QR NETWORK'S PROPOSED DAAU

Asciano welcomes the opportunity to provide this submission on issues relating to electric access pricing and related issues as contained in the QR Network DAAU and the supporting submission which were submitted to the QCA in December 2011. In preparing this submission, Asciano has been mindful of the factors set out in the QCA Act to which the QCA must have regard in determining whether or not to approve the DAAU. The QCA may only approve the DAAU if the QCA considers it appropriate to do so having regard to the matters mentioned in section 138 of the QCA Act. .These matters are set out in Appendix 1.

Asciano submits that when taking into account the factors set out in the QCA Act, the QCA cannot approve the DAAU as it fails to properly meet the relevant objectives and pricing principles of the Act.

Asciano, via its subsidiary Pacific National (PN), transports coal by rail in Queensland via the QR National owned QR Network. The main competitor to Pacific National is the QR National above rail business, which is a related party to QR Network.

Asciano currently operates regularly in the following QR Network rail systems:

System	Electric Infrastructure	Asciano Operations
Goonyella rail system	This system is electrified	Asciano primarily operates AC electric locomotives and also operates some diesel locomotives.
Blackwater rail system	This system is electrified but has capacity constraints which currently do not allow the operation of more than a certain number of AC and DC electric locomotives[2]. Currently QR National is the only operator of electric locomotives in the Blackwater system as the Blackwater electric capacity is allocated to QR National	Asciano only operates diesel locomotives in the Blackwater system due to the current system constraints

[2] Asciano understands that the Blackwater System electric infrastructure can only accommodate in the region of 12 to 14 electric locomotives.

	QR National operates AC and DC electric locomotives in this system. QR Network is investing in expanding the electric capacity of this system.	
Newlands – GAPE rail system	This system is not electrified.	Asciano operates diesel locomotives.

Asciano entered the Queensland coal rail haulage market in 2009. Prior to entering this market Asciano had to make a decision as to whether to operate diesel locomotives or AC electric locomotives. At the time this decision was made in 2007 Asciano was informed by an independent consultant, who was in discussions with QR Network, that, while the Goonyella system could accommodate AC electric locomotives, the Blackwater system could not accommodate AC electric locomotives due to power constraints and signalling constraints. Consequently Asciano made a twenty year investment decision to invest in diesel locomotives for Blackwater system operations. Asciano note that subsequent to this decision QR National has commenced operating AC electric locomotives in the Blackwater system.

In considering the issues raised by the DAAU Asciano has commissioned a paper by CEG to consider the QR Network proposals and provide comment on these proposals. The paper is attached at Appendix 3. (The paper is referenced in this submission as the CEG Paper).

3 QR NETWORK'S DAAU PROPOSAL

The main amendments proposed by QR Network in the DAAU are amendments to the Access Undertaking: Schedule F: Reference Tariff Schedules. These amendments are outlined in further detail in Appendix 2 of this submission. In summary these amendments are:

- Part A 1.3.1 m) – proposes to explicitly defines a reference train service as one which does not generate electricity back into the overhead traction system;
- Part B 2.1.1 and 2.3 – proposes the electric access tariff AT_5 be levied on trains where electric traction services are available, even if the train is a diesel

train. A rebate is available such that an operator can operate up to ten percent of its services as diesel services where electric traction services are available before the operator has to pay the AT_5 tariffs for diesel services. In effect, operators, such as Asciano, would pay this electricity infrastructure tariff for at least ninety per cent of services that could be operated with electric trains, even if the trains operated are diesel trains.

- Part B 3.1.2 c) and d) – proposes that revenue under-recovery or over-recovery for the AT_5 tariffs in an individual coal system will be recovered across the Central Queensland Coal Region rather than an individual coal system. In effect there would be single electricity infrastructure tariff across the Goonyella and Blackwater system. QR Network's DAAU indicates that the impact of these amendments is as follows:

	2011-12	**2012-13**
Blackwater AT_5 tariff $	current 4.42	with amendments 2.74 without amendments 4.53
Goonyella AT_5 tariff $	current 1.91	with amendments 2.74 without amendments 1.95

- Part B 3.4.3 –proposes that if the AT_5 tariff adjustment amount exceeds five per cent of the AT_5 component of the system allowable revenue then the AT_5 tariff adjustment may be capped at five per cent of the AT_5 tariff and the balance adjusted for in the system allowable revenue in subsequent years.

QR Network is submitting this DAAU as it has undertaken analysis which shows total industry costs are minimised if the industry uses electric locomotives in preference to diesel locomotives, but that this usage of electric locomotives will not occur under current pricing approaches. Furthermore there is a QR Network concern[3] that recovery of QR network investment in electric infrastructure assets may be jeopardised unless there is increased utilisation of this electric infrastructure. The DAAU is intended to address these concerns.

Asciano strongly opposes the proposed amendments in Part B 2.1.1 and 2.3, and Part B 3.1 c) and d). Asciano believes that there is potential for the proposed amendment in Part B 3.4.3 as outlined above to be implemented but further details

[3] QR Network, 2011, Submission to the QCA: Electric Draft Amending Access Undertaking December 2011 page 23

as to the how this price smoothing mechanism would operate must be provided by QR Network.

Asciano notes that other minor amendments are sought in the DAAU. These minor amendments are largely correcting typographical errors. Asciano has no issue with these amendments.

4 THE IMPACT OF THE DAAU ON ABOVE RAIL COMPETITION

4.1 The Consequences of the DAAU for Above Rail Competition

The QR Network analysis strongly favours electric traction. In undertaking this analysis and developing this position QR Network only consulted with one operator, being QR National. In any move to electric traction the above rail operator that will benefit most from a move is QR National. As such the DAAU may be seen as discriminatory as it overwhelmingly favours one operator over another.

In considering issues of competition QR Network[4] seeks to address how the DAAU meets the s138 and s168A requirements of the QCA Act and in particular seeks to address the impact of the DAAU on above rail competition. QR Network submits that the DAAU has no adverse impact on above rail competition as:

- QR National and Asciano both currently operate a mix of diesel and electric trains;
- the market is currently competitive;
- access to below rail services is subject to regulation; and
- there are no material barriers to entry that make entering the market with an electric service more difficult than entering with a diesel service.

In particular QR Network notes that[5]:

... it is very unlikely that the types of changes in the regulatory treatment of traction assets proposed here will have any material adverse impact on the competitive conditions in the above rail market

[4] QR Network, 2011, Submission to the QCA: Electric Draft Amending Access Undertaking December 2011 pages 55-56

[5] QR Network, 2011, Submission to the QCA: Electric Draft Amending Access Undertaking December 2011 page 56

Asciano believes that QR Network position outlined above is simplistic and understates the immediate and real impact the DAAU proposals will have on above rail competitors and above rail competition more generally. In particular Asciano believes that the DAAU proposals will have a material adverse impact on the above rail market and will discriminate against above rail competitors as follows:

- QR National currently operates electric traction in the Blackwater system and Goonyella system whereas Asciano operates electric traction in the Goonyella system and diesel traction in the Blackwater system, thus:
    - having a single AT_5 tariff across both systems decreases the AT_5 tariff in the Blackwater system where only QR National operate electric traction and so the pricing situation is shifted in the favour of QR National and against Asciano in the Blackwater system;
    - requiring diesel locomotives to pay the AT_5 tariff will disadvantage Asciano in the Blackwater system and benefit QR National in the Blackwater system;
    - capping AT_5 tariff adjustment s to five per cent will benefit QR National in the Blackwater system as future pricing for electric traction will be more stable than may otherwise be the case. Given QR national are the only operator operating electric trains in the Blackwater system these stable tariffs will benefit QR National to the extent that end users favour stable tariffs; and
- QR National currently has excess electric locomotive capacity whereas Asciano does not have excess electric locomotive capacity, thus by encouraging electric traction to the detriment of diesel traction the DAAU favours QR National as QR National is in a position to respond to any price signals in a short time frame whereas Asciano would need to invest in new electric locomotive capacity.
- QR National would be using older (i.e. depreciated) electric locomotive assets and so should be able to charge a lower price than Asciano , which would be basing its pricing on new electric locomotive assets which it would be required to purchase. This may act as a barrier to entry for any new above rail entrants, and may disadvantage current above rail market participants.

Furthermore, Asciano would disagree with the QR Network contention that there are no material barriers to entry that make entering the market with an electric service more difficult than entering with a diesel service. Given that, as outlined in section 2 above, Asciano were informed that the Blackwater system could not accommodate AC electric locomotives Asciano believes that the limited capacity on the Blackwater system was, and still is, a barrier to entry.

Overall Asciano strongly disputes QR Network's contention that it is "very unlikely" that the DAAU will have "any material adverse impact on the competitive conditions in the above rail market". Asciano submits that he DAAU impacts negatively on above rail competition and discriminates against one user in favour of another user as it acts to disadvantage Asciano, currently the only independent above rail operator, and benefit QR National. For that reason, Asciano submits that this significantly impact son the public interest in having competition in this market.

5 QR Networks Assumption that Electric Traction is More Efficient is Wrong

The proposals within the QR Network DAAU are based on analysis conducted by QR Network of QR National data. Relying on this analysis, QR Network has submitted that in both the Goonyella and Blackwater systems electric traction is more efficient than diesel traction for both above and below rail operations. This QR Network analysis is then relied upon by QR Network to support the proposed amendments, which are designed to compel operators to use electric traction to ensure that these QR Network modelled efficient outcomes are achieved.

The QR Network position is that diesel traction is less efficient than electric traction. As such, QR Network proposes that the users of electric traction should bear higher costs than they otherwise would bear. Thus QR Network proposes the DAAU as a mechanism to charge diesel traction operators additional costs for operating diesel trains in order to reflect the costs that the operation of diesel trains incur.

Asciano submits that the QR Network analysis which purportedly demonstrates that electric traction is more efficient than diesel traction is flawed. The basis for this submission is considered below.

5.1 Conceptual Flaws in the QR Network Approach

Centralised Planning Approach is Incorrect

In terms of conceptual framework the QR Network approach is flawed as it is based on an implicit assumption that outcomes derived by centralised planning are both preferable and more efficient than market outcomes that result from allowing market participants to make their own decisions as how they will invest and operate their capital. If operators gain benefits from operating electric or diesel traction or a mix of both then it should be the operators decision as to which form of capital they invest in and how this capital should be operated. QR Network's role is to set efficient prices so that market participants can make informed choices.

The QR Network approach implicitly models future technologies and the current and future capital and operating costs of third party train operators, such as Asciano, before concluding that electric traction is more efficient than diesel traction.

However, the modelling does not explain that if the contention that electric traction is more efficient than diesel traction is in fact the case, why train operators and users continue to act against their own self interest and continue to use inefficient diesel traction. QR Network should identify reasons why train operators and users do not move towards electric traction before it can propose an efficient solution to this perceived problem. Asciano believes that as QR Network does not have any particular knowledge of the current and future capital and operating costs of third party train operators it is likely that assumptions regarding these costs are incorrect.

This issue of QR Networks reliance on central planning rather than market solutions is discussed in more detail within the CEG report and in particular section 3.1 of that report.

Furthermore in considering the proposal that electric traction is more efficient than diesel traction it should be recognised that QR Network is one of the few heavy haul railway systems in the world that uses electric traction. Most heavy haul railways, including those with vertically integrated track and train operations use diesel traction exclusively. In advocating a move towards electric traction QR Network must address the issue of why, if electric traction was superior to diesel traction, other heavy haul railways do not use electric traction[6].

[6] In addition Asciano notes that the Queensland North Coast line is electrified but these electric assets are not widely used by trains using this line. This further raises queries about the attractiveness of electric traction and indicates the potential that centralised planning has for investing in under utilised capital and locking in inappropriate technologies.

Asciano believes that it is more appropriate for QR Network to set its prices to reflect its efficient costs. This will act as an appropriate price signal to above rail users.

QR Network seeking to implement a centralised approach to the planning of above rail investment and operations based only on consultation with QR National's raises concerns with QR Network's conception of how centralised planning should function and what stakeholders should be implicitly favoured by such a subjective approach to planning.

Cost Reflectivity of the Proposed Solutions is Deficient

QR Network states that decisions by operators to use diesel traction results in "real social costs to the supply chain"[7]. QR Network believe that current diesel traction prices are not cost reflective as prices have not been set to reflect true economic costs (as QR Network analysis shows that diesel traction incurs unpriced costs related to slower cycle times which use greater capacity). Asciano does not believe that diesel traction incurs unpriced costs, but as stated in the section above, QR Network should set its prices to reflect its efficient costs in order to act as an appropriate price signal to above rail users. If there are real social costs in the supply chain currently not reflected in prices then these costs should be explicitly and independently quantified and then recovered via a separate process which recovers the quantified cost. This will send appropriate price signals to the market.

However, The QR Network proposed solution is seemingly arbitrary in that it does not involve a quantification of the costs of diesel traction, but rather involves:

- an aggregation of two tariffs;
- a requirement for operators to pay an additional existing tariff; and
- a cap an existing tariff adjustment mechanism.

This QR Network proposed solution seems to be designed to force the adoption of electric traction rather than reflect any additional costs incurred through the use of diesel traction.

[7] QR National, 2011, Covering Letter, "Sustainable Electric Traction Pricing – Draft Amending Access Undertaking, 16 December 2011 page 2

Asciano does not believe that diesel traction incurs unpriced costs, but in the event that such costs could be independently demonstrated, the correct solution would be to quantify and recover these costs via a discrete cost component or pricing mechanism, such as the already existing diesel multiplier. The diesel multiplier is an additional payment currently made by train operators who operate diesel trains on the Blackwater and Goonyella system. Asciano understands that this payment in meant to reflect additional time diesel trains spend on the systems in provisioning and refuelling activities. These diesel multipliers are currently:

- an additional 52 % of the AT_2 tariff in the Goonyella system; and
- an additional 10% of the AT_2 tariff in the Blackwater system.

As such the tariffs paid under these multipliers are typically in the hundreds of dollars.

In relation to the diesel multiplier Asciano has a fundamental issue with how this is applied as it applied on the basis of traction type rather than an actual cost incurred by longer cycle times. To be an efficient pricing signal the diesel multiplier should become a true capacity multiplier[8] to be applied to actual train performance as opposed to being applied by traction type.

A capacity multiplier of this type would support the pricing principles in section 168A of the QCA Act, namely to allow for multi-part pricing and price discrimination where it aids efficiency and to provide incidents to reduce costs or otherwise improve productivity.

Overall, he QR Network position would have substantially greater credibility if the social costs of diesel usage had been quantified and a single coherent solution could be proposed that addressed the purported cause of the cost 9i.e. cycle time) rather than the current series of seemingly arbitrary additive amendments designed to compel diesel train operators to either shift to electric trains or exit the market.

[8] Asciano note that QR Network in their Submission to the QCA: Electric Draft Amending Access Undertaking December 2011 refer to this concept as a capacity multiplier although it currently only applies to diesel trains.

This issue of the cost reflectivity of the proposed QR Network pricing solutions is discussed in more detail within section 3.2 of the CEG report and in particular section 3.2.1 of that report.

Treatment of the Capital Cost of Asset Acquisition and Construction

The QR Network analysis appears to treat the QR Network electric infrastructure as costless and QR National and Asciano electric traction assets as costless. QR Network's approach to modelling effectively treats the costs of electric infrastructure as sunk and consequently seeks to set prices in order to best utilise these sunk investments. In effect this rewards QR Network for any past inefficient investment and encourages future inefficient investment.

While under this static efficiency approach it may be conceptually more efficient to operate electric traction in order to utilise a large sunk asset, by allowing QR Network to socialise the costs of this large sunk investment it sends an inappropriate dynamic efficiency signal to QR Network as QR Network are then encouraged to build assets without regard as to whether the investment is efficient as they will be able to recover cost from al users.

If a model based on the assumption that sunk costs can be ignored is accepted by the QCA then this provides an incentive for QR Network to undertake future capital investment without regard to the efficiency of that investment and then *ex post* argue that as the capital is a sunk cost it should be treated as costless. . Asciano submits that this approach is contrary to:

- the pricing principle in section 168A(d) of the QCA Act that pricing should provide incentives to reduce costs or otherwise improve productivity; and
- the object of Part 5 of the QCA Act, which requires the promotion of the economically efficient investment in significant infrastructure.

This should be taken into account by the QCA pursuant to sections 138(2) (g) and 138(2) (a) of the QCA Act.

Asciano believes that the cost of constructing and / or purchasing capital assets should also be included in any assessment of the costs and efficiency of electric and diesel traction and electric infrastructure

Thus at the current time the QR Network proposal and modelling amounts to an *ex post* socialisation of the recovery of a capital investment where no tests of efficiency or prudency need to be applied to the investment *ex ante* as recovery is guaranteed. Such overinvestment in electric infrastructure is not costless as this capital can no longer be invested in other rail infrastructure. This is of particular concern as with new mines being proposed, new coal ports being constructed and system congestion occurring there are numerous calls on capital required for below rail projects. These projects may be delayed as capital which could have been spent on these projects is diverted into electric infrastructure investment.

This issue of the treatment and timing of capital investment in respect of the proposed QR Network pricing solutions is discussed in more detail within section 3.3 of the CEG report.

5.2 Practical Concerns with the QR Network Position that Electric Traction is More Efficient than Diesel

Although the QR Network analysis does not take into account the additional flexibility of diesel traction and instead locks in electric traction technology as the only technology option. The benefits of diesel traction include:

- the ability to continue operating during overhead infrastructure outages;
- the ability to operate on non-electrified track;
- the ability to serve non electrified mines;
- reduced need for dedicated infrastructure with attendant lower implicit capital costs; and
- reduced reliance on a single third party delivery system, which may itself be exposed to its own industry specific risks.

QR Network state in the covering letter to the DAAU dated 16 December 2011 that

...electric traction offers network users significant upside not available with diesel traction. These include further operational efficiencies, innovation in electricity generation, improved long term contractual arrangements and reduced interconnecting infrastructure costs.

The above statement assumes that there are no further efficiencies available with diesel traction. However, Asciano believes that there is potentially significant upside

available in both electric and diesel traction arising from both improved operational efficiencies and commercial contracting opportunities. Asciano acknowledges that in relation to electricity generation and electricity infrastructure issues that there may be potential upside, but this upside is largely due to the complexity and capital intensive nature of electricity production and delivery systems when compared to diesel delivery systems. These complex electricity production and delivery systems present their own problems, such as regulatory risk, high fixed capital and potential for outages, which are not as problematic for the relatively simpler diesel delivery systems. It is impossible to predict how technology will develop, particularly over a period as long as thirty years. QR Network's proposal will prevent the utilisation of efficiency improvements in diesel traction unless these improvements are of a level that they can overcome the high hurdle of the artificial cost impost on diesel traction of the requirement for diesel traction to pay the AT_5 tariff..

Furthermore Asciano notes that there is currently only one supplier of electric locomotives to the Queensland coal haulage market. Asciano therefore submits that it is not in the public interest (and in particular, the public interest in having competition in markets) to support this approach which locks in a single type of technology currently supplied by a single supplier. The QCA should have regard to this factor pursuant to section 138(2) (d) of the QCA Act.

Overall, Asciano believes that by effectively mandating electric traction the DAAU is locking in a certain type of technology for twenty to thirty years. Asciano believes that both electric and diesel technology have benefits and to lock in one type of technology to the exclusion of the other type unnecessarily limits flexibility.

5.3 Practical Concerns with the QR Network Position Encouraging Additional Capital Works

If diesel traction were to be discouraged such that diesel infrastructure and assets were marginalised then it is likely that many non-electrified network sections and user specific spur lines would have to be electrified at a large capital cost to either QR Network or the spur line user. These costs have not been factored into the current analysis, including the opportunity cost of capital works not undertaking due to this electrification program.

5.4 Detailed Flaws in the QR Network Position that Electric Traction is More Efficient than Diesel

Asciano has several issues with the QR Network analysis on the efficiency of electric traction and diesel traction. These are outlined below.

Modelling Limited to QR National Configurations and Traction Options

Asciano believes that the QR Network approach is flawed as it is based only on the standard QR National above rail operating configurations and traction options and, as such, does not take into account configurations and traction options that other operators, including Asciano, may use. For example other operators may operate trains with different train size and train speed when compared with QR National.

Furthermore Asciano understand that the QR Network modelling is based on simulations rather than actual operations and run times. Asciano believes that in order to make real world decisions real world data is preferable to modelling outcomes which are sensitive to assumptions made and variables included and omitted.

There are differences in the train consists between QR National (which were used in the QR Network analysis) and Asciano (which were not used in the QR Network analysis). The principal differences and the median cycle time from the sample are shown below:

	Asciano Diesel	**QR National Diesel**	**QR National Electric**
Number of Locomotives	4	4	3
Number of Wagons	100	98	98
Wagon load (tonnes)	85	83.7	83.7
Train Payload	8500	8200	8200
Median Cycle Time of Sample (hours)	26.3	26.4	28.3

In considering the differences above it should be recognised that at least in relation to the Asciano diesel trains four diesel locomotives can haul more wagons than the standard train in the model. Asciano believes that 116 wagons could be hauled if infrastructure constraints (passing loops and signalling) are removed. If this were done then the relative efficiency of diesel locomotives compared to electric locomotives in the model would increase substantially.

Asciano Data Observations

As stated above Asciano believes that in order to make real world decisions real world data is preferable to modelling outcomes which are sensitive to assumptions made and variables included and omitted. Asciano has separately conducted its own modelling using observations of Asciano train consists in the Blackwater system to test the QR Network conclusions. This testing used actual raw cycle data between1 July 2011 to 14 February 2012. In assessing these observations Asciano used a benchmark cycle time of 26.4 hours as QR Network analysis shows that the Blackwater system cycle time is 26.4 hours for electric trains and 28.3 hours for diesel trains[9].

The summary of the outcomes of the Asciano analysis are as follows:

- 426 diesel services were operated by Asciano on the Blackwater system between 1 July 2011 and 14 February 2012;
- 276 of the 426 diesel services that Asciano operated achieved an cycle time of 26.4 hours or better (i.e. 65 per cent of services achieved this cycle time);
- 118 of the 426 diesel services that Asciano operated achieved an cycle time of 26 hours or better (i.e. 28 per cent of services achieved this cycle time);
- between 24th and 29th Dec 2011 there were limited QR National trains operating, and therefore QR National had little or no constraining impact on Asciano train operations.
- the best Asciano diesel cycle time was 21 hours on a day when no QR National services were operating and therefore had no constraining effect on Asciano train operations.

In considering the above outcomes it should be recognised that while 65 per cent of Asciano diesel trains achieved a cycle time of 26.4 hours. Asciano believes that more of these 426 diesel trains would have achieved this cycle time but were restricted due to QR Network planned shutdowns. The final two points above demonstrate that other factors, such as system, congestion, impact on cycle times.

[9] QR Network, 2011, Submission to the QCA: Electric Draft Amending Access Undertaking December 2011 page 43

QR Network analysis based on QR National trains states electric trains can achieve cycle times of 26.4 hours[10]. The evidence from the Asciano analysis as summarised above demonstrates this QR Network conclusion to be incorrect and that Asciano diesel trains can consistently match and better this cycle time.

Asciano also conducted further analysis. The QR Network analysis[11] states that diesel trains are slower in lifting over the ruling grades than electric trains and this is a significant limiting factor with diesel trains. Thus Asciano examined performance through the section Bluff to Warren, which is relatively hilly.

In an observation of 75 coal services on the Blackwater system between Bluff to Warren (loaded) and Warren to Bluff (empty) services shows that diesel trains do not operate at slower section times than electric trains in the grade sections between Bluff and Warren.

	Empty Warren to Bluff (average time)	**Loaded Bluff to Warren (average time)**
Asciano Diesel	2.40	3.16
QR National Diesel	2.50	3.28
QR National Electric	3.02	3.28

The above shows that in relation to cycle times diesel trains are at least as efficient, if not more efficient, than electric trains on the Blackwater system. This diesel performance is related to the fact that diesel trains generally hold their speed when they are operating (i.e. diesel locomotives have better speed control than electric locomotives). In addition Asciano diesel trains have improved braking systems that are less aggressive on overall train speed compared to QR National trains. This allows a higher overall speed to be maintained in any given section.

Given the above evidence Asciano is unable to understand how QR Network has arrived at a conclusion that electric traction is demonstrably more efficient than diesel traction and that diesel traction results in costs to the coal chain via slower cycle times and delays.

[10] QR Network, 2011, Submission to the QCA: Electric Draft Amending Access Undertaking December 2011 page 43

[11] QR Network, 2011, Submission to the QCA: Electric Draft Amending Access Undertaking December 2011 pages 43 and 48

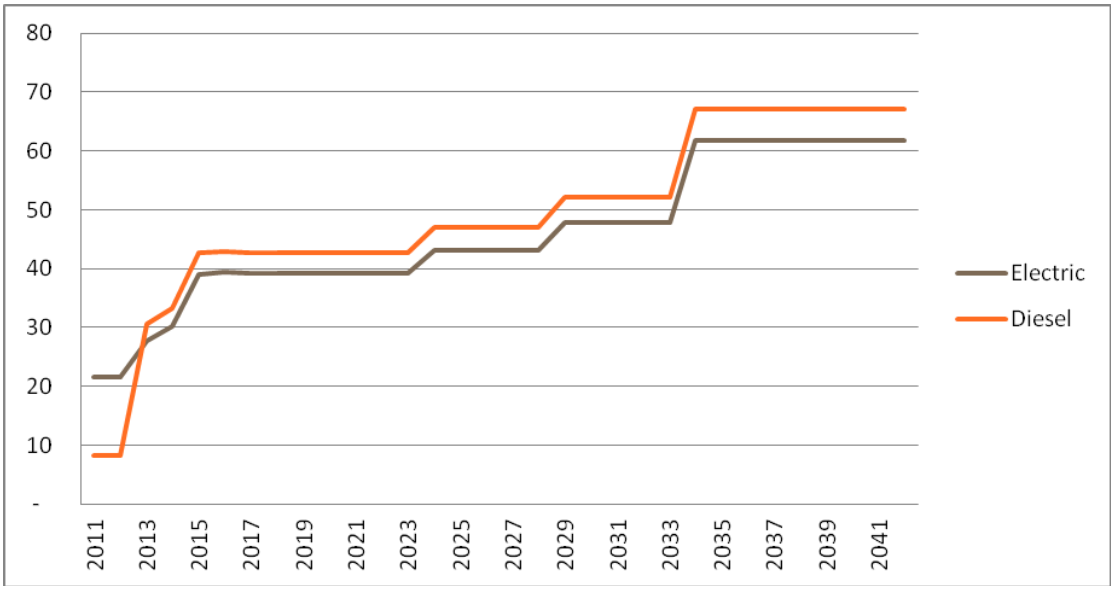
Given the analysis above if diesel trains have identical cycle times to electric trains then there should be no difference in the impact of diesel and electric traction using QR Network's Total Cost of Ownership (TCO) approach. (This conclusion excludes possible break costs with Powerlink. Given that QR Network do not model the capital costs of electric infrastructure Asciano believes that exclusion of these break costs is consistent with the QR Network modelling approach. Alternatively the capital costs of electrification could be included in the QR Network analysis in which case these break costs could be included).

Overall the observations summarised in this section above raise concerns with the validity of either the diesel inputs used in the QR Network model or the model itself. Thus Asciano submits that the above analysis conclusively rebuts the QR Network analysis.

Above Rail Consist Requirements

The QR Network analysis has charted the above rails consists required to appears to chart only an all electric or all diesel fleet for Blackwater as shown below. This chart is based on QR National data:

QR Network Figure A-5 Above Rail Consist Requirements[12]

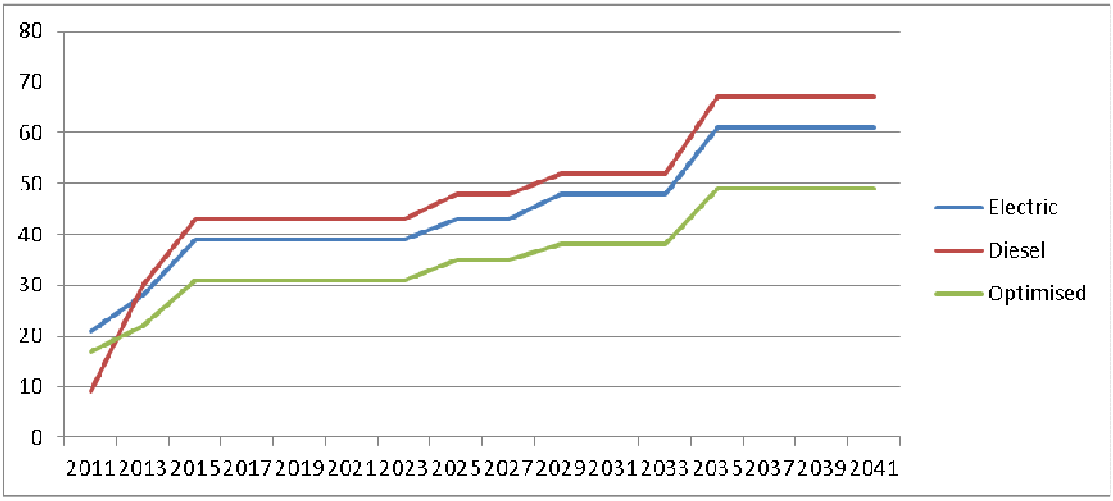


Asciano replicated this approach using median Asciano cycle times and Asciano train consists and achieved the result below, where the "electric "and "diesel" lines are

[12] QR Network, 2011, Submission to the QCA: Electric Draft Amending Access Undertaking December 2011 page 46

based on Asciano's replication of the Qr Network analysis as far as Asciano was able to do so and the "optimised line" is the line that is based on actual Asciano Diesel cycle performance and train consists at 116 wagons. This shows that better performance could be achieved by a more efficient fleet of diesel train consists at more optimal load than electric units.

Asciano - Above rail consist requirements



As such this analysis further brings into question the validity of QR Network's analysis.

Lack of Clarity in Assumptions

Asciano believes that assessing the modelling outcomes put forward by QR Network is problematic as there is little clarity with respect to modelling assumptions in relation to:

- tonnes per each haul combination for each year of the modelling;
- cycle time assumptions for each haul to achieve the tonnage profile
- cost to purchase electric and diesel locomotives;
- cost to operate and maintain electric and diesel locomotives;
- capital cost of the electric infrastructure including upgrades; and
- depreciation cost of the electric infrastructure.

These QR Network modelling assumptions and approaches need to be understood in order to further consider the outcomes of the QR Network model[13].

Modelling of Train Operator Actions within the Model

The QR Network analysis is performed using a thirty year model, assuming fixed technology over thirty years. The modelling assumes fixed technology with the operators using either all electric traction, all diesel traction or maintaining the current proportions of diesel and electric traction for thirty years. However within the model the cost of diesel rises over time. The model does not allow train operators to react to this cost increase and change the mix of diesel and electric traction over time.

Asciano believes that a more robust model would allow train operators to change their mix of diesel and electric traction at regular intervals in response to the outcomes determined within the model at that time. Asciano believes that such an adjustment to the model will demonstrate that it is more efficient to operate diesel trains at the current time (assuming other elements of the QR Network model are held constant).

Modelling of Capital Timing

The QR Network analysis has higher capital expenditure on below rail assets under the diesel option beyond 2017. Presumably this is due to the QR Network conclusion that diesel trains have a longer cycle time. Given this Asciano would expect there to be a difference in the timing of investment in below rail assets rather than a difference in absolute levels. Longer cycle times should lead to earlier investment in below rail capacity not a fundamentally different level of investment. That is the timing of the investment rather than the absolute level of the investment should be impacted by cycle times

Modelling of Transition between Diesel and Electric Traction

The QR Network analysis does not seek to identify any transition path between diesel and electric traction. The model assumes an immediate transfer to electric traction.

[13] The modelling also seems to add potential bias by appearing to disregard the existing capital value of operating locomotive assets in favour of complete replacement cost at present value and appearing to fail to take into account the considerable capital cost already invested in the overhead network. These assumptions and approaches should be clarified going forward.

Asciano believes that such an instantaneous transfer is not efficient as it assumes purchase of new electric locomotives while relatively new diesel locomotives, which are sunk costs, are presumably scrapped. This transition incurs unnecessary capital costs and effectively scraps undepreciated diesel locomotive assets.

At the least the analysis should allow for operators to transition away from diesel assets over the life of the diesel assets

Modelling of Stranding and Impairment

As discussed in section 5.2 above the QR Network's approach to modelling effectively treats the costs of electric infrastructure as sunk and effectively costless. Thus the analysis does not adequately address:

- the impact of the stranding or impairment of the electric infrastructure and electric traction assets. In general terms the model does not account for stranding or impairment costs of the electric infrastructure and traction assets if the rail system was operated only with diesel traction. However, there is an exception in that the modelling does include "break costs' with Powerlink which in effect are a transfer payment for a Powerlink stranded asset. Thus, in regard the treatment of these costs the model is inconsistent, treating the stranding or impairment of QR Network assets as costless but recognising that there is a cost for the stranding or impairment of third party assets if diesel traction is used.
- the impairment of diesel infrastructure and diesel traction assets if the rail system was operated only with electric traction. As a diesel operator within the Blackwater system, Asciano submits that its (and its customers') legitimate business interests in this regard should be taken into account.

The impact of stranding and impairment in either scenario would be substantial. However, as the DAAU is driving a transition to ninety per cent electric by 2012- 2013 if the DAAU was accepted the impact of diesel asset impairment is likely to be even more substantial. The TCO outcome for a move to electric traction in 2013 excludes the cost of these idle diesel assets[14] and as such this underestimates the TCO for a scenario that has a move to electric traction in 2013.

[14] Given the narrow gauge nature of these diesel assets it is unlikely that they could be deployed in other markets

At the least the analysis should either incorporate the cost of idle diesel assets or otherwise allow this cost to be minimised by, for example allowing for operators to transition away from diesel assets over the life of the diesel assets.

5.5 Conclusion – Decisions on Traction Options Should Remain with Operators as QR Networks Analysis and Conclusions are Flawed

Asciano submits that any analysis of whether diesel or electric is more efficient is problematic. The QR Network approach to modelling the efficiency of diesel and electric traction is flawed both conceptually and in application, as shown in the sections above.

To date it is not possible to determine with any certainty whether one traction option is more efficient than the other option. Both options have advantages and disadvantages. The decision as to which traction option to use should remain with the users and operators of the trains themselves, with users paying for infrastructure which is actually used to meet the traction option selected. . Asciano submits that to do otherwise would ignore the factors in section 138(2) of the QCA Act, namely:

- the legitimate interests of other operators;
- the interest of the customers who will seek access to the service; and
- the public interest in having competition in the Queensland Central Coal Region market.

6 DEFICIENCIES IN THE DAAU IN RELATION TO PRICING EFFICIENCIES

6.1 Introduction

QR Network has undertaken analysis that it believes demonstrates that electric traction is more efficient than diesel traction, and as such the most efficient outcome is that operators should use electric traction where it is available. However under the current pricing approaches operators are not using electric traction at the perceived optimal level and thus QR Network are seeking to set prices via the DAAU to ensure that diesel traction becomes commercially unattractive wherever electric traction is available.

Asciano has a fundamental concern with the above approach used by QR Network as it is essentially setting prices not on the basis of any identified and quantified

costs, but is setting prices to drive what it believes to be an appropriate behaviour, with its view of appropriate behaviour being based on flawed modelling.

6.2 Requirements of Legislative Instruments

The Queensland rail access regime is largely governed by the QCA Act. In particular under section 138, 143 and 168A of the QCA Act the QCA should consider various factors when assessing the DAAU pricing proposal.

The object of Part 5 of the QCA Act is to promote the economically efficient operation of, use of and investment in, infrastructure by which services are provided, with the effect of promoting effective competition in upstream and downstream markets. Section 168A of the QCA Act requires that pricing for a service should generate expected revenue for the service that is at least enough to meet the efficient cost of providing access to the service.

6.3 Deficiencies in the Introduction of a Single AT_5 Tariff across Goonyella and Blackwater Systems

The introduction of a single AT_5 tariff across the Goonyella and Blackwater system creates issues in relation to economic efficiency[15]. To be efficient infrastructure prices should reflect the costs attributable to the infrastructure being used. The introduction of a single AT_5 tariff will result in the pricing of Blackwater electric infrastructure generating insufficient revenue to cover the efficient cost of providing the service and the pricing of Goonyella electric infrastructure generating more than sufficient revenue to cover the efficient cost of providing the service. That is, the DAAU results in a cross subsidy between Goonyella and Blackwater electric infrastructure users.

Asciano recognises that QR Network may argue that once an asset is built static efficiency requires that pricing be based on the lowest incremental cost of delivering traction. However, Asciano believes that dynamic efficiency requires that the asset should only have been built if it was *ex ante* efficient. *Ex post* socialisation of the costs removes the incentive for prudent and efficient investment.

[15] Further to this issue section 2 of the CEG Report notes that the QR Network justification for introducing a single AT_5 tariff is redundant if QR Network's proposal to require diesel operators pay the AT_5 tariff is accepted by the QCA, as this requirement will achieve the same outcome.

In considering this issue of a single AT_5 tariff it should be recognised that miners typically pay these tariffs via a pass through arrangement and given that the location of a mine is fixed and the mines contracted coal export terminal is fixed it is relatively certain that a train from a mine to a port will use either one or the other rail system but not both. As such, a mine using the Goonyella system electric infrastructure will be subsidising a mine using the Blackwater system electric infrastructure.

Furthermore, there are substantial limitations on cross system traffics between Blackwater and Goonyella. Blackwater trains cannot easily go to Goonyella as they are smaller trains and do not carry the standard supply chain parcel of 10,000t (operating Blackwater trains in Goonyella system would add 20% congestion to the system for the same tonnage railed). Goonyella size trains cannot operate to Blackwater due to Blackwater system infrastructure constraints (allowable train lengths). Given this a single AT5 tariff would be problematic as trains could not use the systems as a single network.

As shown in section 3 above the Goonyella AT_5 tariff will increase from $1.95 to $2.74, an increase of approximately forty per cent. Thus under the proposed single AT_5 tariff across the Goonyella and Blackwater system users of the electric infrastructure in the Goonyella system will be paying for some of the electric overhead infrastructure in the Blackwater system. Such a pricing outcome is inefficient.

All other costs and prices in the Access Undertaking are determined on the basis of the costs of individual rail systems rather than the costs of the whole of the Central Queensland Coal Railway. This is done to avoid the issue of cross-subsidies and inefficient pricing. Asciano does not believe that there is any reason for the AT_5 tariff to be an exception to this approach.

In the covering letter to the DAAU dated 16 December 2011 QR Network note that the DAAU is seeking to implement network pricing as there is increased use of the Central Queensland Coal Railway as a network rather than as independent systems, and that rail operators use the electric infrastructure system as a network asset rather than a system asset. If QR Network genuinely believe that the Central Queensland Coal Railway is a single network, rather than independent but interconnected systems, then QR Network should be seeking to implement single network pricing for all tariffs and seeking to implement common system rules and

operating procedures across the network, rather than seeking to implement single network pricing for only one tariff component. Such a shift in regulatory approach would be better achieved via the next full Access Undertaking process rather than via this DAAU.

Asciano believes that the issue is not one of a move from individual system pricing to network pricing, but rather the issue is simply one of QR Network implementing a cross subsidy from users of Goonyella electric infrastructure to users of Blackwater electric infrastructure. This has the effect of reducing the AT_5 tariff in the Blackwater system, where only QR National operate electric locomotives, and increasing the AT_5 tariff in the Goonyella system, where both Asciano and QR National operate electric locomotives.

6.4 Deficiencies in the introduction of a Requirement That Operators Pay the AT_5 Tariff Where Electric Traction is Available Even if it is not Used

The requirement for operators to pay the AT_5 tariff when the electric infrastructure is not being used by the operator creates issues in relation to economic efficiency. To be economically efficient infrastructure prices should reflect the costs attributable to the infrastructure being used. If the infrastructure and the service it provides are not used its cost is zero and there should be no price required to be paid.

Again, Asciano recognises that QR Network may argue that once an asset is built static efficiency requires that pricing be based on the lowest incremental cost of delivering traction. However, Asciano believes that dynamic efficiency requires that the asset should only have been built if it was *ex ante* efficient. *Ex post* socialisation of the costs by spreading the costs to operators who do not use the electric infrastructure removes the incentive for prudent and efficient investment.

The introduction of a requirement that operators pay the AT_5 tariff where electric traction is available even if it is not being used may result in the AT_5 tariff generating more than sufficient revenue to cover the efficient cost of providing the service. That is, the DAAU may results in an over recovery of revenue as operators pay revenue for a service they are not using and for which no costs are being incurred.

In addition, any requirement that operators pay for constructed but unused infrastructure is likely to provide an incentive for ongoing inefficient over-investment

in electric infrastructure. This is contrary to the pricing principles in section 168A of the QCA Act.

Asciano believes that QR Network is effectively using its monopoly power to force the purchase of the services of the electric infrastructure asset when users purchase below rail services. The services of the electric infrastructure asset are not sought by the operator or user and are not used.

6.5 Introduction of a Requirement That Limits Revenue Adjustments to Five Per Cent

The requirement to cap revenue adjustments for the AT_5 tariff to five per cent may be inefficient as there is an inter-temporal price shift where costs may be incurred today but may not be recovered until a time in the future. However, assuming this revenue adjustment cap is applied separately to the Blackwater system and the Goonyella system, then the mines which benefit from the potentially lower prices today are likely to be the mines that will pay the potentially increased prices in the future. Given this outcome, this approach needs to balance inefficiencies from the inter-temporal price shift with concerns related to pricing uncertainty, and possibly pricing unsustainability. These concerns relate to the advantages predictable price paths and have implications for both the public interest and the legitimate business interests of the owner, and the QCA should consider this issue within the context of these concerns.

Asciano believes that there is potential for an alternative regulatory pricing approach which allows AT_5 tariffs to be capped now but with the recovery of the unrecovered costs in the future. However in pursuing such an approach there should be consideration of why current tariffs are at levels which are too high[16], so such occurrences can be avoided in the future.

In considering this issue of revenue adjustment caps Asciano has several concerns that should be addressed. In particular the QCA should:

[16] AT_5 tariffs may not be recovering costs for various reasons including:
- volume or cost forecast flaws or modelling flaws;
- inappropriate depreciation profiles impacting on costs (e.g. economic depreciation may be more appropriate than straight line accounting depreciation or accelerated depreciation)

- ensure that QR Network do not seek to recover any potential persistent under recovery from the operation of such a revenue adjustment cap from other tariffs (i.e. the AT_1 to AT_4 tariffs) or other rail systems;
- require QR Network to further clarify the operation of the revenue recovery process as the under recovered revenues may be treated in numerous ways: For example:
    - they may be added to the relevant regulatory asset base or they may be held in a separate account to be built up or drawn down as circumstances require;
    - the adjustments may be subject to an escalation to take account of inflation and / or the cost of capital or they may not.

  Asciano believes that the details of the recovery mechanism such as those above need to be clarified before Asciano can finalise a position on the appropriateness of this proposal.

More generally this proposal may indicate a departure from the in-period cost recovery "building blocks" model of regulation, by adding an inter-temporal component to cost recovery. The implications of such a shift in the regulatory approach should be considered before any final steps are taken towards implementing this approach.

The requirement to cap revenue adjustments for the AT_5 tariff to five per cent may potentially advantage some operators and mines as access charges will be potentially more stable for electric traction operations, thus disadvantaging mines where diesel traction is used As such, if such an approach were to be adopted it may be preferable if such revenue adjustment caps were used on all tariffs in all systems.

In the covering letter to the DAAU dated 16 December 2011 QR Network note

QR Network is seeking to smooth large revenue cap adjustments ... over a longer time frame.

Asciano notes that the proposed revenue cap adjustments apply only to the AT_5 tariff. If QR Network were genuinely concerned about smoothing large revenue adjustments the principle would be extended to all tariffs. If the issue is simply one of seeking greater certainty of AT_5 tariff movements on the Blackwater system then this certainty could be relatively easily obtained by capping tariffs to a certain percentage

increase with any increases above the capped amount either being accounted for in a separate account and being recovered in years when tariffs do not exceed the cap or being added to the electric infrastructure asset base to be recovered in future years.

Overall Asciano does not oppose efforts to smooth the Blackwater AT_5 tariff movements on the Blackwater system, but is concerned that QR Network in addressing the specific problem of the Blackwater AT_5 tariff seem to be developing generalised and far reaching solutions, which may have unintended consequences. Further details of the proposed revenue adjustment cap should be provided and any revenue adjustment cap finally implemented must consider options to address the issue if persistent revenue under-recovery remains and must consider how the revenue adjustment cap may disadvantage some mines where tariffs may not be stabilised.

6.6 Conclusion – DAAU Proposals do not Result in Efficient Pricing Outcomes

QR Network has undertaken analysis that purportedly shows that electric traction is more efficient than diesel traction, and on that basis, has proposed a series of changes to AT_5 tariff application and calculation to address this perceived issue and discourage diesel traction. However these pricing solutions proposed do not generally meet the cost reflectivity requirements for efficient prices.

If electric traction is more efficient than diesel traction then the cost impact of this inefficiency must be properly quantified and then appropriately reflected in prices, rather than be promoted via arbitrary pricing solutions, which also act to favour one operator over another.

7 THE DAAU IN THE CONTEXT OF THE REGULATORY REGIME

7.1 Asciano Comment on the Inadequacy of the DAAU in Relation to QCA Act Requirements

The Queensland rail access regime is largely governed by the QCA Act. In particular under section 138 and 168A of the QCA Act the QCA should consider the factors in the table below when assessing the DAAU.

Asciano makes the following comments in relation to the requirements of the QCA Act relevant to the issue at hand. Many of these comments are expanded upon within the body of this submission.

Requirement of the Act	**Asciano Comment on the Inadequacy of the DAAU in relation to QCA Act Requirements** These points are set out in more detail in the body of the submission above.
s138 (a) – Consider the object of Part 5 of the QCA Act 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.	The DAAU does not encourage efficient operation of, use of or investment in below rail assets. The proposed pricing: • is not cost reflective and • creates cross subsidies. The DAAU does not promote dynamic efficiency as it removes incentives for prudent and efficient investment. The DAAU does not promote effective competition in upstream or downstream markets: • as it favours QR National; • it disadvantages Asciano, QR National's competitor in the relevant above rail market; • effects a distortion in competition in the above rail market and have the effect of damaging competition in that market.
s138 - Consider the legitimate business interests of QR Network.	Asciano submits that the DAAU does not reflect the legitimate business interests of QR Network. Rather, the DAAU seeks to create an environment which unreasonably favours QR National to the direct and significant disadvantage of QR's National's competitor, Asciano.
s138 - Consider the public interest, including the public interest in having competition in markets (whether or not in Australia).	The DAAU does not promote the public interest in competition as it favours one rail operator over another.
s138 - Consider the interests of persons who may seek access to the service, including whether adequate provision has been made for compensation if the rights of users of the service are adversely affected.	The DAAU does not promote the interests of access seekers as it leads to pricing uncertainty. For example, Asciano has previously agreed to haulage and access contracts on the basis of an approved access

Requirement of the Act	Asciano Comment on the Inadequacy of the DAAU in relation to QCA Act Requirements These points are set out in more detail in the body of the submission above.
	undertaking which included different pricing approaches to the approach in the DAAU. Further, Asciano has invested in capital assets which will be adversely impacted by the DAAU.
s138 - Consider the effect of excluding existing assets for pricing purposes.	The QR Network analysis appears to Asciano to treat the electric infrastructure as costless and QR National and Asciano's electric traction assets as costless. Asciano submits that this approach should not be accepted by the QCA.
s168A - Pricing principles – price of access to a service should achieve generate expected revenue for the service sufficient to meet the efficient cost of providing access to the service and include a return on investment.	The DAAU will result in the pricing of some services generating insufficient revenue to cover the efficient cost of providing the service and the pricing of other services generating more than sufficient revenue to cover the efficient cost of providing the service. That is, the DAAU results in a cross subsidy between Goonyella and Blackwater electric infrastructure users.
s168A -Pricing principles – price of access to a service should not allow a related access provider to set terms and conditions that discriminate in favour of the downstream operations of the access provider or a related body corporate of the access provider, except to the extent that the cost of providing access to the other operators is higher.	The DAAU effectively establishes pricing terms which favour QR National over Asciano, even though the cost of providing access to both operators is similar if not identical.
s168A -Pricing principles – price of access to a service should provide incentives to reduce costs or otherwise improve productivity.	The DAAU does not provide any incentives to reduce costs and may actually provide incentives for over investment in electric infrastructure.

8 ABUSE OF REGULATORY PROCESS IN DEVELOPING AND ASSESSING THE DAAU

8.1 QR Network's Limited Approach to Stakeholder Consultation and Regulator Review Facilitates Negative Competitive Outcomes

In developing the DAAU Asciano does not believe that QR Network meaningfully consulted with any stakeholders besides QR National's above rail business. As such QR Network has developed a proposal designed to serve QR National and facilitate negative competitive outcomes.

By QR Network limiting its consultation to QR National only QR Network has:

- denied itself the opportunity to receive genuine feedback from operators on issues related to its modelling of electric and diesel traction and from miners on issues such as the impact of the Blackwater AT_5 tariff.
- added to industry perceptions that QR Network act to benefit one operator in particular, QR National. This perception is exacerbated in relation to this issue as the operator most likely to benefit from any requirement to operate electric traction is QR National.

Much of QR Network's position supporting the DAAU QR Network is based on analysis that electric traction is more efficient than diesel traction. This analysis is based on a model of QR National above rail information. QR Network is only allowing the QCA to test this analysis by using a consultant who is approved by QR National[17]. Thus QR Network are seeking to constrain the QCA's ability to test the central assumptions on which the DAAU is based by requiring that any consultant not be appointed by the QCA independently but instead be approved by QR National. This request substantially adds to the industry perception that QR Network acts to benefit one operator in particular.

Given that this analysis is central to the assumption that electric traction is more efficient than diesel traction then the analysis should be made public. If this cannot be done then the QCA should be able to test the analysis using any consultant or consultants that it believes are appropriate. Neither a network provider nor an operator should seek to bind the QCA's choice of consultant in such a manner.

[17] QR Network, 2011, Submission to the QCA: Electric Draft Amending Access Undertaking December 2011 page 11

8.2 Recent Regulatory History of the AT_5 Proposals

2010 Undertaking

A similar proposal to the one put forward in the current DAAU was put forward in 2009 in relation to the current Access Undertaking. This proposal was that the AT_5 electric tariff in the Blackwater and Goonyella be set on the basis of a single revenue cap (with the AT_5 tariff set at a level of $2.37 / egtk).

In this Undertaking QR Network had proposed a substantial increase (i.e. 300 per cent) in Blackwater system electric related capital expenditure with a much smaller increase (42 per cent) in Blackwater system electric volume demand. In arguing for this Blackwater electric capital investment QR Network[18] note that:

If this charge for electric services in Blackwater reaches a certain point, diesels will become a more cost effective choice in that system. In this event, this will create a disincentive for QR Network to maintain and upgrade the capacity of the electrified network in Blackwater. In the longer term, this disincentive will ultimately impact users in the Goonyella system as it will deter Train operators' investment in electric rollingstock for their CQCR rail operations (given the limited deployment options) resulting in an ultimate bias towards diesel technology for all systems.

In addition QR Network argue that mines in the Goonyella system receive a significant (if undefined) benefit from an all electric traction system and that these mines receive a free rider benefit from mines in the Blackwater system.

QR Network proposed combining the asset bases of the two systems and calculating a single tariff for the two systems to address QR Network's concern about the rollingstock investment decisions of above rail operators.

In discussing the QR Network position QCA[19] note that in essence QR Network are arguing that following capital investment the Blackwater AT_5 tariff could increase to such a high level that electric trains would become uneconomic on the Blackwater system but that at the same time the investment is efficient and needed.

[18] QR Network 2009 Access Undertaking Principles Paper Geographical Scope page 9
[19] QCA 2009 Draft decision QR Network 2009 Access Undertaking December 2009, page 167, page 170

In addition QCA note that similar arguments could be made in relation to below rail assets but no proposal was made to amalgamate the costs of these assets.

This proposal was not accepted by the QCA at the time. In making this decision QCA[20] noted that:

QR Network has not made a convincing argument in support of its proposal to have a single Blackwater and Goonyella system AT_5 tariff.

Asciano does not believe that anything has materially changed in the intervening period since the proposal above was rejected such that the current DAAU proposal that the Blackwater and Goonyella AT_5 tariff be merged into a single tariff should now be accepted.

2010 DAAU

Following the implementation of the current Access Undertaking a proposal was made in the DAAU submitted by QR Network to QCA on 24 December 2010 which among other issues sought to introduce amendments to Schedule F Part B Section 3.22 c) which appeared to have the potential to take electricity infrastructure costs within a system and spread them across a broader base[21]. Asciano opposed these amendments stating[22]:

Asciano strongly believes that determining pricing by reference to the costs attributable to the individual coal system is more consistent with the both the economic principle of prices reflecting costs and with the QCA's current approach to price determination.

and

QR Network amendments to electricity tariff calculations may act to benefit some above rail operators at the expense of other above rail operators. Asciano believes the QCA should not amend the sections of Schedule F relating to the electric tariff. Tariff sections should be amended as a whole at scheduled "whole-of-Access-

[20] QCA 2009 Draft Decision QR Network 2009 Access Undertaking December 2009, page 170

[21] Details can be found at this website http://www.qca.org.au/rail/2010-DAUamend/DrftAccUndr/

[22] Asciano 2010, Submission to the QCA Review of the QR National DAAU and Standard User Funding Agreement page 9

Undertaking" revisions rather than by piecemeal amendment. This issue is particularly important as Asciano is making rolling stock investment decisions on the basis of the current Access Undertaking

As such it can be seen that Asciano has a consistent position on the issue of socialising the AT_5 tariff between the Blackwater and Goonyella system.

Correspondence dated April 2011 on the QCA website[23] indicates that the QCA will be making a decision on this issue. Asciano understands that to date no decision has been so in effect QR Network currently has two proposals before the QCA in relation to socialising the AT5 tariff. Asciano believes that the QCA should clarify how these DAAU processes may interact.

2011-12 Tariff Change Process

In considering the issues in the current DAAU it should be recognised that many of these issues have been previously raised by Asciano in other contexts. For example a letter to the QCA from Asciano dated 13 May 2011 addresses many of the issues raised in the DAAU and this submission.

In this letter Asciano raised concerns with regards to the Blackwater electric tariff rates changes. The letter raised concerns with the fact that rates for a Blackwater system diesel service increased at approximately 8.7%[24] while the rates for a Blackwater System standard electric service increased at 2.8%.despite the fact that diesel services were operating at a level close to full revenue recovery (approximately 2% under recovery of revenue), whereas electric services were operating at a level well below full revenue recovery (approximately 13% under recovery of revenue). Thus Asciano raised concerns that prices were moving away from a cost reflective abase and raised concerns that QR Network was potentially seeking to subsidise electric infrastructure in the Blackwater system with revenue raised from tariffs on either diesel trains in the Blackwater system or trains in the Goonyella system. The letter sought a pricing approach where pricing is determined by reference to the costs attributable to diesel and electric power and to the relevant geographic system.

The letter also raised concerns with the fact that

[23] Details can be found at this website http://www.qca.org.au/rail/2010-DAUamend/SUFAAIFA/

[24] These increases are based on a standard train from Kestrel to RG Tanna Coal Terminal

- at the time only QR National were permitted by QR Network to operate electric trains on the Blackwater system and thus disproportionate increase in diesel vs. electric charges explicitly acts to benefit one rail operator at the expense of other rail operators; and
- current operators and new entrants are likely to make substantial rolling stock and locomotive investment decisions on the basis of diesel and electric charges and that such decisions will be made on an assumption that QR Network charges will continue to be based on a principle of cost reflectivity for both diesel and electric power and for geographic systems.

Conclusion – Asciano has had a Consistent Position on the Issue of AT_5 Tariffs

From the above discussion it can be seen that the Asciano response in this submission is not opportunistic but is part of a consistent approach to pricing in general and pricing of electric tariffs in the Blackwater system and the socialisation of electric tariffs in particular.

8.3 Potential Unintended Consequences of the DAAU on the Regulatory Model

The DAAU effectively mandates the use of electric infrastructure. This in turn means that in the future electric infrastructure will be argued as being necessary on current systems that are not electrified, such as the Newlands system, and on potential new systems which may be constructed in the future. Thus the DAAU may effectively escalate the regulatory asset base more than would otherwise be the case as the DAAU has the consequence of promoting electric infrastructure. Similarly the DAAU reduces the likelihood of any electric infrastructure stranding. This increase in the size of the asset base and reduction in the risk of stranding are effectively being achieved by administrative means (i.e. by mandating the use of otherwise discretionary infrastructure) rather then by economic means.

8.4 Asciano's Preferred Regulatory Approach to Addressing Issues Raised by the DAAU

Asciano cannot understand the apparent urgency of the DAAU. QR Network is seeking major changes as to how QR Network pricing is approached, which will have significant impacts on all users of the coal chain. Asciano does not believe that there has been a major change in circumstances to warrant the proposals put forward in the DAAU.

By seeking such major changes part way through an Access Undertaking period the Access Undertaking process has the potential to be weakened. The pricing and services elements offered in an Access Undertaking should be assessed as a single package where these elements are interrelated to the extent that decisions cannot be made in isolation on either element, but rather, a single decision has to be made which takes into both account all elements. By separating out a single pricing element, such as the AT_5 tariff, and making a decision solely on this tariff the integrated nature of the Access Undertaking decision making is compromised. If the proposed DAAU is approved then such an approval will create uncertainty as it demonstrates to access seekers that they cannot rely on an Access Undertaking, and in particular its pricing, being in force for the term of the Access Undertaking. Given that industries associated with the Central Queensland Coal Railway are all industries with long lived assets this lack of certainty associated with future price paths will significantly impact on efficient investment.

In addition an approval of this DAAU would also raise concerns with network providers gaming the regulatory system via asymmetric behaviour, as network providers would seek amendments to Access Undertakings when regulated pricing levels or approaches were not favourable, but would not seek amendments to Access Undertakings when regulated pricing levels or approaches resulted in above expected returns.

The next Access Undertaking is due in June 2013 and the proposal, with its implicit assumptions relating to a single coal network rather than individual coal systems, long term smoothing of revenues, quantification of social costs and externalities and the primacy of centralised decision making over market outcomes is better suited to a full review of the Access Undertaking where all of these concepts can be applied consistently across all facets of QR Networks operations, systems and pricing rather than be applied in an ad hoc manner to a single component of the tariff as is currently proposed in the DAAU. However, notwithstanding the above statement, Asciano continues to believe that the AT_5 tariff socialisation concept and the requirement for diesel operators to pay the AT_5 tariff, as proposed within the DAAU, are fundamentally flawed and should be rejected at any future full Access Undertaking review.

8.5 Conclusion - The DAAU has Negative Outcomes Facilitated by QR Network's Approach to Consultation and Regulatory Review

In developing the DAAU QR Network only consulted with QR National. In any move to electric traction the above rail operator that will benefit most from a move is QR National.

The DAAU results in anti-competitive outcomes, particularly as the move to a single AT_5 tariff and the requirement for diesel traction to pay the AT_5 tariff both impact negatively on Asciano when compared to QR National. In addition QR National has idle electric locomotives that will be advantaged by any "third-party" move to favour electric traction over diesel traction.

The fact that these outcomes have been determined with no consultation and the review of the analysis underlying the outcomes is restricted exacerbates concerns as to both the robustness of the analysis and the motives underpinning it.

9 CONCLUSION

Asciano welcomes the opportunity to provide this submission on the QR Network DAAU which seeks to introduce a single electricity infrastructure tariff across the Goonyella and Blackwater system, require operators to pay this electricity infrastructure tariff for at least ninety per cent of services that could be operated with electric trains, even if the trains operated are diesel trains, and limit tariff adjustments for this electricity infrastructure tariff to five per cent. Asciano strongly opposes the first two of these proposed amendments.

These proposed amendments are based on QR Network analysis which purportedly demonstrates that electric trains are more efficient for both above and below rail operations than diesel trains. Following such analysis QR Network has acted to propose disincentives for the operation of diesel trains. This analysis is flawed at a conceptual level, practical level and a detailed analytical and modelling level.

QR Network only consulted with QR National in developing the DAAU. The above rail operator that will benefit most from the DAAU is QR National. As such the DAAU may be seen as anti-competitive.

In addition, the DAAU proposals do not meet requirements that access prices be economically efficient:

The QCA may only approved a draft amending access undertaking from QR Network if the QCA considers that it is appropriate to do so having regarding the matters mentioned in section 138(2) of the QCA Act and may only approve it on the conditions set out in section 138(3) of the QCA Act. For the reasons set out above, Asciano submits that the DAAU, with the possible exception of the five per cent tariff adjustment cap, does not satisfy the factors set out in s. 138(2) of the QCA Act and so must be rejected. Asciano believes that it if this proposal is to be further considered, it would be more appropriate to consider the relevant issues in more detail at the next full Access Undertaking review. However in this instance Asciano believes that these concepts fundamentally flawed and should be rejected at any future full Access Undertaking review.

APPENDIX 1 – MATTERS MENTIONED IN SECTION 138 OF THE QCA ACT

Section 138(2) of the QCA Act provides that the QCA may approve a draft access undertaking only if it considers it appropriate to do so having regard to each of the following:

(a) the object of Part 5 of the QCA Act. Section 69E of the Queensland Competition Authority Act provides that the object of Part 5, access to services, is:

"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".

(b) the legitimate business interests of the owner or operator of the service;

(c) if the owner and operator of the service are different entities - the legitimate business interests of the operator of the service are protected;

(d) the public interest, including the public interest in having competition in markets (whether or not in Australia);

(e) the interests of persons who may seek access to the service, including whether adequate provision has been made for compensation if the rights of users of the service are adversely affected;

(f) the effect of excluding existing assets for pricing purposes;

(g) the pricing principles mentioned in section 168A;

(h) any other issues the Authority considers relevant.

Section 168A describes the pricing principles and provides the price of access to a service should:

(a) generate expected revenue for the service that is at least enough to meet the efficient cost of providing access to the service and include a return on investment commensurate with the regulatory and commercial risks involved; and

(b) allow for multi-part pricing and price discrimination where it aids efficiency; and

(c) not allow a related access provider to set terms and conditions that discriminate in favour of the downstream operations of the access provider or a related body corporate of the access provider, except to the extent that the cost of providing access to the other operators is higher; and

(d) provide incentives to reduce costs or otherwise improve productivity.

APPENDIX 2- QR NETWORK PROPOSED DAAU AMENDMENTS

The main amendments proposed by QR Network in the DAAU submitted in December 2011 are amendments to the Access Undertaking: Schedule F: Reference Tariff Schedules. These amendments are as follows:

- Part A 1.3.1 m) – this proposed amendment now explicitly defines a reference train service as one which does not generate electricity back into the overhead traction system;
- Part B 2.1.1 – this proposed amendment now requires tariff AT_5, the electric access tariff, is to be levied on a gross tonne kilometre basis for Reference Train Services where electric traction services are available. The implication of this amendment is that diesel trains which are operating where electric traction services are available, but which are not using the service as they are diesel trains, will be required to pay the AT_5 tariffs;
- Part B 2.3 – this proposed amendment introduces an Electricity Utilisation Rebate. Under the amendment to Part B 2.1.1 outlined above diesel trains which are operating where electric traction services are available will be required to pay the AT_5 tariffs. The proposed Electricity Utilisation Rebate will rebate the AT_5 tariff paid by diesel trains operating where electric traction services are available up to a maximum of ten percent of the total gross tonne kilometres. The implication of this amendment is that an operator can operate up to ten percent of its services as diesel services where electric traction services are available before the operator has to pay the AT_5 tariffs for diesel services.
- Part B 3.1 c) and d) – this proposed amendment now requires that at the annual review of tariffs the proposed tariff adjustments for the AT_5 tariffs will be based on differences between the system allowable revenue for the whole of the Central Queensland Coal Region rather than individual coal systems. The implication of this amendment is that revenue under-recovery or over-recovery for the AT_5 tariffs in an individual coal system will be recovered across the Central Queensland Coal Region rather than an individual coal system.
- Part B 3.4.3 – this proposed amendment now requires that if the AT_5 tariff adjustment amount exceeds five per cent of the AT_5 tariff component of the system allowable revenue then QR Network may cap the AT_5 tariff adjustment

amount to five per cent of the AT_5 tariff component of the system allowable revenue and adjust for the balance in subsequent years. The implication of this amendment is that tariff increases in the AT_5 tariff may be capped at five per cent at QR network's discretion.

QR Network's DAAU indicates that the impact of these amendments above on tariffs is as follows:

	2011-12	2012-13
Blackwater AT_5 tariff $	4.42	with amendments 2.74 without amendments 4.53
Goonyella AT_5 tariff $	1.91	with amendments 2.74 without amendments 1.95

In addition to the amendments outlined above QR Network are proposing various new defined terms and consequential amendments to be included in the Access Undertaking in order to facilitate the interpretation and operation of the QR Network proposed amendments as outlined above.

APPENDIX 3 - CEG PAPER – QR PROPOSED ELECTRICS UNDERTAKING PRICING: A REPORT FOR ASCIANO

QR Proposed Electrics Undertaking Pricing

A report for Asciano

Tom Hird (Ph.D.)

April 2012

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1. Introduction

1. I have been asked by Asciano to review QR Network's December 2011 submission to the Queensland Competition Authority (QCA).[1] In particular, I have been asked to critique the economic logic underpinning the pricing proposals in the QR Network submission.

2. The remainder of this report has the following structure:

   - section 2 summarises QR Network's pricing proposals and the justification provided;
   - section 3 provides my critique of the economic logic relied on by QR Network; and
   - section 4 provides my conclusions.

[1] QR Network, December 2011, Submission to the QCA: Electric Access Draft Amending Access Undertaking

2. QR Network's perceived problem and solution

3. QR Network's submission to the QCA proposes changes to current access regime. The three key components of those changes are that:

   - for any given access seeker, diesel trains in excess of 10 percent of the access seeker's total volumes should make the same contribution to QR Network's recovery of its electrification costs as do electric trains;
   - there would be a 5 percent cap on per annum price increases for access to electric infrastructure (with any resulting 'under recovery' kept track of and recovered in later years); and
   - The total costs of the electric infrastructure in the Goonyella and Blackwater systems should be pooled and recovered from users at the same rate – irrespective of the location of the train path used. In effect, any electric train (or diesel train in excess of the 10 percent threshold) would make the same contribution to QR Network's recovery of its electrification costs.

4. The factual and logical basis put forward in support of QR Network's submission can, in my view, be fairly summarised as follows:

   i. QR Network has performed a whole of system cost benefit analysis and believes that this demonstrates that total industry costs are minimised if the majority of traffic uses electric locomotives (in the order of 90 percent or more);

   ii. QR Network believes that without some change to the way in which prices are set for the recovery of electric assets there is a material probability that the most efficient outcome, being the use of electric trains, will not occur; and

   iii. There is also a financial risk to QR Network that the below rail electrification assets in the Blackwater system will be stranded (i.e. there will be insufficient demand for electric train paths to allow QR Network to recover its sunk investments in the Blackwater system – see page 23 of the QR Network submission).

   iv. QR Network's believes that its proposed amendments provide a solution to these perceived problems by:

      - *Promoting efficiency* by encouraging the use of electric trains, and therefore the overall efficiency of the industry (as per QR Network's cost benefit modelling). This is achieved by setting a zero price differential between the access price for electric trains and all diesel trains in excess of the 10% threshold;
      - *Removing financial risk from QR Network* by forcing diesel trains in excess of the 10 percent threshold to make the same contribution to recovery of electric infrastructure. That is, even if access seekers chose to run diesel trains in

spite of the zero price differential, QR Network will be able to recover investments in electrification from these diesel trains; and

- *Removing financial risk from QR Network* by pooling all electrification costs in Blackwater and Goonyella and charging customers in both systems the same price: the effect of which is to raise prices in Goonyella and to lower prices in Blackwater.

5. In the following sections I provide a critique of the above logic and, in a more limited fashion, the factual basis underpinning this logic. However, before I do so, it is useful to note here that QR Network's justification for pooling of electrification costs across the two systems is redundant. QR Network's submission states:

> *If the QCA prevents the adoption of the Network AT5 proposal, and the approach used to establish the AT5 tariff continues to be based on an approach that treats the Blackwater and Goonyella systems as independent systems with no recognition of the network benefits to users, the prices resulting from the regulatory framework are likely to result in Blackwater users seeing only marginal benefits from the use of electric trains. This will leave the Blackwater system highly vulnerable to reductions in electric utilisation rates, for example due to:*
>
> - *the private value to operators of flexibility from diesel locomotives exceeding the apparent net benefits of electric locomotives; or*
> - *operators viewing electric traction as a riskier investment, due to the extent that the cost structure relies on the utilisation choices made by their competitors.*
>
> *Continued reductions in electric utilisation in the Blackwater system will necessarily impact on QR Network's ability to fully recover the value of its investment in the Blackwater system electric assets. This situation is clearly contrary to QR Network's legitimate business interests. To address this, the establishment of a Network AT5 tariff is an important way to ensure operators and end users face a price signal that promotes the use of electric traction in both the Blackwater and Goonyella systems, which reflects the most efficient outcome.* (Page 23)

And

> *As has already been identified, if the QCA prevents QR Network from reflecting the network benefits in the determination of the AT5 charges, the Blackwater system will be highly vulnerable to reduced electric utilisation. If electric traction prices are determined as if the systems are independent of each other and*

electric utilisation on Blackwater diminishes, the cost structure of electric services will rise to exceed the cost structure of diesel services. (Page 24)

6. The above analysis and claims do not appear to be correct. QR Network's proposal is that all diesel trains above the proposed 10 percent threshold pay the AT5 tariff. Consequently, if both diesel and electric trains are paying the AT5 tariff then a high AT5 tariff provides no increased incentive to run diesel trains.

7. In any event, even if all trains in the Blackwater system were diesel then, contrary to QR Network's submission, this will not "*impact on QR Network's ability to fully recover the value of its investment in the Blackwater system electric assets QR Network's*". The reason is that those diesel trains would be paying the AT5 tariff.

8. Put simply, if QR Network's proposal to charge diesel trains the AT5 tariff proceeds there does not appear to be any basis to QR Network's claim that pooling of electrification costs across systems is required to help ensure that QR Network can recover its investment. The only scenario where this might be the case is where the requirement that at least 90 percent of trains pay the AT5 tariff results in the Blackwater system as a whole closing down.[2]

9. For the reasons described above, the proposal for the pooling of costs across the systems does not appear to have any justification as an addition to QR Network's other proposed changes to access prices. If anything, the proposal should be considered as an alternative. Indeed, this appears to be the genesis of this proposal with QR Network's originally putting forward cost pooling in its 2010 Access Undertaking absent the other proposals.[3]

[2] Or, if not closing down, coal miners could not afford to pay QR Networks full access prices and still cover all other incremental costs – in which case QR Network would have to accept lower prices just to keep those miners in business.

[3] QR Network's December 2011 submission (page 5)

3. Critique of QRN proposals

3.1. Central planning versus market solutions

10. QR Network's approach to its cost benefit analysis involves it adopting the role of central planner for the Goonyella and Blackwater above and below rail coal transport industry. Its conclusion that electric traction is the most efficient is primarily driven by its conclusion that above rail costs are lower with electric traction.

> *There is therefore a $1 billion difference in the total costs of owning and operating each traction type in both systems over thirty years.*
>
> ***The key driver of this difference is in above-rail capital and operating costs.*** *The most significant driver is energy costs, which are materially lower for electric traction, reflecting more efficient utilisation of energy and the shorter cycle times (after considering the impact of the carbon tax on energy prices). Above-rail capital costs for electric are also lower, reflecting the fewer number of consists required to haul the same tonnes, as well as the requirement for one less locomotive per consist.* (Page 50, emphasis added)

11. In order to reach this conclusion QR Network must model not just its own costs but also the above rail costs of access seekers. This requires QR Network to know what these costs are today and also to model access seeker's costs in the future (capturing all manner of factors including movements in electricity and diesel costs, expected technological advances in diesel versus electric technology). Similarly, its assessment requires QR Network to know the preferences of access seekers in regards to, for example, discount rates including any capital constraints they may face, the value that they place on being able re-deploy their assets etc.

12. Having made this determination of what is the most efficient above rail technology, QR Network then proposes a pricing methodology which "strait-jackets" industry participants into adopting that technology. Any access seeker not immediately adopting electric traction as the dominant technology will be charged 'as if' they were.

13. Such an approach would be reasonable if QR Network was omniscient and benevolent. Omniscience would give QR Network all of the knowledge necessary to determine the efficient actions of all industry participants. Benevolence would give QR Network the right incentives to use this information in order to direct industry participants to act in the socially optimal manner.

14. Putting aside the issue of benevolence, it is certainly unreasonable to attribute omniscience to QR Network. Put simply, QR Network's cost benefit analysis may, even with the best of intentions on the part of QR Network, arrive at an incorrect conclusion about the most efficient traction technology for access seekers to adopt.

Alternatively, it may be that QR Network's conclusion is correct in an *ex ante* sense but turns out to be incorrect in an *ex post* sense (e.g. the diesel and electric energy prices may not follow the QR Network's *ex ante* estimates – even if these *ex ante* estimates are the best estimates available at the time).

15. Given the difficulties of QR Network knowing the most efficient technology of an above rail operator, it is my opinion that QR Network should not attempt to force access seekers to adopt that technology. That does not mean that QR Network's prices have no role in guiding access seeker's decisions. However, QR Network's role should be limited to signalling to access seekers the costs that QR Network incurs to serve them. This leaves access seekers free to determine how best they can serve their customers given the costs that they face.

16. The best way to promote efficient decisions by access seekers is for QR Network's prices to be a proper reflection of their costs (of serving a particular access seeker with a given technology). In order to achieve this QR Network does not need to know or forecast the costs faced by third party access seekers (such as the price of diesel relative to electric energy, the discount rates of the access seeker or the price of diesel versus electric locomotives). All QR Network needs to know in order to send efficient pricing signals are its own costs.

17. As a practical matter this means that if serving diesel trains imposes higher costs on QR National than serving electric trains (e.g. due to longer cycle times and the need to invest in more capacity per train) then QR Network should quantify this cost to itself and reflect this in higher access prices for diesel trains.

18. This will send access seekers the appropriate signal to use fewer diesel trains. Or, if the access seeker's costs of using a diesel train are, notwithstanding the higher access prices, still lower than the costs of using an electric train, this will give the access seeker the efficient incentives to continue using diesel trains.

19. By contrast, if QR Network attempts to first determine what the most efficient technology is, and then prices in a manner that forces that technology to be adopted by access seekers, then there is a heightened risk that QR Network will make an error. This is because QR Network needs to know not just its own costs, but also the costs of all access seekers (current and potential).

20. Clearly, access seekers are better placed to know and forecast their own costs. For this reason QR Network's prices will best promote efficiency if they are solely based on a reflection of QR Network's costs.

21. Finally, I note that there are parallels in QR Network's proposed use of cost benefit analysis to the economic calculation debate in the 1930s. The issue in question then was whether it was possible, practically and even theoretically, for a central planner to

have enough information to guide economic decisions in an economy better than decentralised decision makers whose decisions are based on cost reflective prices they face.

22. It is generally accepted that the proponents of market based solutions prevailed in that debate. Friedrich Hayek famously argued that it was impossible, as a matter of practicality, for a central planner to acquire and use all of the information on the costs and preferences of third parties necessary to make efficient allocations of resources. However, he went onto make the deeper point, which is still relevant in the current context, that it was also impossible even conceptually to do so. This, he argued, was because the information itself could not exist without it being discovered by economic agents in the process of their attempts to minimise costs and adapt technology to changing circumstances.[4]

3.2. How should QR Network set prices that send efficient market signals?

23. If QR Network is correct that users will/might choose inefficient technologies then the source of this problem most likely lies in QR Network failing to properly signal differences its own costs to access seekers. However, if this is the case then the best solution to the problem is to adjust QR Network's prices to be *more cost reflective* – rather than to make them *less cost reflective* by requiring diesel trains to pay for electric infrastructure.

24. QR Network's submission does include three explicit reasons why it might be the case that, under the current pricing methodology, access seekers may inefficiently choose the 'wrong' technology. These are that:

    i. QR Network's access prices fail to properly signal the higher costs it believes it incurs by serving diesel trains (e.g. due to allegedly long cycle times for diesel trains);[5]

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[4] F.A. Hayek,(1935) "The Present State of the Debate," in *Collectivist Economic Planning*, ed. F. A. Hayek. Clifton: Augustus M. Kelley, 1975. Relevant quotation below:

"*This means in practice that this knowledge will have to be concentrated in the heads of one or at best a very few people who actually formulate the equations to be worked out. It is hardly necessary to emphasise that that this is an absurd idea even in so far as that knowledge is concerned which can properly be said to "exist" at any moment of time. But much of the knowledge that is actually utilised is by no means "in existence" in this ready made form.* ***Most of it consists in a technique of thought which enables the individual engineer to find new solutions as soon as he is confronted with new constellations of circumstances.*** *To assume the practicability of these mathematical solutions we should have to assume that the concentration of knowledge at the central authority would also include the capacity to discover any improvements or detail of this sort."*

[5] QR Network ar.gues that slower cycle times increases the present value of capital and operating expenditure that QR Network must make. QR Network argues that currently these higher costs are then recovered from all trains in the same manner (ie, are not purely borne by diesel trains);

ii. There is a coordination failure between access seekers where all would be better off if they used electric trains but none would be better off switching individually to electric trains; and

iii. QR Networks current pricing of electric infrastructure involves a too heavily front loaded profile of cost recovery which will artificially discourage the take up of electric trains.

25. However, even if these are real problems, the first best solution to them is not to force diesel trains to pay for electric infrastructure that those trains do not use. The first best solution is to amend QR Network's pricing in order to make it more (not less) cost reflective.

3.2.1. Differences in performance of different trains (e.g. cycle times)

26. QR Network's submission correctly states:

> *The way that access charges are determined and applied for electric trains, and the way that they are differentiated between diesel and electric trains will be critical factors for operators in making these decisions. If the private costs borne by operators in choosing a particular traction type are not aligned with the costs that are imposed on the rail system as a result of that choice, the fleet investment decisions made by individual rail operators will impact on the costs borne by all other users in the rail system.* (Page 17)

27. However, QR Network's solution is not to *align the private costs borne by operators in choosing a particular traction type* with the *costs that are imposed on the rail system*. Rather, QR Network performs cost modelling on the basis of access seeker's *costs* (e.g. access seekers fuel cost and access seekers equipment costs) combined with its own costs. QR Network then concludes that supply chain costs, inclusive of access seekers costs, will be minimised if access seekers run electric trains. QR Network then proposes a pricing methodology that will force this to occur (or, at the very least, will make sure QR Network earns revenues from its electric infrastructure 'as if' a diesel train were an electric train).

28. In my view, QR Network's sole focus of any cost modelling should be to model the impact of access seeker's actions on *QR Network's own costs*. If that cost modelling robustly showed a different cost of serving different kinds of trains then access prices should reflect those relativities.

29. Ideally QR Network would identify all material drivers of differences in QR Network's costs. Moreover, any differences in prices should be levied based on the actual characteristics of the access seeker's trains/operations. Price differences should not be based on imperfect proxies for cost drivers, such as whether the locomotive is diesel or electric, if more direct measures are available.

30. For example, imagine it is the case that the main driver of differences in costs for QR Network is differences in cycle times of locomotives – with QR Network needing to invest more in track capacity to achieve the same throughput when access seekers run locomotives with longer cycle times. In this case the efficient pricing signal will be to charge locomotives based on their cycle times. If some diesel trains can achieve faster cycle times than the 'standard' locomotive then they should pay lower access prices than the standard locomotive and *vice versa*. That is not to say that I endorse QR Network's view that diesel trains have longer cycle times which I understand Asciano disputes.

3.2.2. Coordination failure amongst access seekers and front loaded cost recovery

31. QR Network argues that there is a prospect of coordination failure amongst access seekers. With all access seekers being best off if they all choose electric traction technology but only if other access seekers follow suit (thereby increasing the number of trains over which fixed costs are recovered). However, a fear that other access seekers will not follow suit may prevent any individual access seeker from adopting electric traction in the first place.

> *Second, in a strongly competitive environment for rail haulage services, a rail operator may be uncomfortable with the extent to which the cost structure for electric traction is dependent on the traction choices of its competitor. The operator may perceive electric locomotives as a riskier choice than diesel, simply because it has less control over the cost structure for electric services. However, the cost of this decision will ultimately be borne by the end users, as a decision to introduce diesel locomotives will prevent them from achieving the lowest total cost rail solution.*
>
> *The risk of this outcome occurring is particularly high in the Blackwater system as in the short term, given the current regulatory framework and the timing of electric capacity increases, the cost structure of electric and diesel traction are quite similar. Uncertainty about the traction choices of rival operators may lead an operator to prefer to invest in diesel locomotives rather than electric. While this may appear to be cost neutral to end customers in the short term, in the longer term this will embed a higher overall cost structure for rail haulage services. Given the current extent of indications by operators and end customers that they are considering utilisation of diesel traction for WICET services, there is clear evidence that this process is already underway.*
>
> *Therefore, unless a mechanism is created that provides operators and end users with confidence in the overall level of electric network utilisation, or at least ensures that they do not bear the costs of rival operators' utilisation decisions, the competitive rail haulage market may actually prevent the most efficient outcome being achieved. Such a mechanism is critical in order to ensure that rail*

operators do not perceive electric locomotives to be a high risk choice. (Page 26).

32. While possible in theory, I do not consider that QR Network has established that this is actually a problem in the current circumstances. I am informed by Asciano that a single above rail operator QR National (QRN) has around 80% of the traffic volume in the Blackwater system. This means that QRN could, without any coordination with other access seekers, achieve 80% of any economies of scale by transitioning its fleet to electric trains. Further, there is only one other access seeker currently operating in the Blackwater system (Asciano). The high concentration of access seekers renders the claimed difficulties in coordination non-credible.

3.2.3. Profile of cost recovery matching profile of usage

33. QR Network makes a similar/related argument in relation to the profile of cost recovery. QR Network posits a possible state of the world where high initial prices for access to electric infrastructure discourages the use of electric locomotives which raises the prices for access to electric infrastructure which creates a "self fulfilling prophecy".

> *A further issue that should be considered in the public interest is promoting the necessary co-ordination of investment required for development of an electrified rail network. As noted earlier, investments in the electric network have a long lead time, and therefore need to be made well before end customers commit to operators, and those operators commit to their locomotive fleets. These electric network investments can also be large, creating substantial step changes in capacity. The recent Blackwater investments are a good example of this, where investment in a further four feeder stations (with a value approaching $200 million) was required to enable additional electric trains to run on the network, however no further additional feeder stations are now required on the Blackwater mainline to operate up to 156mtpa with electric services.*
>
> *The lumpiness of this investment, combined with more gradual increases in demand, will result in the system going through transition periods where operating an electric train on that may well be more expensive than operating a diesel train. In a competitive rail haulage market, the response of an operator during this transitional period is likely to be to utilise diesel services, as (at that point in time) this will provide a cheaper solution than electric. However, this becomes a self fulfilling prophecy, as by introducing diesel trains into the system, this will prevent the electric network achieving the necessary volume density at which the cost benefit becomes apparent.* (Page 31)

And

QR Network considers that the current pricing framework for electric access does not provide sufficient long term predictability or adequate price signals to allow operators and end users to make these informed decisions. This is for a number of reasons:

• the AT5 charge is determined to fully recover costs over the regulatory period (typically four years);

• there can be significant variability in AT5 charges between regulatory periods, at least partly because of the depreciation method used and the fact that there is no recognition of volume ramp-up effects following capacity increases; and

• revenue cap adjustments are determined in relation to discrete geographic components of the electric network and are recovered over a single year (with a two year lag). The impact of these revenue cap adjustments has caused substantial volatility in the AT5 charge on a year by year basis, due to actual electric utilisation being at levels below forecast. (Page 33).

34. Once more, I am sceptical that low initial take up will deter future take up in the circumstance where there is a single access seeker with 80 percent market share and one other access seeker with 20 percent market share. Provided these access seekers understand that by adopting electric locomotives they will push down the prices of electric infrastructure then they will have appropriate incentives to adopt electric infrastructure. That said, it still may be that the profile of cost recovery is artificially front-loaded and there may be advantages from smoothing this recovery. In particular, recognising the "volume ramp-up effects" referred to by QR Networks above.

35. However, the solution to any such perceived problem is not to force diesel trains to pay for electric infrastructure.

36. If there was such a coordination/early cost recovery problem then any solution would need to focus on optimal timing of the path of cost recovery for electric infrastructure (not on imposing cross-subsidies between electric and diesel trains). For example, one approach would be to allow QR Network to set prices that anticipate the efficient level of future demand. That is, to set and maintain prices based on a forecast of 'equilibrium' demand prior to that demand being achieved.

37. I note that this path for cost recovery is commonplace in competitive markets. Consider firms that have spent millions or billions of dollars developing a new product for which the customer base starts small and rises over time. Such firms do not generally attempt to recover the same absolute contribution to development costs in early as in later periods. To do so would involve charging very high prices in the initial period of low sales and very low prices in later periods of high sales. Rather,

companies tend to commit to offer similar levels of prices in all periods with higher revenues being earned over time as volumes increase.

38. Making these changes to the regulatory regime will raise significant and complicated issues – issues that are best resolved in the context of an overall review of QR Network's entire undertaking rather than on a piecemeal review of its tariff for electric infrastructure. I note that it would be inappropriate to give QR Network the discretion to set the path of cost recovery. Doing so may allow QR Network to set a path for cost recovery that did not even cover the holding/operating costs of the existing infrastructure in some years. Giving QR Network discretion over how it prices different elements of its infrastructure may also be problematic to the extent that there is an incentive to use that discretion to advantage its related above rail operator QR National.

3.3. Dynamic efficiency versus static efficiency

3.3.1. QR Network modelling does not demonstrate electrification was efficient

39. QR Networks cost benefit analysis, even if entirely accurate, does not demonstrate that it was efficient for QR Networks to electrify the Blackwater system. Rather, it demonstrates that, given that the Blackwater system has been electrified, it is efficient that electric trains are used in that system.

40. Under these conditions it is not surprising that QR Network reaches the conclusion that it is most efficient to run electric traction. Indeed, it is somewhat surprising that the conclusion is not more strongly in favour of the efficiency of electric traction.

41. This is because QR Network's modelling essentially gives the full electric traction scenario a 'head start' of around $346m in already invested electric infrastructure[6] and gives the full diesel traction scenario a penalty of $400m in break costs with Powerlink.[7] In this context, QR Network's conclusions can, I believe, be fairly summarised as follows:

> Given that QR Network has already invested around $346m in electrification of the Blackwater system and entered into contracts with Powerlink that force QR Network to pay $400m if access seekers don't use that system, what technology delivers the lowest cost for the industry (counting QR Network's break costs with Powerlink as an industry cost).

[6] On page 23 of its Submission, QR Network states that by mid 2012 $346.2 million will have been invested in the Blackwater system electrification.

[7] See page 11 of QR Network's submission.

42. This approach gives a $746m ($346m+$400m) “head start” for the full electric traction scenario in the cost benefit model (ie, by not including costs already incurred by QR Network and Powerlink to provide the electric infrastructure). The difference between $1bn of QR Network modelled relative benefits and $746m is only $254m. That is, QR Network’s cost benefit model appears to suggest that, if this same assessment was made prior to QR Network actually investing in the electrification of the Blackwater system the net benefits would only be in the vicinity of $254m.[8]

3.3.2. Allowing the timing of electrification to be variable

43. The QR Network cost modelling does not allow the timing of electrification to be variable. This reflects the fact that QR Network has actually commenced electrification. However, if one instead asks should QR Network have commenced electrification then a different cost benefit analysis is required.

44. The positive value of $254m derived above is based on a comparison between:

    a. Electrifying the Blackwater system immediately; and

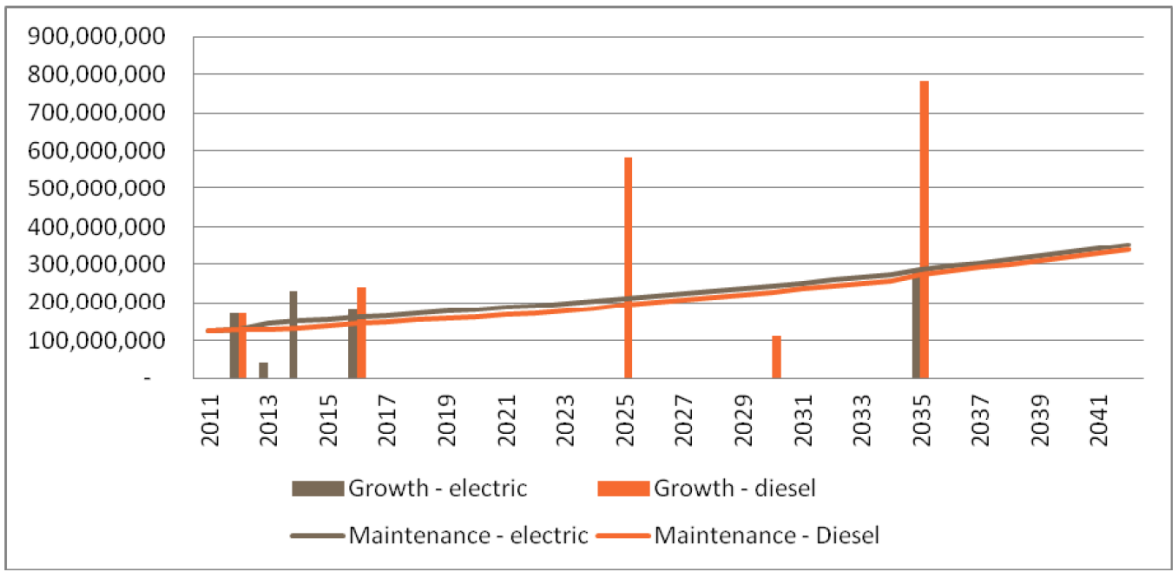
    b. Never electrifying the Blackwater system.

45. Never electrifying is not the appropriate counterfactual to immediately electrifying the Blackwater system – especially given QR Network’s assumption of dramatically increasing fuel savings over time. The appropriate counterfactual would have been delaying electrification for one or more years. Had this counterfactual been adopted then it appears likely that, even based on all of QR Network’s other assumptions, immediate electrification may not have been efficient.

46. In order to see why, consider Figure A.2 from QR Network’s submission, reproduced below.

[8] That is, if the assessment was made prior to investment in electrification then the $346m in assets already invested in would need to be included in the electric scenario and there would be no break costs in the default scenario because QR Network would not have entered into any contract with Powerlink. The net impact of these changes would be to reduce the relative efficiency of electric traction by $746m to $254m.

Figure A.2: Growth and maintenance capital expenditure (Blackwater, $)



47. The significant increases in below rail capital expenditure under the diesel scenario occur in 2025 (around $600m) and 2035 (around $800m). In fact, prior to 2025 there is a materially higher expenditure on expanded electrification (with around $200m higher investment in the electrification scenario before 2016). That is, the savings in capex under the electric scenario only occur in the distant future while there are significant upfront costs (including the $346m electrification costs not included in the model and over $200m in higher net costs to be incurred over the next few years that are included in the model). Figure A.2 also shows additional operating and maintenance costs for the electric infrastructure begins immediately after the infrastructure investment.

48. Similarly, the above rail benefits in terms of fuel cost savings using electric trains are assumed to be low initially and gradually rise (reflecting assumed divergence in fuel costs over time and growing volumes of haulage). This is shown in Figures A.6 to A.8 of QR Network's submission.[9]

49. All of these factors suggest that, even if QR Network's assumptions are accurate, delaying electrification may have been more efficient than investing in electrification immediately. This is because delaying the significant upfront capital costs associated with electrification and avoiding the associated maintenance of those assets would reduce the present value of the costs associated with electrification. Similarly, waiting

[9] Similarly, the costs to above rail operators of choosing electric traction are primarily higher upfront capital and maintenance costs per locomotive. QR Network models that this higher upfront cost per locomotive will be offset by the need for fewer locomotives. However, I understand that Asciano contests this assumption

until the higher below rail capex associated with continuing to use diesel (modelled as first occurring in 2025) was closer would have increased the present value of costs saved. Equally, waiting would also have increased the difference between diesel and electric fuel costs which would increase the present value of costs saved by electrification.

50. The above analysis is of necessity crude in nature and I do not claim that it proves that QR Network should not have proceeded with electrification when it did. However, it does demonstrate that it is far from obvious that it was efficient to proceed with electrification in the Blackwater system at the time that QR Network proceeded. This is based on QR Network's own assumptions. Alternative assumption that are less optimistic about diverging fuel prices or more pessimistic about the relative performance and cost of diesel locomotives might make the case for electrification weaker still.

3.3.3. Relevance of dynamic efficiency to QR Network's proposal

51. QR Network's justification for forcing diesel trains to pay for electric infrastructure is based on its conclusion that electric trains are lower cost *given that QR Network has already made large sunk investments in electrification.* While QR Network has not put its position in this way, I consider that this amounts to a static efficiency argument with the following limbs.

    i. QR Network has already invested materially in sunk investments (including contracting out sunk investments to Powerlink). However, if QR Network attempts to charge users for these sunk costs then they may not be willing to pay for them;

    ii. Given that these investments are now sunk (unavoidable), it is statically efficient that they get used (this is the basis of QR Network's cost benefit study);

    iii. Consequently, it is statically efficient not to signal these sunk investments in prices in order to promote the use of these sunk assets;

    iv. However, QR Network will not recover its sunk costs if it prices sunk assets at zero; and

    v. Therefore, the best solution is to force non-users of the assets to pay for them. By doing so, the effective price of using electric infrastructure is set at zero (which is statically efficient) while QR Network still recovers its costs because all access seekers pay for the sunk infrastructure whether they use it or not.

52. I note that there are reasons to believe that limb ii) above is factually doubtful (discussed below). However, putting these objections aside, accepting the above logic gives rise to serious dynamic efficiency consequences.

53. If QR Network can rely on the above justification then it would be free from any requirement to ensure that its investments are made prudently (in terms of the type of

investment, the level of the investment and the timing of the investment). There would be little or no incentive for QR Network to only invest in the optimal manner and at the optimal time when demand for the investment is sufficient to justify its cost.

54. Rather, QR Network could simply proceed with the investment and, once it has been sunk, perform a cost benefit analysis to test whether it is efficient to use the assets (given that they now exist). If that cost benefit analysis was positive, then, based on the precedent QR Network is seeking to set in these proceedings, QR Network could expect to force other access seekers to pay for the assets (in these proceedings it is attempting to force diesel trains to pay the electric tariff and customers in Goonyella to pay for the Blackwater electric infrastructure).

55. In this context, I consider that it is important that the QCA not uncritically accept the implicit logic of the QR Network submission as set out above. The adoption of the 'user pays' principle in monopoly regulation is important because it plays a role in promoting dynamically efficient investment in infrastructure. [10] This is because when it is well understood that the user pays principle will be applied:

- monopolists will not invest in an asset unless they are confident that there is demand from users to justify the investment; and
- users will have a stronger incentive to monitor the investments of the monopolist and actively engage with the monopolist and the regulator if they consider the level/type of investment is suboptimal.

56. If, instead, cost recovery is socialised across non-users of the investment then both of these forces for dynamic efficiency will be lost.

57. The above observations should not be taken to imply that I believe that QR Network has necessarily made an inefficient investment or that users would be unwilling to fund that investment. As discussed in section 3.2.2 above, there may be a case for QR Network altering the cost recovery profile for its investment such that future Blackwater electric train users make a larger absolute (but similar per train) contribution to the recovery of the costs incurred by QR Network.

58. Moreover, QR Network may be able to price in the above manner and still earn the full cost of capital on its investment over time. That is, any back-loading of cost recovery could be done in a manner that maintains the present value of QR Network's revenues (i.e. equates these to QR Network's costs). The exact mechanism by which this present value smoothing could be achieved is an issue that would require some consideration.

[10] This is true even if the user pays principle is not always associated with the perfect promotion of static efficiency when users are required to pay for sunk assets.

59. I note that QR Network has proposed a price cap for the Blackwater AT5 tariff. Such a price cap could potentially be implemented immediately and any under-recovery relative to building block costs now could be kept track of and added to electric infrastructure regulatory assets values (in present value terms). Exactly how to smooth the recovery of that RAB thereafter could be an issue considered in the next QR Network undertaking proposal.

3.4. Problems in QR Network's assessment of static efficiency

60. QR Network's cost benefit model is not an adequate basis on which to conclude that the optimal outcome is for electric traction to immediately replace diesel traction – even if assessed on a narrowly static efficiency basis. QR Network's modelling is very simplistic and involves a number of very strong/artificial assumptions.

    i. I understand that Asciano does not accept a number of fundamental assumptions made by QR Network in relation to the operating characteristics of diesel and electric engines. In particular, I understand that Asciano believes that QR Networks has over estimated diesel cycle times. I also understand that Asciano disputes the validity of QR Network's assumption that only three electric locomotives are required compared to four diesel locomotives to haul a standard train. This assumption is dependent on the assumed number of wagons in that train. Specifically, four diesel locomotives can haul more wagons than the train length assumed by QR Network in its model. I am informed that if the number of wagons is increased from 100[11] to 112, in order to reflect the standard in Goonyella, the relative efficiency of diesel locomotives would increase dramatically. I am informed that Asciano believes this could be done with relatively small incremental investments in the below rail infrastructure track duplication program already in progress. If Asciano is correct then this would highlight a potentially general problem with the modelling. Namely, a failure of Asciano to optimise its modelled infrastructure for the running of diesel trains – even in the 100 percent diesel scenario.

    ii. The modelling is performed on a 30 year time horizon in present value terms. QR Network does not ask whether it is an internally inconsistent model. The modelled scenarios assume fixed use of technology over the 30 years. That is, either all electric, all diesel or constant proportions at today's levels. However, the cost of diesel relative to electric appears to be rising dramatically overtime. QR Network's model assumes that access seekers never respond to this. This seems unreasonable. A more reasonable approach would be to have the proportion of diesel/electric traffic internally determined rather than set by QR Network at the outset and never altering.

[11] I note that QR Network models 4 diesel locomotives with 98 wagons despite Pacific National running 4 diesel locomotives with 100 wagons.

iii. The modelling does not attempt to identify a least cost transition to electric traction. Such a least cost transition would likely involve continuing to use existing diesel trains in the Blackwater system for an extended period of time. Rather, the model assumes an immediate switch to electric traction. It is unclear why this scenario is modelled given that it is almost certainly *not* the most efficient electric traction option (because it involves assuming the purchase of new electric locomotives when the opportunity cost of continuing to use existing diesel locomotives is low). One possibility is that QR Network did not, for presentational purposes, wish to model an efficient gradual transition to electric traction given that its proposal is for an immediate penalty for the use of diesel traction.

iv. The modelling has much higher expenditure on below rail capacity under the full diesel option in the 24 years beyond 2017 (around $1.5bn compared to under $0.3bn). My understanding is that this is justified on the basis longer cycle times for diesel trains. If so, I would expect to see a difference in *the timing* of investment in below rail infrastructure rather than a difference in *absolute levels*. That is, while I would expect to see longer cycle times result in the earlier need for investment in below rail capacity, I would still expect to see similar investments occur at a later date under the electric traction scenario. However, Figure A.2 does not show this – beyond 2016 there is trivial investment in below rail capacity in the electric traction scenario. This could be because the lagged investment is just beyond the 30 year cut off of the analysis. Or it could be because QR Network's growth assumptions have the "goldilocks" property of being just high enough to require large investments under the diesel scenario but not quite high enough to require similar (but later) investments under the electric scenario.

v. The modelling uses a pre-tax nominal discount rate. This appears an odd discount rate to apply to what are essentially cost streams (not profit streams) that do not even appear to include any tax costs. The use of this discount rate is not justified in QR Network's submission. Also, two discount rates are used – one higher discount rate for above rail and a lower discount rate for below rail. It is not obvious why two discount rates are being used rather than a single discount rate given that the analysis is a 'whole of industry' analysis from the end user's perspective. I note that using a lower discount rate for below rail has the effect of increasing the present value of savings associated with the avoided below rail capital expenditure set out in Figure A.2.

4. Conclusion

61. In my view, QR Network overreaches its position in the industry in its submission. It does so by attempting to take on the role of a central planner that knows better the interests of access seekers than they know themselves. In doing so, QR Network has had to model the costs of access seekers going out 30 years. Based on this modelling QR Network has determined that using electric traction will lower access seekers' overall costs and, therefore, QR Network should price in a manner that forces access seekers to adopt electric traction (or pay for electric infrastructure even if they don't adopt electric traction).

62. I do not consider that this is appropriate. QR Network is not well placed to forecast access seekers' costs. That task is best left to access seekers. Access seekers can be expected to make efficient decisions provided QR Network's prices are set in the manner which best reflects the costs that QR Network incurs in providing its services.

63. If those costs differ between services, such as between providing services to diesel and electric trains, then QR Network should reflect those cost differences in its prices. A central tenet of QR Network's submission is that, due to speed differences, diesel trains impose higher below rail capacity costs on QR Network. If this is the case then the appropriate solution is to add an increment to slow trains access prices to reflect this. Doing so will make prices more cost reflective. The appropriate solution is not to make diesel trains pay for electric infrastructure that they don't use. This would be likely to make prices less cost reflective, not more cost reflective.

64. It is also important that the QCA have regard to the dynamic efficiency consequences of allowing QR Network to make investments and subsequently spread the cost of those investments across access seekers who make no use of those investments. Allowing this to occur will give QR Network little incentive to invest optimally and users little incentive to monitor QR Network's investments.

65. Finally, I have several material concerns about the accuracy of QR Network's cost modelling. Consequently, even if the QCA accepted the usefulness of such modelling in principle, it does not follow that the QCA can rely on QR Network's modelling in practice.