QUEENSLAND resources COUNCIL

AURIZON NETWORK'S 2017 DAU
QRC SUBMISSION

VOLUME 2: PRICING SUBMISSION

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1 Executive Summary

This volume contains the Queensland Resources Council's (**QRC**) submissions to the Queensland Competition Authority (**QCA**) on the pricing aspects of Aurizon Network's 2017 Draft Access Undertaking (**UT5**).

It is supported by the report prepared by Castalia Strategic Advisors in respect of matters related to the weighted average cost of capital (**WACC**) and approach to inflation (the **Castalia Report**), as enclosed in annexure 1 of this volume.

The QRC considers that the pricing positions proposed by Aurizon Network in its UT5 submissions, make it clearly not appropriate for the QCA to provide its approval in accordance with section 138(2) *Queensland Competition Authority Act 1997* (Qld) (the ***QCA Act***).

Aurizon Network is proposing:

(a) a 19% increase in the MAR from that approved in the final decision in respect of the current access undertaking (UT4); and

(b) an 11% increase per net tonne (when averaged across the entirety of the central Queensland coal network), including a 14% increase in the Blackwater system and a 35% increase in the Moura system.

While the QRC appreciates that the focus should be on the appropriateness of the methodology (and each individual building block and parameter), the magnitude of the pricing increases demonstrates clearly the material aggregate impact of the changes Aurizon Network is proposing.

Aurizon Network's approach to pricing under UT5 can be summarised as follows:

(a) for the majority of WACC parameters and for the inflation adjustment, seek to overturn the decisions very recently reached by the QCA in respect of UT4.

(b) for maintenance and operating cost allowances, to claim that the QCA is bound to extrapolate the UT4 allowances into a new period, adding escalation to 'unit rates', and adding special adjustments for selected items which are generally upward (and often reverse QCA UT4 decisions).

The re-opening of UT4 decisions in regard to WACC parameters and inflation cannot be justified, in the context of:

(a) the QCA having determined its approach was appropriate only a few months ago (with the final decision to approve the undertaking being provided on 11 October 2016) after years of consideration where these matters were extensively debated and reviewed;

(b) there being no recent change in evidence or circumstances which would justify the myriad of changes sought; and

(c) the QCA's recognition of the importance of regulatory certainty.

In particular, it is clearly not appropriate to provide approval for UT5 because Aurizon Network has proposed the following substantial departures from the QCA's settled approach:

(a) a material change to the manner of calculating the risk free rate designed to produce a significant increase in the risk free rate from that which would have otherwise applied;

(b) a significant increase in the market risk premium;

(c) a significant increase in the asset (and therefore equity) beta;

(d) a significant increase in the debt risk premium;

(e) a significant increase in debt raising allowances;

(f) a significant reduction in gamma from 0.47 to 0.25;

(g) significant changes to both the methods of estimating inflation, and the application of inflation adjustments; and

(h) significant increases to operating and maintenance costs allowances.

Aurizon Network's claimed justifications for departing from the QCA's settled approach to these parameters are not supported by credible evidence or appropriate interpretations of the legislative framework.

All of these changes are designed to produce increased prices and are an attempt to seek the QCA's approval for what amounts to clear monopoly pricing. The QCA should not allow the regulatory process to be abused in this manner.

2 Application of Legislative Framework to Pricing Matters

2.1 Test for approval of an access undertaking

Section 138(2) QCA Act provides that:

(2) The authority 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 this part;

(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.

That is supplemented by sections 138(5) and (6) QCA Act which provide that:

(5) The authority may not refuse to approve a drafting access undertaking only because the authority considers a minor and inconsequential amendment should be made to a particular part of the undertaking.

(6) In this section –

***minor and inconsequential amendment**, in relation to part of a draft access undertaking, means an amendment that, if made, would have no real effect or consequence in relation to that part of the undertaking and the undertaking as a whole.*

The interpretations put forward by Aurizon Network[1] are inconsistent with the clear wording of section 138.

As noted in the advice received by the QRC from Allens (included in annexure 2 of this volume), the QCA Act clearly:

[1] Aurizon Network UT5 Submission, 31.

(a) provides a threshold criteria (appropriateness having regard to the section 138(2) matters) which must be met before the QCA is empowered to approve a draft access undertaking (**DAU**); and

(b) gives the QCA a wide discretion as to whether it approves a DAU which meets that threshold criteria, which is not restricted other than by the prohibition on refusing approval only because of minor and inconsequential amendments.

Further, pricing matters, by their very nature, are not minor or inconsequential amendments, as pricing will always have a real effect or consequence on users, Aurizon Network and suppliers in related markets such as rail haulage providers.

The decisions referred to in the Aurizon Network submissions[2] are not relevant, and are definitely not authority for the proposition that Aurizon Network asserts, that the QCA Act compels the QCA to approve an undertaking that it considers appropriate even if there is the potential for it to be more appropriate. They were decided under distinctly different legislative contexts concerning declaration or coverage (which is necessarily a binary outcome as to whether regulation should apply, as distinct from approving the terms of an undertaking which will clearly involve judgement between possibilities which may both meet the minimum threshold criteria for potential approval).

The QRC strongly supports the QCA's previously express conclusions that in considering whether a draft access undertaking is appropriate to approve, the QCA is not compelled to approve an undertaking that is the least onerous and restrictive from the perspective solely of the regulated business, rather appropriateness is determined by reference to the s138 Factors which have a wider focus than just the perspective of the regulated business.[3] Appropriateness is not measured by reference solely to Aurizon Network or its investors as the Aurizon Network submission appears to suggest in multiple places.

2.2 Relevance of QCA's UT4 decision and previous approaches – no compelling reasons have been provided to change approach

The QRC broadly agrees with Aurizon Network's submissions[4] that, while the QCA Act requires UT5 to be considered afresh, the QCA should give considerable weight to the findings and methodologies in respect of pricing applied in the recent decision to approve UT4.

Aurizon Network itself supports the QCA's observations that:[5]

> *the Amended 2014 DAU is a product of an extensive and comprehensive consultation process involving interested parties over a substantial period of time during which time the QCA's policy intent has been formed and articulated in relevant decisions, including:*
>
> *- Draft Decision on Maximum Allowable Revenue (October 2014)*
>
> *- the Initial Draft Decision (January 2015)*
>
> *- the WIRP Draft Decision (July 2015)*
>
> *- the Consolidated Draft Decision (December 2015)*
>
> *- April 2016 Decision (April 2016)*

However, as will become clear from the remainder of this submission, Aurizon Network has in fact sought to depart from the QCA's approach in respect of UT4 in significant ways in respect of pricing matters. The clear and direct consequence of those departures is material pricing increases for users.

[2] Aurizon Network UT5 Submission, 31.

[3] QR Final Decision, 270.

[4] Aurizon Network UT5 Submission, 32.

[5] Aurizon Network UT5 Submission, 195 quoting UT4 Final Decision, 1-2.

Despite Aurizon Network's submissions indicating that:[6]

> *Aurizon Network has sought, where possible, to limit departures from the methodologies approved by the QCA in its approval of UT4 revenue*

Aurizon Network later admits to numerous departures including:[7]

> *rather than simply looking to 'roll forward' the UT4 WACC, Aurizon Network has undertaken a comprehensive review of the WACC methodology and parameters*

In that context, contrary to Aurizon Network's submissions,[8] an assessment of the appropriateness of the UT5 revenue proposal, can clearly not be made by reconsidering only those matters which Aurizon Network is seeking to change. Such an approach is clearly inappropriate as it:

(a) could only result in an outcome biased in Aurizon Network's favour; and

(b) would likely invalidate the QCA's decision through a failure to have regard to relevant considerations or properly have regard to submissions made or the factors in section 138(2) QCA Act.

Instead all issues need to be considered. However, the QRC recognises that, given the interests of providing regulatory certainty, decisions to depart from the UT4 Final Decision that is only 4 months old and was made following years of consultation, submissions and consideration, would need to be clearly justified.

There have been no material adverse changes between the commercial environment or regulatory framework under which Aurizon Network operates since the UT4 Final Decision. If anything, the commercial environment faced by Aurizon Network in relation to coal markets has improved since the UT4 Final Decision (as detailed in section 4.5(d) of this submission below in the context of the beta parameter).

Despite that, Aurizon's Maximum Allowable Revenue (**MAR**) proposal takes issue with nearly every component of the QCA's approach to calculating the MAR.

As noted in the Castalia Report, Aurizon Network is effectively asserting that the QCA's UT4 Final Decision is fundamentally flawed[9] and does not provide it with a return reflecting its efficient cost of capital. Given the dominant proportion of Aurizon Network's contribution to the overall performance of the Aurizon group (representing over 60% of Aurizon's underlying EBIT[10]), if that was actually the case, it would be expected that Aurizon's valuation (as evidenced by its share price performance) would have significantly deteriorated.

However, actual evidence is clearly to the contrary. A review of Aurizon's share price performance shows that, despite weakness in Aurizon's above rail financial performance, and substantial write-offs relating to an unrelated investment in an iron ore project in the West Pilbara, the share price of Aurizon has increased significantly in a way that is not reflective of the broader market.

By way of illustration, the below chart in Figure 1 shows Aurizon's comparative share performance tracked against the S&P/ASX50 (white line) and S&P/ASX200 (yellow line).

That sort of outperformance of the market would simply not be possible if the QCA's position on pricing matters in relation to Aurizon Network was not providing it with a reasonable return (particularly given the negative issues impacting on Aurizon's unregulated business such as massive write offs related to investment in the Pilbara and competition for above rail coal haulage business).

[6] Aurizon Network UT5 Submission, 32.

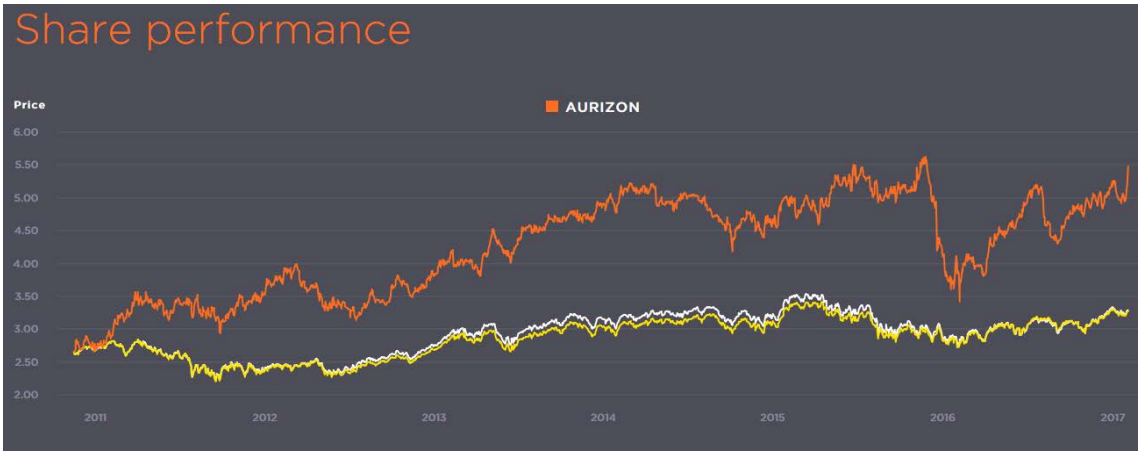
[7] Aurizon Network UT5 Submission, 245.

[8] Aurizon Network UT5 Submission, 32.

[9] Castalia Report, section 1.

[10] Aurizon HYR17 Investor Presentation, 34.

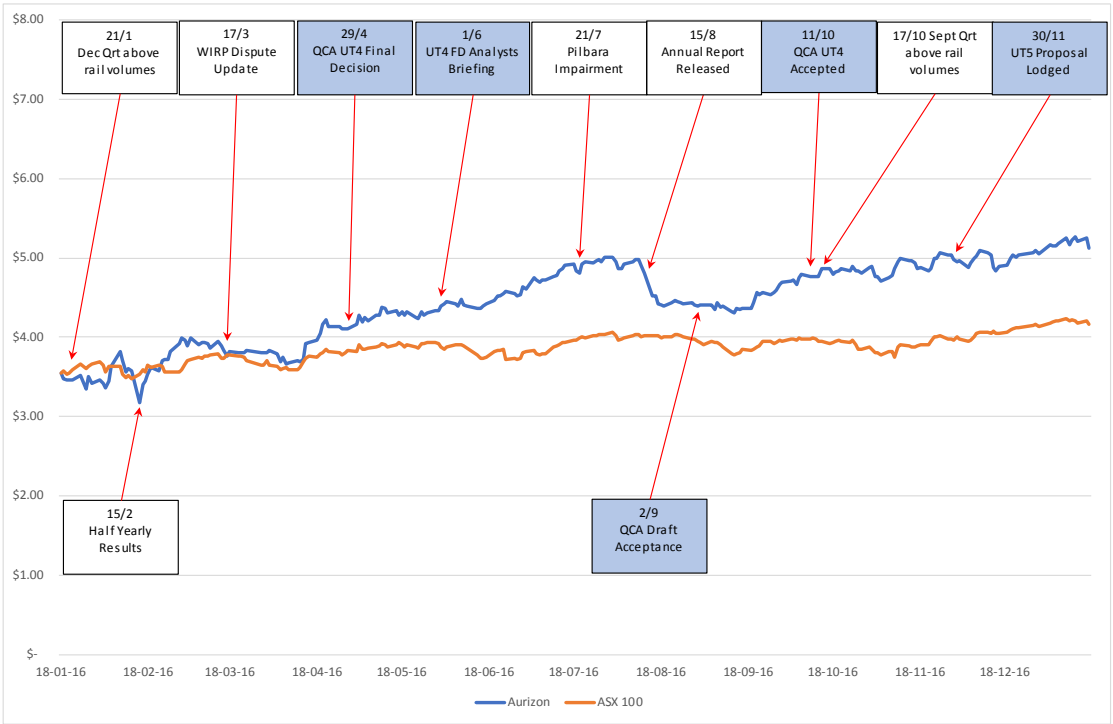
Figure 1: Comparison of Aurizon share performance to market performance



Source: Aurizon website (based on ASX data): 13 February 2017

Similarly, as shown in the Castalia Report (extracted below),[11] Aurizon's share price performance shows no material drops or deterioration caused by QCA decisions.

Figure 2: Castalia comparison of Aurizon share performance to QCA decisions/other events



Consequently, the only conclusion that is reasonably open is that the UT4 approach is not fundamentally flawed as Aurizon Network is suggesting.

As noted in the Castalia Report:[12]

[11] Castalia Report, section 2.

[12] Castalia Report, section 2.

If anything, the underlying slow rise in the share price suggests that the regulatory WACC for UT4 may have been perceived by the market as being somewhat generous.

For clarity, the QRC is not suggesting that Aurizon's share price can provide meaningful indications of the appropriateness of the QCA's decisions. We provide this information simply to point out that there is no evidence of Aurizon Limited's attractiveness to shareholders having been ravaged by the claimed 'outlier' decisions of the QCA, which Aurizon Network claims result in insufficient returns, noting that Aurizon Network contributes over 60% of Aurizon Limited's underlying EBIT.

2.3 Relevance of the Pricing Principles

Aurizon Network's submissions also misinterpret the relevance of the pricing principles in section 168A QCA Act.

In that regard, please refer to the advice received by the QRC from Allens (included in annexure 2 of this submission).

As noted in section 2.1 of these submissions above, the pricing principles form only one of eight different factors the QCA must have regard to in determining whether a draft access undertaking is appropriate (the **s138 Factors**).

The QRC strongly agrees with the QCA's previous conclusions in respect of the relevance of the pricing principles, as set out in:

(a) the UT4 decisions;

(b) the QR Final Decision; and

(c) the DBCT Final Decision.

In particular, the QRC strongly supports each of the following findings previously made by the QCA:

(a) the pricing principles are only one of the matters to have regard to under section 138(2) QCA Act;[13]

(b) the pricing principles do not have primacy over other considerations and do not have to be complied with;[14]

(c) while section 168A(a) is expressed as a principle of generating expecting revenue that is 'at least enough' to meet the efficient costs of providing access to the service and a return on investment commensurate with the regulatory and commercial risks involved, such that it does not of itself preclude generating returns in excess of that (i.e. windfall gains and monopoly rents), returns in excess of that are relevant to the other s138 Factors, including that such returns:

  (1) would distort competition in relevant markets and impact adversely on investment in coal exploration and production as the resulting pricing would be higher than the efficient price (relevant to section 138(2)(a), (d) and 69E QCA Act);

  (2) would not be in the interests of access seekers and holders, who have an interest in paying a return that does not provide windfall gains and monopoly rents (relevant to section 138(2)(e) and (h) QCA Act);

  (3) would be against the public interest as such windfall gains would have potential to reduce competition and discourage investment in downstream markets such as coal mining and coal tenements, reducing economic growth in Queensland, and an expectation that a regulatory regime would

[13] UT4 Final Decision: G&A, 12.

[14] QR Final Decision, 234 and 271; UT4 Final Decision G&A, 11.

allow windfall gains would cause investors to favour projects in jurisdictions where that was not the case reducing the chances they would invest capital in Queensland (relevant to section 138(2)(d)); and

(4) by reducing the incentive for investment in dependent markets that rely on access to the network provider's below rail services will increase the risk to the network provider of asset stranding (relevant to section 138(2)(b)).[15]

(d) it is open to the QCA to consider that a DAU which provides for a price that allows a service provider to recover at least the efficient costs of providing access to the service and a relevant return on investment is, including by reference to other factors such as the object of Part 5 QCA Act, the interests of access seekers and holders and the public interest, not one which is appropriate to approve;[16]

(e) it can be appropriate for the QCA to approve pricing that does not generate revenue sufficient to meet the principle in section 168A(a), where that is an appropriate outcome having regard to all of the relevant considerations;[17]

(f) the QCA meets its obligations to 'have regard to' the pricing principles if it takes them into account even if it concludes that other relevant considerations may warrant a decision being made that is not consistent with a pricing principle;[18] and

(g) selecting values for WACC inputs that are consistently biased towards a higher cost of capital does not reflect an appropriate balancing of the s138 Factors.[19]

Once the pricing principles and their relevance is properly understood, it is clear they do not support the approval of the monopoly profits Aurizon Network is seeking to derive from its UT5 pricing proposal.

3 Inflation

3.1 The current approach and Aurizon Network's asserted basis for change

The UT4 approach to inflation, which reflects Australian regulatory practice, is to:

(a) roll forward the regulated asset base (the ***RAB***) based on actual inflation; and

(b) deduct the forecast inflation from the annual revenue requirement (***ARR***) for the current regulatory period (to avoid double counting).

Aurizon Network is proposing that the roll forward of RAB use forecast inflation, and that the methodology for forecasting inflation for both the roll forward and calculating the ARR be fundamentally changed.

The grounds on which Aurizon Network is seeking to utilise forecast inflation for both the RAB roll forward and calculation of the ARR is the potential for misalignment between the inflation parameters used by the QCA to roll forward the RAB and to calculate the ARR under the current approach

It appears to the QRC that the change to the methodology for calculating forecast inflation is principally sought because of the material increase it produces in the MAR. The changes in

[15] QR Final Decision, 209-210.

[16] QR Final Decision 234; UT4 Final Decision G&A, 11-12.

[17] QR Final Decision, 226.

[18] QR Final Decision, 270.

[19] DBCT Final Decision, 29.

inflation (and tax) are noted as being 'primarily' responsible for the MAR increase in the GAPE, Goonyella, Moura and Newlands systems and responsible for 54% of the increase in the Blackwater system.[20]

3.2 Potential for misalignment

The QRC accepts the theoretical potential for misalignment issues raised by Aurizon Network (and its consultant CEG).

However, as noted in the Castalia Report:

> *Regulators have good reasons to continue to use the current approach, as it links regulatory WACC determinations to financial markets where regulated businesses finance their activities using nominal debt and equity. Using a nominal WACC provides a regulated cash flow profile that better matches the servicing of nominal debt and equity.*

Similarly the QCA's recent DBCT Final Decision noted further parts of the rationale for continuing the existing approach:

> *Under the QCA's current approach for DBCT, the inflation rate implicit in the revenue deduction is a forecast of expected inflation while the rate in the RAB roll-forward is an outturn rate. This approach will also satisfy the NPV = 0 principle on an ex ante basis, if the forecast of expected inflation is an unbiased estimator of the actual inflation rate.*
>
> *…*
>
> *under the current approach, the RAB evolves according to outturn inflation. The year-to-year indexation process means the allowed revenues, and therefore users' expenditures are correlated with changes in outturn inflation. As a result, both DBCTM and users are largely protected from inflation risk.*
>
> *…*
>
> *Finally, the current approach has applied since the commencement of regulation … In its initial submission, DBCTM noted that these effects could be expected to cancel out over time (i.e. such that NPV = 0). However, we consider this outcome is best achieved if such a regime is applied for the entire life of the assets. This is not the context of the proposal here.*

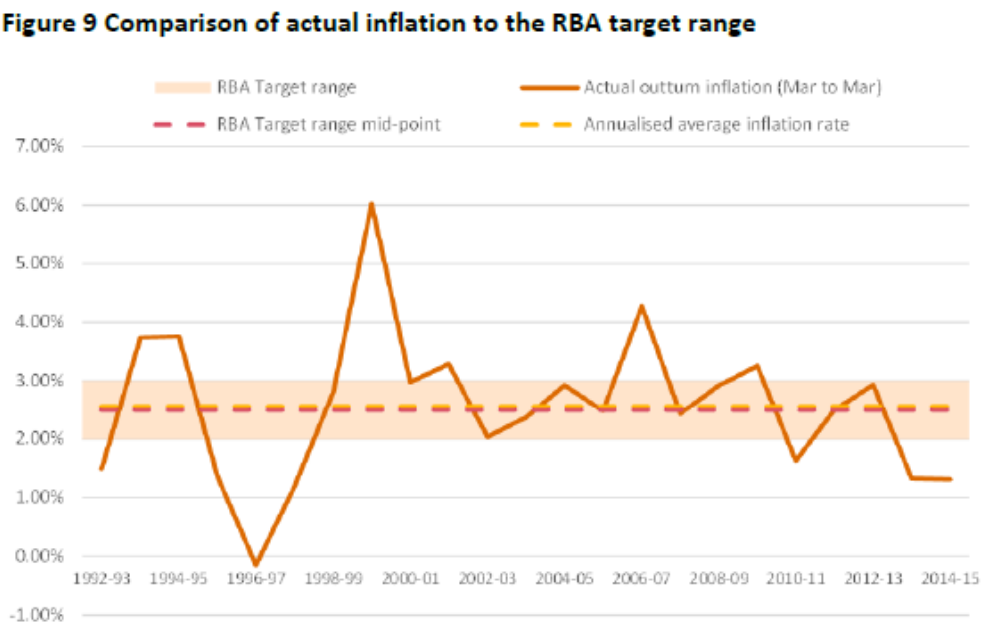
The statements in the final paragraph are equally applicable to the approach to inflation in respect of Aurizon Network, where Aurizon Network is seeking to change an approach that has applied since its very first undertaking.

In addition, the data provided by the DBCT User Group (extracted in the DBCT Final Decision[21] and in Figure 3 below) shows that since inflation targeting started in 1993 the annualised inflation rate (Australian All Groups CPI) has been marginally higher (2.6%) than the midpoint of the RBA's inflation target range (2.5%).

[20] Aurizon Network UT5 Final Submission, 107 and 109.

[21] DBCT Final Decision, 166.

Figure 3: DBCT User Group modelling of actual inflation to RBA forecast



That clearly suggests the QCA's conclusions about the RBA inflation target rate (typically used by the QCA for forecast inflation) being an unbiased estimator are correct and that the NPV = 0 principle is satisfied by the current approach.

Accordingly, the QRC considers it is clear that the QCA's approach is unlikely to produce any misalignment measured over the long term (as appropriate for long life infrastructure).

3.3 Implications of moving to matching inflation approaches

If the QCA was minded to adopt a forecast of inflation for both the roll forward of the RAB and calculation of the ARR, there are two key implications:

(a) firstly, any methodology for forecasting the inflation rate will satisfy the NPV=0 principle – such that a decision to align the approaches to inflation should not in any way alter the QCA's existing approach to forecasting inflation; and

(b) secondly, if Aurizon Network's is genuine about being concerned about the systematic risk it faces due to differences in forecast and actual inflation, removing that risk should lead to an appropriate reduction in beta to reflect the elimination of that risk.

When those implications are understood, it becomes clear that Aurizon Network's views on inflation are an opportunistic attempt to increase pricing.

3.4 Selecting an appropriate forecast inflation estimate

An appropriate estimate for inflation needs to be adopted for both the QCA and the Aurizon Network methodologies.

Regardless of whether or not the QCA is minded to change the approach to escalation of the RAB, the QRC is strongly of the view that Aurizon Network's proposed methodology for forecasting the inflation rate (which led to a forecast of 1.22% at the time of Aurizon Network's submission) is not appropriate.

A choice exists in both methodologies as to whether the inflation forecast which should be applied should be a contemporaneous forecast that is revised for each regulatory period or a constant long run measure of inflation across multiple periods.

As noted in the Castalia Report, where the approach to inflation is aligned:[22]

> *the inflation forecast simply becomes a cash flow deferment factor. By using a stable deferment factor across multiple regulatory periods, the QCA would provide stable and predictable cash flows.*
>
> *In fact, an attempt to refine inflation forecasting would perversely lead to instability in cash flows and hence to less desirable regulatory outcomes.*

Further, as noted in the Castalia Report:[23]

> *Using a long run forecast has the advantage that the resulting return profile will be stable and the mix of current revenue and future capital gains will remain constant*
>
> *…*
>
> *Using a contemporaneous forecast will, if inflation expectations vary materially, introduce an unnecessary volatility to the profile of investor returns.*
>
> *…*
>
> *the volatility in the deferment factor does not serve any useful purpose, a more certain and stable long run forecast should be used.*

The QRC agrees with that analysis, and notes that given the commercial context of pricing for long life infrastructure, being invested in for use by long life mining developments, a long term and stable approach to inflation (free of bias, uncertainty and potential for disputes) is clearly more appropriate.

By contrast, a decision to allow Aurizon Network to change the methodology for forecasting inflation (at a time when this is known to produce a low result and therefore materially increase charges to users) will expose users of the network to a sudden and unexpected price spike. A price spike of that nature, that is not due to any underlying change, but merely due to a change in regulatory approach, is clearly contrary to the desirability of regulatory certainty.

A very similar proposal in relation to the approach to inflation (based on the same consultant's proposal) was rejected in respect of AusNet Services' distribution network. In that determination the AER relevantly preferred an approach referenced to RBA forecasts for reasons including that:[24]

(a) that method was consistent with the regulatory arrangements which had applied since 2008 (regulatory certainty);

(b) to the extent that the historical success of RBA monetary policy informs market consensus inflation expectations, the mid-point of the RBA's inflation targeting band would reflect longer term inflation expectations;

(c) evidence indicates that the RBA's control of official interest rates and commentary has an impact on outturn inflation and inflation expectations; and

(d) the method is simple, transparent, easily replicated and unlikely to be subject to estimation error.

That rationale is equally applicable to the current context. The AER's decision also highlights specific flaws with the proposed 'breakeven' estimate of inflation that Aurizon Network is now proposing.[25]

[22] Castalia Report, section 3.3.

[23] Castalia Report, section 3.3.

[24] AER, AusNet Services distribution determination final decision 2016-20, Attachment 3 at 151.

[25] AER, AusNet Services distribution determination final decision 2016-20, Attachment 3 at 153-160.

Consequently, the QRC considers that irrespective of whether forecast or actual inflation is to be used for the RAB roll forward, the forecast inflation which should be used for the deduction from the annual revenue requirement is 2.5% as the mid-point of the RBA inflation target range. This maintains consistency with the previous regulatory approach, which has been accepted by the QCA as the best unbiased estimator of forecast inflation,[26] acknowledged by the QCA as satisfying the NPV=0 principle, and which has been shown to be an unbiased estimate of inflation outcomes over the long term.

4 Weighted Average Cost of Capital

4.1 Overview

As noted above, Aurizon Network is seeking to change nearly every element of the weighted average cost of capital (**WACC**), including seeking changes to the QCA's settled approach in relation to estimating each of the following:

(a) Risk free rate;

(b) Market risk premium;

(c) Beta;

(d) Debt raising costs; and

(e) Gamma.

These changes are each material on their own, and in combination result in a gross overstatement of the appropriate WACC for Aurizon Network (i.e. permitting it to derive monopoly profits).

Those matters are either:

(a) Aurizon Network specific parameters, where Aurizon Network is proposing to depart from the QCA's approach in the UT4 Final Decision in April 2016; or

(b) market based parameters, where Aurizon Network is proposing to depart from the QCA's approach in all of its recent decisions, including the numerous UT4 decisions (culminating in the Final Decision in October 2016), the QR Final Decision in June 2016 and the DBCT Final Decision in November 2016.

As noted elsewhere in this submission, the QRC strongly supports the view indicated in the Castalia Report that:[27]

> *in the absence of compelling reasons to change the approach, the principle of regulatory continuity and predictability strongly supports continued application of the approach adopted in UT4*

That is not to say that the QRC agrees with the appropriateness of each of the parameters as estimated by the QCA in UT4 – rather that it is (reluctantly in some cases) willing on balance to accept them as appropriate.

If the QCA is minded to revisit its approach to any UT4 parameter, then the QRC considers that a very thorough full review of all parameters is required. In particular, we continue to consider that:

(a) the QCA has given Aurizon Network an asset beta that is too high by a substantial margin and reflects a fundamental over-estimate of the systematic risks faced by Aurizon Network; and

[26] DBCT Final Decision, 175.

[27] Castalia Report, section 4.2.

(b) there are reasonable arguments for reducing the QCA's estimate of the market risk premium to its pre-UT4 levels.

4.2 Risk free rate

The QRC continues to support the QCA's approach to determining the risk free rate based on:

(a) Commonwealth government bond yields (as the closest proxy for the risk free rate);

(b) using a maturity term reflecting the regulatory period (which is proposed to be four years for UT5); and

(c) a 20 day averaging period close to the start of the regulatory period agreed with the QCA.

That approach has been consistently adopted in all QCA decisions over recent years (UT4 Final Decision, QR Final Decision, DBCT Final Decision, GAWB Final Decision, QCA Cost of Capital Market Parameters Decision).

As the QCA has previously noted, that approach (i.e. regulatory term matching) is preferred to using the 10 year bond rates, that Aurizon Network has advocated for, because:

(a) term matching ensures the regulated firm will not systematically over or under-recover its efficient costs; and

(b) unlike the 10 year bond approach, it satisfies the NPV = 0 principle irrespective of the term structure of interest rates.[28]

The QRC also notes Professor Lally's previous conclusions that a term of the proxy of 10 years will provide Aurizon Network will unjustified compensation in its allowed cost of equity.

The QRC strongly agrees with the QCA's conclusions that applying this principle is consistent with the object of Part 5 of the QCA Act.[29]

The comments by Aurizon Network (and its consultants) on that issue have already been considered and addressed in full in the QCA Cost of Capital Market Parameters Decision and Professor Lally's advice to the QCA on this issue (see Appendix B of that decision) and in the Draft MAR Decision in respect of UT4.

In particular, and without repeating that analysis in full, the QRC agrees that:

(a) systematic risk is compensated in the CAPM model through the beta parameter, attempts to provide a firm with a longer term risk free rate as some form of compensation for perceived risk would produce double counting;[30]

(b) the outcome [of using 10 year bond rates] does not satisfy the NPV=0 Principle when a regulatory reset after four years included a reset of the risk-free rate (as is the case under Aurizon Network's regulatory arrangements), and the NPV=0 Principle requires that the term of the risk-free rate should be same as the term of the regulatory period;[31]

(c) the different approach applied by some other regulators is not determinative. The conclusions which led to different approaches can be queried (see the QCA Cost of Capital Marketer Parameters Decision in relation to the AER and IPART approaches)[32]. The QCA's approach needs to be assessed based on its own inherent merits. In that regard the QRC also notes the comments of the Australian

[28] QCA Cost of Capital Market Parameters Decision, 10 and 44.

[29] QCA Cost of Capital Market Parameters Decision, 13.

[30] QCA Cost of Capital Market Parameters Decision, 13.

[31] UT4 Draft MAR Decision, 204.

[32] QCA Cost of Capital Market Parameters Decision, 50-51.

Competition Tribunal in *DBNGP (WA) Transmission Pty Ltd (No 3)*[33] in relation to a previous decision by the Economic Regulation Authority of Western Australia to term-match to a 5 year regulatory term:

> *The ERA had to use its discretion to determine an appropriate term to maturity for Commonwealth bonds over which to estimate the risk free rate of return. In the opinion of the Tribunal it carefully considered all the relevant material and arguments… it stated clearly its reasons for selecting the five-year term to maturity as the basis for its estimate of the risk free rate of return... Accordingly, the Tribunal finds that the ERA committed no conceptual or empirical error in its choice of the length of the term to maturity …. It exercised its discretion... to use a five year term to maturity as the basis of its estimate of the risk free rate of return, and adequately explained its reasons for its selection of this five year term to maturity, and this was a reasonable approach.*

(d) The risk free rate adopted does not have to reflect what might be asserted to be 'commercial' or 'market' practice to valuing or assessing the risk free rate – and the QCA must also consider what is efficient for regulated entities to do;[34] and

(e) The bond term used for the purposes of the risk free rate is not required to reflect the term used in estimating the market risk premium (**MRP**). Rather the relevant term for the MRP should correspond to the across-investor holding period between successive portfolio reassessments – noting that as this period is uncertain, the QCA's position is that pragmatic considerations with respect to data availability have supported using a 10 year rate to estimate the MRP.[35]

In addition, the QCA is not alone in continuing to adopt term matching. The New Zealand Commerce Commission continues to take that approach in all recent decisions. As noted in the QCA's MAR Draft Decision in respect of UT4, the NZCC has indicated it takes that approach for consistent reasons with the QCA, namely as:[36]

> *The term of the risk-free rate should match the regulatory period because if the term of the risk-free rate is longer than the regulatory period and there is a positive yield curve, regulated suppliers will be compensated for risks they do not bear.*

The QRC also notes the comments in the Castalia Report that:

> *In our view, if there was evidence that Aurizon is struggling to recover its cost of debt or that it was facing financeability issues, then the QCA could be justified in considering whether it should provide an extra cushion by moving to the 10-year RFR. However, we are not aware of any evidence that such issues exist or that the 4-year RFR used in UT4 caused any concerns.*

Aurizon Network has continued to have access to a range of debt including Australian bank debt, A$ note issues, and (as recently as September 2016) Euro note issues.

Accordingly, for all the reasons set out above, the QRC considers the QCA should maintain its approach to setting the risk free rate.

The QRC acknowledges that the rate will need to be updated based on the agreed averaging period (which the QCA will need to be vigilant in ensuring is appropriately set and not gamed by Aurizon Network).

[33] [2012] ACompT 14.

[34] QCA Cost of Capital Market Parameters Decision, 48; UT4 Draft MAR Decision, 206.

[35] QCA Cost of Capital Market Parameters Decision, 49; UT4 Draft MAR Decision, 205.

[36] New Zealand Commerce Commission, Decision No.710 (Input methodologies determination applicable to electricity distribution services pursuant to Part 4 of the Commerce Act 1986), 22 December 2010, 59.

4.3 Gearing and credit rating

The QRC supports Aurizon Network's WACC continuing to be calculated based on:

(a) a target gearing of 55% (55% debt, 45% equity); and

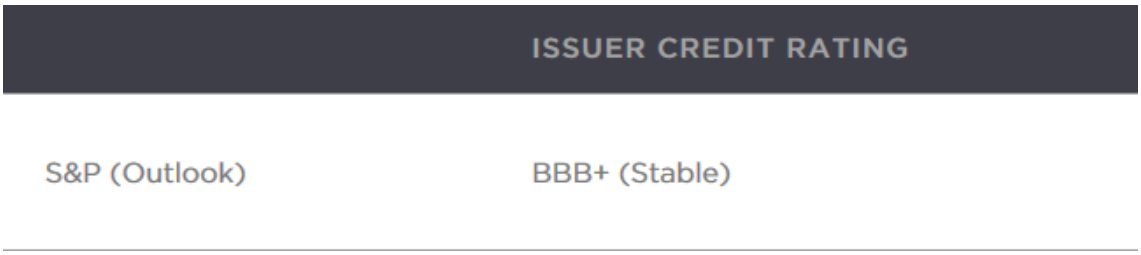
(b) a benchmark credit rating of BBB+.

Aurizon has indicated that is consistent with its actual and intended capital management practice.[37]

Those parameters are also consistent with those recently adopted in respect of Aurizon Network in the UT4 Final Decision and adopted in the previous UT3 Final Decision.

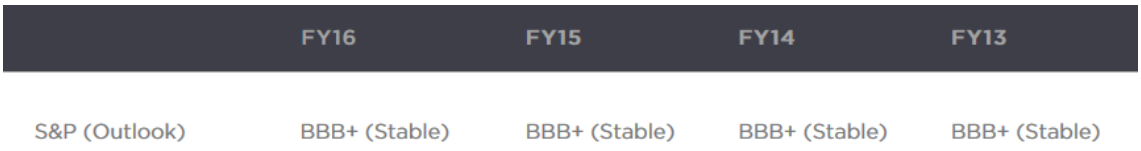
In addition, as shown in Figures 4 and 5 below, the benchmark credit rating is consistent with both Aurizon Network's current and historical actual credit rating.

Figure 4: Aurizon Network Current (FY17) Credit Rating



Source: Aurizon website: 13 February 2017

Figure 5: Aurizon Network Historical Credit Rating



Source: Aurizon website: 13 February 2017

The QRC considers that the WACC parameters and methodology it is proposing in these submissions on pricing matters are absolutely consistent with a benchmark credit rating of BBB+ remaining appropriate.

4.4 Market Risk Premium

(a) **The case for returning to the long-run MRP estimate (6%)**

The QRC continues to consider that the most appropriate estimate for the market risk premium (***MRP***) is 6%, and that the QCA's UT4 estimate of 6.5% is overly conservative and favourable to Aurizon Network.

The QCA noted in the Cost of Capital Market Parameters Decision:[38]

> *The QCA considers that a reasonable estimate of the long-term average market risk premium remains at 6%*
>
> *…*

[37] Aurizon Network UT5 Submission, 267.

[38] QCA Cost of Capital Market Parameters Decision, 49; UT4 Draft MAR Decision, 15 and 20-21.

The Ibbotson method produces market risk premium estimates ranging from 6.0 to 6.7% depending on the particular historical series chosen. The estimate over the longest period of high quality data (i.e. 1958-2013) is 6.5%.

…

The Siegel method supports a market risk premium ranging from 4.0 to 6.5% for all sample periods. The estimate over the longest period of high quality data (i.e. 1958-2013) is 5.5%.

…

QCA analysis shows that both surveys and independent expert reports support a market risk premium estimate of about 6.0%

…

The approach [Cornell dividend growth model] … produces a range of 5.5% to 8.0% with a median estimate of 6.9%.

The QRC has never been convinced that, given that analysis, a move from 6% to 6.5% was justified. That is particularly the case given the upward bias present in the Cornell dividend growth model, as acknowledged by the QCA,[39] and its higher sensitivity to input assumptions.

The QCA made its decision to move its estimate of the MRP from 6% to 6.5% as the estimate 'at that time' based on 'current market conditions' and acknowledged that its approach:[40]

will give the flexibility to move the allowed market risk premium in the cost of equity above or below its long run average of 6.0% on a periodic basis based on current market conditions.

Given there is less market volatility now than when that assessment was originally made (in 2014), and that a 'mechanical' application of the QCA methodology produced a MRP of lower than 6.5% in any case, the QRC considers the QCA should return the MRP estimate to its long run average of 6%.

(b) **There is insufficient grounds for a MRP higher than 6.5%**

The QRC acknowledges the QCA's UT4 Decisions determined an appropriate MRP to be 6.5%. While, for the reasons noted above, the QRC considers that estimate to be too high, it would be reluctantly willing to support that if the UT4 approach was adopted consistently for all WACC parameters.

The QRC also acknowledges that adopting an estimate of 6.5% would be consistent with all recent QCA decisions in relation to MRP.

That is not to say (as Aurizon Network asserts) that the QCA has a fixed view on estimation of the MRP. Clearly the QCA reconsidered its approach in moving from 6.0%, and the QCA has continued to reconsider the appropriate estimate for each decision since – but continued to find the estimate of 6.5% appropriate.

The QRC continues to accept the QCA's views that MRP is, by its nature, not observable and requires estimation, which in return requires regulatory judgement and an assessment of the strengths and weaknesses of available estimation techniques and examination of other information.[41]

It does not follow from the fact that regulatory judgement is required to determine the appropriate MRP from a range of possible estimates, that the QCA's approach is not transparent (as Aurizon Network asserts[42]). It appears to the QRC that the Frontier approach is a relatively arbitrary selection of different models with different weights applied to them in order

[39] QCA Cost of Capital Market Parameters Decision, 49; UT4 Draft MAR Decision, 18.

[40] QCA Cost of Capital Market Parameters Decision, 49; UT4 Draft MAR Decision, 23.

[41] DBCT Final Decision, 78.

[42] Aurizon Network UT5 Submission, 269.

to produce a higher MRP. That appearance is strengthened by the fact that Frontier continues to submit different MRP methodologies in different regulatory periods each designed to produce higher MRPs (but which vary from each other – see for example the different approach Frontier proposed in the DBCT 2015 DAU process).

Whereas, the QCA has been consistent in its decisions across each of the infrastructure service providers it regulates (and the Cost of Capital Market Parameters Decision).

The QCA has regard to four methods to estimate the MRP:

(c) *Ibbotson historical averaging method* – an historical averaging method that measures the nominal, historical (excess) market return above the risk-free rate;

(d) *Siegel historical averaging method* – an historical averaging method where the market risk premium estimated from the Ibbotson method is adjusted for the effects of unexpected inflation;

(e) *Survey evidence / independent expert reports* – a method that seeks a forward-looking estimate of the market risk premium from academics, financial analysts, company managers, and other market practitioners; and

(f) *Cornell dividend growth model* – a forward-looking method that applies a variant of the dividend growth model, where the market return is the rate of return that reconciles the current value of the market portfolio with the present value of the expected future stream of dividends.

The QRC supports the QCA's analysis of the advantages and disadvantages of those various methods as described in the Cost of Capital Market Parameters Decision and the various UT4 decisions in relation to pricing (including the Draft MAR Decision), subject to:

(a) the issues noted in respect of the Cornell dividend growth model in section 4.4(a) of this submission above; and

(b) continuing to consider the 'survivor bias' produces more upwards bias to the historical methods than the QCA has acknowledged.

In relation to Aurizon's criticism of the weights given to the various methods, the QRC notes the QCA's comments in the DBCT Final Decision that (our emphasis added):

> *Our assessment of these methods for the final decision included, among other things, the guidance provided by applying a variety of weights to the estimates obtained from these various methods, consistent with our judgement of their relative importance. The weighted median obtained from this approach varied little with the weighting scheme used.*

The QCA published an example demonstrating this with possible weights in the DBCT Final Decision.[43]

The regulatory precedent from other regulators is varied as shown in Figure 6 below. However, while not consistent across regulators, it shows the QCA's approach is very much 'middle of the range' compared to estimates of other regulators in recent regulatory decisions, and there is support for adopting a lower MRP of 6% if the QCA's averaging of the four main methods it references support that.

[43] DBCT Final Decision, 79.

Figure 6: MRP Regulatory Precedents

	AER: Powercor Distribution Determination (May 2016)	Essential Services Commission of South Australia: SA Water Regulatory Determination 2016 (June 2016)	Essential Services Commission (Victoria): Goulburn-Murray Water / Melbourne Water (June 2016)	Economic Regulation Authority of Western Australia: WA rail networks (2015)	IPART: Sydney and Hunter Water (June 2016)[44]	ACCC: Australia Post (December 2015)
MRP	6.5%	6%	6%	7.4%	'Long term' MRP mid point: 6% 'Current data' MRP mid point: 8.7%	6%

The QRC also notes ESCOSA's specific comments that it prefers the historical approach to determining the MRP and that it considers the dividend growth model to be potentially volatile and unreliable.[45]

Consequently the QRC considers that:

(a) the most appropriate estimate of the MRP is 6%; and

(b) there is reasonable grounds for retaining a 6.5% estimate where the QCA adopts the other UT4 WACC parameters, if that is supported by the QCA's settled methodology for estimate MRP (but that is the absolute maximum MRP that the QRC considers might be appropriate).

4.5 Beta

(a) **Overview**

The asset beta parameter is intended to provide a measure of the systematic risk of the regulated entity, relative to the risk of the market as a whole.

As noted in previous submissions, the QRC considers that Aurizon Network significantly overstates the risks that it faces, and that it in fact faces little if any risk once the following are taken into account:

(1) the myriad of risk mitigation measures present in its access undertaking, most evidently including:

(A) revenue cap based pricing which immunises Aurizon Network from volume risk;

(B) cost pass through measures which mitigate against the risks that would otherwise arise through unanticipated changes in cost;

[44] IPART determined a WACC in this decision based on a mid-point of the 'current' and 'long term' WACC parameters

[45] ESCOSA SA Water Regulatory Determination 2016

(C) rights to impose access conditions (and a high degree of discretion not to invest in expansion projects where the access conditions its seeks are not agreed); and

(D) limits on optimisation of capital from the regulatory asset base;

(2) the further risk mitigation measures present in its access agreements (as long term take or pay agreements) and other commercial arrangements that Aurizon Network has been permitted to enter (such as the GAPE Deed and WIRP Deeds);

(3) the further risk mitigation measures present in QCA decisions (such as the WIRP deferrals being used in place of optimisation that have operated to protect Aurizon Network's revenue even further);

(4) the further risk mitigation measures present in the QCA Act, most evidently the right to voluntarily submit a draft amending access undertaking;[46] and

(5) the low risk profile inherent in its commercial position as a monopoly infrastructure provider to coal producers and haulage providers who have made significant sunk investments based on long term usage of the network.

Despite that, Aurizon Network' continues to advocate a position on beta which is no different to that which was comprehensively rejected during the UT4 process.

(b) **The UT4 reasoning remains applicable**

The QCA's decisions in relation to UT4 provided an asset beta of 0.45 (which at the gearing of 55%, provides an equity beta of 0.8). That was also the asset beta determined by the QCA in relation to UT3.

As the QCA and Incenta rightly determined:

(1) from a first principles analysis, Aurizon Network's business has several key features relevant to its systematic risk, namely:

(A) a regulatory framework that aligns revenue with cost at periodic intervals and minimises revenue risk during a regulatory period;

(B) underlying economics implying recovery of regulated revenues (i.e. surety of demand and long-term take-or-pay contracts); and

(C) low asset stranding risk due to the regulatory framework;[47]

(2) regulated energy and regulated water sector firms are the best comparator groups for Aurizon Network – as they:

(A) are subject to similar regulation – i.e. cost based regulation with regular periodic reviews;

(B) have their revenue risk buffered by the regulatory framework and, in any event, their revenue appears to be largely unrelated to the state of the economy;

(C) have relatively low operational cost risk, as this component is a relatively low proportion of total asset value and cost triggers apply; and

(D) are generally subject to low stranding risk (over the life of their current assets);[48]

[46] Section 142 *Queensland Competition Authority Act 1997* (Qld)

[47] UT4 Final Decision: MAR, 245-246

[48] UT4 Final Decision: MAR, 248

(3) as beta is measuring systematic risk – it does not follow that rail networks are appropriate comparators, and rail assets proposed by Aurizon Network and its consultants as comparators (i.e. Brookfield Rail, Canadian railroads, US Class 1 railroads) are each inappropriate comparators due to numerous factors set out in the Incenta reports and QCA decisions, including:

(A) the absence or different forms of regulation which apply to them; and

(B) the different market position they have (i.e. Class 1 railroads compete with each other and do not have Aurizon Network's market power derived from its monopoly position); and

(4) toll roads would be anticipated to involve higher risk than Aurizon Network such that they could be considered an 'upper bound' for the beta estimate.

(c) **The UT4 beta estimate was conservative**

If Aurizon Network's beta was to be varied from UT3 and UT4 levels, the QRC expects that the beta parameter would be decreased, given the UT3/4 asset beta of 0.45 was actually:

(1) higher than the beta point estimate provided by the QCA's expert consultant Incenta who ultimately suggested an asset beta of 0.41, which was accepted by the QCA as representing *'the best empirical estimate available at the time*';[49] and

(2) involved rounding up from the equity beta of 0.79 that a strict application of the Conine formula would have produced (given the asset beta of 0.45 with 55% per cent gearing, a debt beta of 0.12 and a gamma of 0.47).

The following summary from the QCA's UT4 MAR Decision is particularly instructive of the QCA's reasoning (our emphasis added)[50]:

> *Incenta's recommended point estimate asset beta of 0.42 and equity beta of 0.73 (at 55% gearing) compares to the UT3 asset beta of 0.45 and equity beta of 0.8 (at 55% gearing).*
>
> *In our consideration of UT3, we concluded that these were appropriate values for the asset and equity betas of Aurizon Network as they:*
>
> - *were consistent with the observed betas for a relevant comparator group of energy businesses (noting we rejected coal companies and railroads as appropriate comparators)*
> - *reflected the limited exposure of Aurizon Network to risks related to short-term coal demand shocks, given the revenue cap mechanism's ability to correct for volume volatility*
> - *would provide an environment conducive to investment in new infrastructure, when considered in conjunction with the package of other arrangements approved in UT3 (e.g. accelerated depreciation)*
> - *represented an appropriate reduction to the asset and equity betas approved in UT2 (0.5 and 0.9 respectively). In the UT2 decision, we accepted that an asset beta of 0.45 would be reasonable, within a range of 0.35 to 0.5. However, we settled on an asset beta of 0.5 to ensure there was sufficient incentive for timely investment in major new infrastructure. In approving UT3, we considered an uplift to the asset beta was no longer appropriate, as the regulatory arrangements had subsequently changed (including through introduction of the revenue cap arrangements).*
>
> *We consider Incenta's recommended point estimate for the UT4 asset beta of 0.42 (within its identified reasonable range of 0.35 to 0.49) is justifiable.*

[49] UT4 Final Decision: MAR, 264

[50] UT4 Final Decision: MAR, 252-253

However, as with other WACC parameters, we have used our judgement to assess a final estimate based on the evidence before us at this time. In doing so, we have determined to maintain the UT3 asset beta of 0.45, translating to an equity beta of 0.8 at 55% gearing, for UT4. This position is based on the following points:

- *estimating betas with a high degree of precision is inherently difficult - suggesting: (a) some caution should be shown in making significant changes to previous estimates; and (b) selecting an equity beta point estimate as precise as 0.73 may represent an attempt to be over-precise*
- *consideration of the need for regulatory certainty, particularly noting the UT4 approval process is Aurizon Network's first regulatory reset since the privatisation of its parent company. We consider that, in the context of WACC, section 138(2)(h) of the QCA Act (which requires us to have regard to any other issues we consider relevant) includes the need to ensure the WACC framework is stable and predictable. This means changes to predetermined parameters require solid justification*
- *our proposed asset beta of 0.45 is well within the reasonable range of 0.35 to 0.49 identified by Incenta - also noting this range is very close to the 0.35 to 0.5 range identified in previous decisions*
- *key changes to earlier regulatory arrangements, such as the introduction of the revenue cap and accelerated depreciation, were already considered as part of the UT3 decision*
- *our intent to maintain an environment conducive to investment in new infrastructure, including user-funded investment (for which regulated returns are likely to apply, in accordance with any approved standard user funding agreement (SUFA)).*

We are permitted to take all these factors into account when having regard to the factors set out in section 138(2) of the QCA Act. At the same time, we note the weight of evidence, as presented by Incenta and stakeholders, suggests our asset and equity beta estimates can be considered conservative, and future consideration of the betas for Aurizon Network may well lead to further reductions.

A new undertaking is an appropriate time to reconsider that estimate, and the QRC considers that it should be reduced.

(d) **Coal market**

Aurizon Network seeks to make a lot of the risk it has due to its customers being exposed to international coal markets in which they are price takers.

There are three key points which confirm that the markets facing Aurizon Network's customer base do not translate to Aurizon Network having increased systematic risk:

(1) firstly, that the current coal markets involve historically high prices for thermal and metallurgical coal and there is a positive outlook for coal production from Queensland and Australia;

(2) secondly, if Aurizon has any exposure at all to coal markets, it is to coal volumes, not to coal prices. Despite the coal industry having recently been experiencing a period of lower coal prices (and therefore reduced profit margins), that has not adversely impacted on the extent of utilisation of Aurizon Network's rail network or Aurizon Network's return. There is no indication of production volumes decreasing from Queensland mines that utilise Aurizon Network's rail network; and

(3) thirdly, the regulatory environment has made Aurizon immune to any perceived risks relating to the coal market in the way its customers are not.

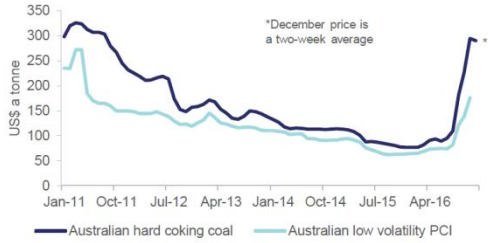
The QRC has set out below a sample of the available economic data which makes clear those positions.

The QRC notes that the coal price at any particular point in time is not highly relevant in assessing the risks involved in investments in long term infrastructure. However, for completeness the below figures from the Department of Industry and Science's December 2016

Resources and Energy Quarterly demonstrate the recovery in metallurgical and thermal coal pricing that has occured:[51]

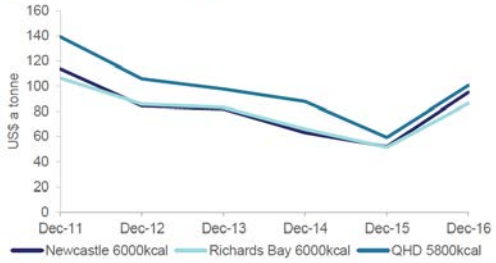
Figure 7: Metallurgical and Thermal Coal Price Data

Figure 5.1: Surge in spot prices to more than five year highs



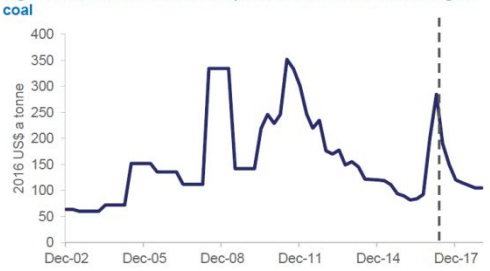
Source: IHS (2016) Prices: Coal and Petcoke

Figure 6.1: Thermal coal spot prices



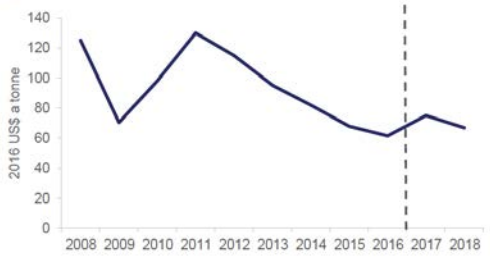
Source: IHS Inc. (2016) MCR prices-steam coal, metallurgical coal and petcoke

Figure 5.2: Benchmark contract prices for Australian metallurgical coal



Source: Department of Industry, Innovation and Science (2016)

Figure 6.2: JFY thermal coal contract prices



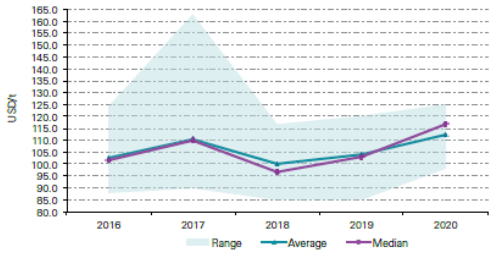
Source: Department of Industry, Innovation and Science (2016)

Similarly, the forecast across the UT5 regulatory period is for a continued recovery and rise in metallurgical coal prices and stable thermal coal prices. See for example, the following information from KPMG's latest Coal Price and FX Consensus Forecasts:[52]

Figure 8: UT5 Regulatory Period Coal Price Forecasts

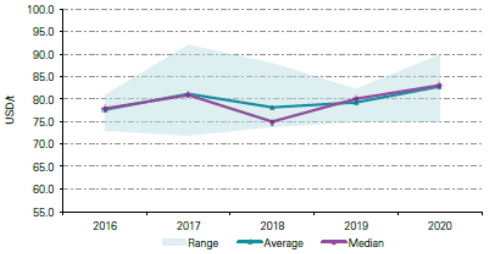
Hard coking coal price forecasts

The hard coking coal price forecasts are summarised below:



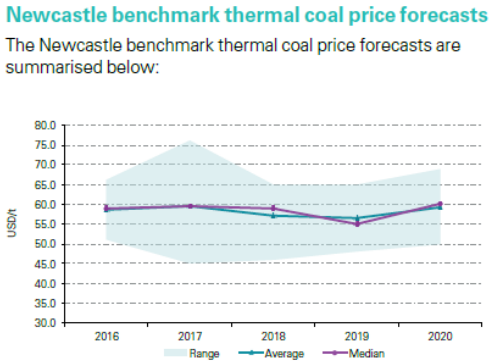
Low and ultra-low volatile PCI coal price forecasts

The low and ultra-low volatile PCI coal price forecasts are summarised below:



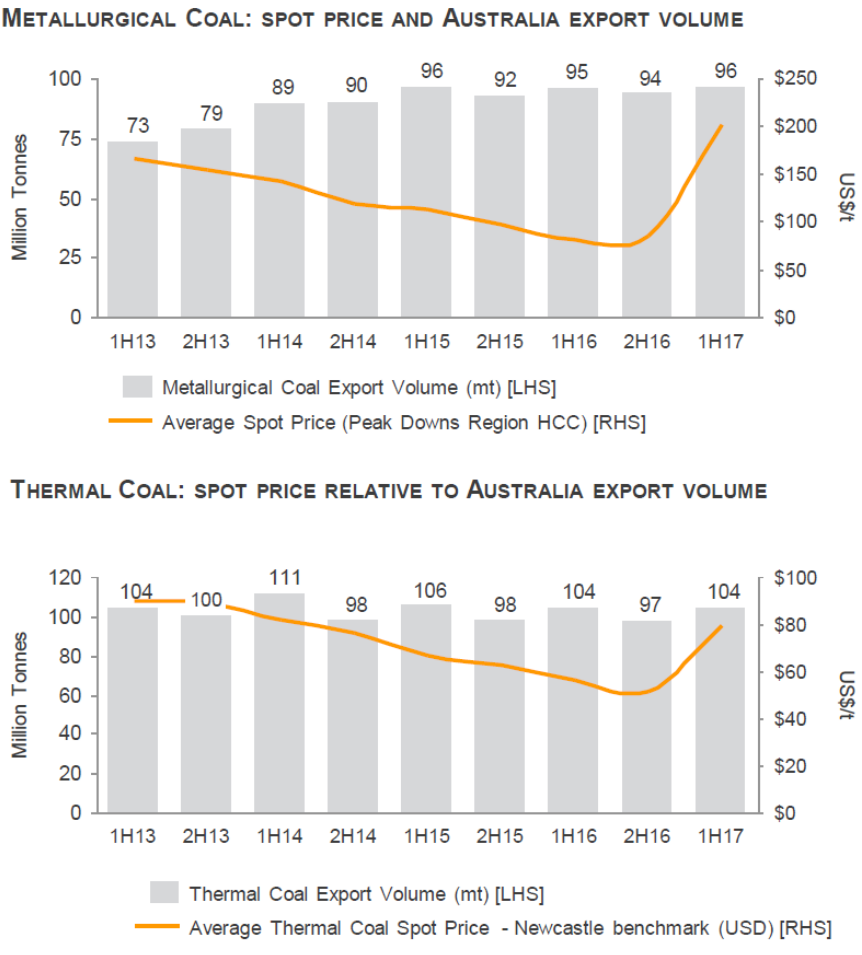
[51] Department of Industry and Science (produced by the Office of the Chief Economist), Resources and Energy Quarterly, December 2016 (accessible at https://industry.gov.au/Office-of-the-Chief-Economist/Publications/Documents/req/REQ-December-2016.pdf) at 36 and 42.

[52] KPMG Coal Price and FX Consensus Forecasts (September/October 2016) (accessible at https://home.kpmg.com/content/dam/kpmg/au/pdf/2016/coal-price-fx-consensus-forecast-september-october-2016.pdf)



However, more to the point, while there have been some evident fluctuations in the price of both thermal and metallurgical coal, the volume of production of both commodities is stable, if not increasing:[53]

Figure 9: Australian coal export volumes (and lack of correlation to price)



Source: Aurizon Investor Presentation, 49.

[53] Aurizon Investor Presentation, 49; For similar data see Department of Industry and Science (produced by the Office of the Chief Economist), Resources and Energy Quarterly, December 2016 at 42 and 46.

As demonstrated, there is no real correlation between short term coal prices and export volumes.

Coal producers make investment decisions (and rail and port contracting decisions) on a long term basis. Access agreements are typically ten years in duration. Producers also have port and rail haulage agreements contracted on a long term basis, which are also take or pay in nature. Coal is also often sold on a long term basis.

The practical experience of the lower price environment that applied for some of the UT4 regulatory period was that volume did not fall. In 2016, coal exports from Queensland totalled a record 221 million tonnes, higher than 2015 (which was also a record).[54]

There are a number of reasons for volumes holding up and growing in that way that are directly relevant to a proper assessment of Aurizon Network's beta, namely:

(1) Australia's take or pay contractual structures (not just in relation to below rail, but also port and above rail) – results in marginal producers continuing production as they are economically better off railing than they typically would be paying the combined below rail, above rail and port take or pay without any sales revenue to offset that liability). For some producers, it has actually made sense to add volume in order to reduce costs per tonne;

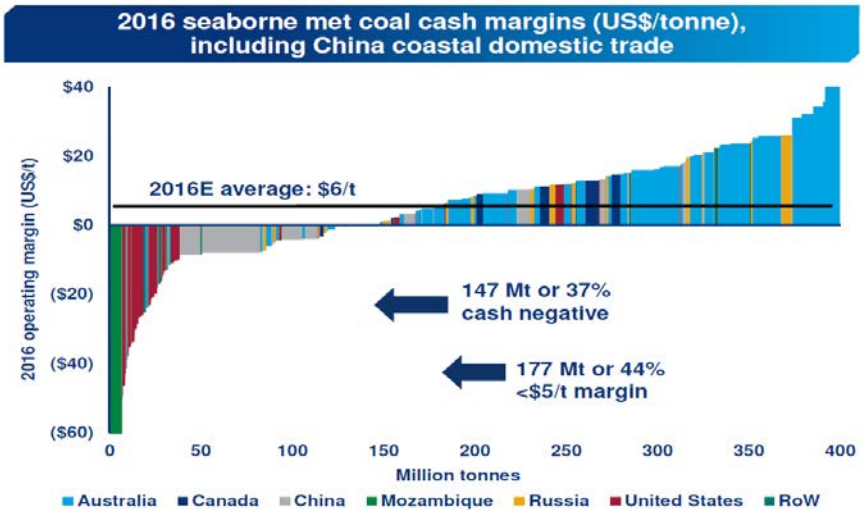
(2) the long term nature of rail and port contracts, and mine capital investment decisions means that the decision as to whether to continue to produce is not made on the basis of spot or short term prices;

(3) Bowen Basin coal producers are extremely well placed on the coal industry cost curve, such that as prices have fallen it is typically other global producers that have mothballed or permanently closed mines and exited the market; and

(4) producers have responded to pricing pressure by finding greater savings and efficiencies to maintain margins and profitability.

The point about the attractive position of Aurizon Network's customer base on the cost curve is demonstrated by graphs like the following from Wood MacKenzie:

Figure 10: Metallurgical coal industry cash margins



*Source: Wood Mackenzie, Dataset: May 2016, *Nominal terms*
Price assumption HCC: US$90/t, PCI: US$73/t, SSCC: US$64/t, Thermal US$51/t basis 6,322 kcal/kg gar, FX (local/USD) AUD 1.37, CAD 1.29, RBL 64.8, ZAR 15.7

[54] Queensland Resources Council, Queensland Coal and :NG exports breaks new record (accessible at https://www.qrc.org.au/media-releases/queensland-coal-lng-exports-break-new-records/).

That data is notable for showing that in May 2016, when coal prices were highly depressed and substantially lower than current levels, and nearly 40% of global metallurgical coal was being produced at a cash loss, with only very rare exceptions all Australian coal mines remained cash margin profitable.

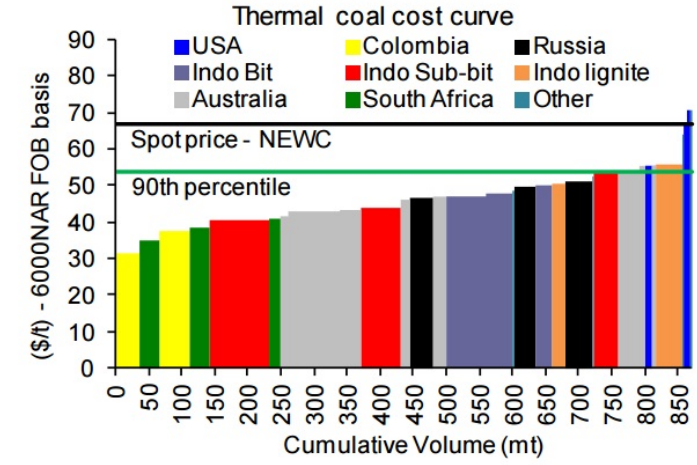
It is also a point that was recognised in Incenta's report to the QCA in connection with the DBCT access undertaking (our emphasis added):[55]

> *In summary, while the current seaborne coal industry outlook is depressed, Australian metallurgical coal production is the most competitive in the world, and the long term outlook is positive, with Australia's Chief Economist and the International Energy Agency forecasting continued growth of coal exports, albeit at lower rates, and expecting Australian to continue to dominate seaborne coal trade in the future. While the fall in coal prices has squeezed the profit margins of Australian producers, their relative competitiveness means that current export volumes are expected to be secure over the coming regulatory period and in the long run.*

Similar data is available for thermal coal, such as that shown in Figure 11 below:

Figure 11: Thermal coal industry cash margins

Fig 9 The whole seaborne market is cash-positive



Source: Company data, Macquarie Research, August 2016

The QRC notes that Aurizon Network seeks to claim that there are adverse implications for its risk position of some of the changes in ownership that have occurred in the coal industry.

However:

(1) what is really relevant is the economics of a mine's operation, not the corporate ownership of a mine;

(2) if anything, a change in corporate ownership may assist in keeping a mine operating. For example, where the existing owner is burdened by debt relating to the original mine development costs such that it is perceived as unprofitable by its original owner/developer, the mine may be purchased by the new owner at a lower value (reflecting the lower return forecast based on reduced prices), such that the mine can continue to meet the new owner's cash costs and be economically profitable to operate; and

[55] Incenta Economic Consulting, DBCT 2015 DAU: Review of WACC parameters, March 2016 at 24.

(3) there is clear evidence that changes in ownership have assisted. To give a few examples:

(A) Glencore has increased production volumes from Rio Tinto's previous Clermont mine;

(B) Stanmore has reopened the Isaac Plains mine that Vale placed on care and maintenance;

(C) Fitzroy Resources has kept open the Carborough Downs mine that Vale had previous announced it would shut; and

(D) Callide and Foxleigh have continued operating under new owners.

Consequently, the QRC strongly disagrees that Aurizon Network's beta should be increased due to its connection to coal markets, and continues to consider that the existing beta it has been awarded substantially overstates its risk profile.

Aurizon's recent Investor Presentation demonstrates that Aurizon does understand the extent to which the network business is insulated from fluctuations in coal market conditions:[56]

Figure 12: Aurizon Investor Presentation Extract

Source: FYR2016 Results, Aurizon Investor Presentation, 27

That is borne out when you compare Aurizon's share performance to that of miners and coal producers over the same period (which, given Aurizon Network is such a significant proportion of Aurizon's business, remains a useful 'look through' value).

The below figure shows the performance over a 5 year period of Aurizon's share price compared to ASX listed coal producers (Stanmore in black, Whitehaven in green, New Hope in orange and Yancoal in purple). While there are undoubtedly individual characteristics of those companies which have impacted on their share price performance, there is a clear divergence showing how unaffected Aurizon has been by the lower coal price environment in the period through to mid 2016.

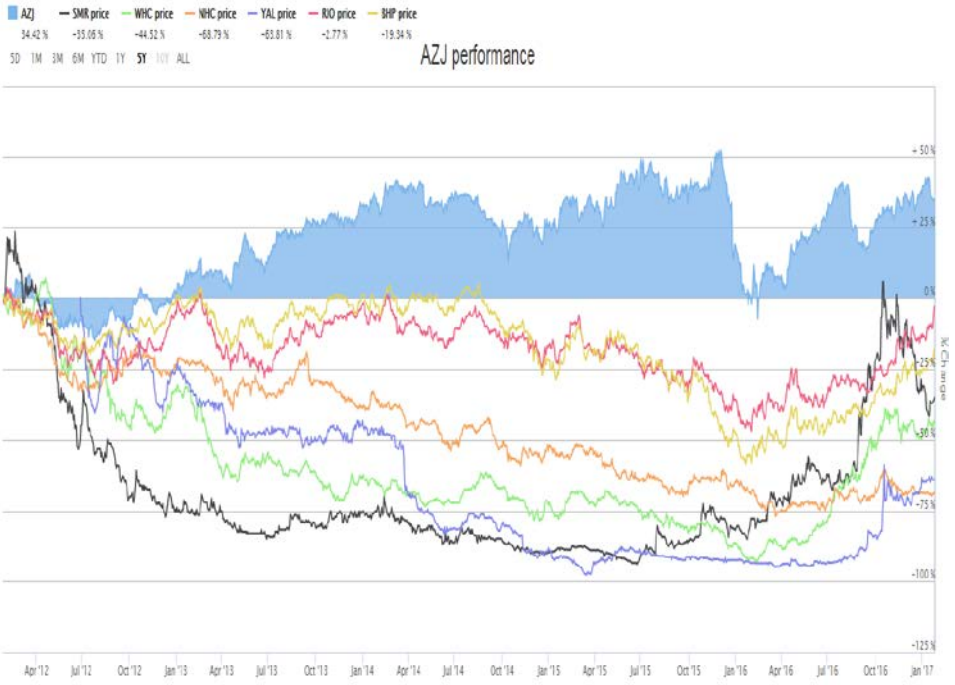
[56] 2016 Financial Year, Aurizon Investor Presentation, 27.

Figure 13: Aurizon share price performance relative to coal producers

Source: ASX, AZJ Comparison Share Price Performance as at 30 January 2017

Even when major diversified miners with lesser commodity risk are included in the comparison (Rio Tinto in red, BHP Billiton in yellow), it is evident how much less exposure Aurizon has.

Figure 14: Aurizon share price performance relative to mining companies (diversified majors included)



Source: ASX, AZJ Comparison Share Price Performance as at 30 January 2017

Aurizon Network has the benefit of a myriad of revenue protection mechanisms including:

(1) take or pay contracts (which are typically 10 years in duration) – such that access holders pay for access irrespective of the level of utilisation (which has in fact resulted in coal producers continuing to rail even when operations are marginal);

(2) related port take or pay contracts – even where rail contracts are coming up to their expiry, it is notable that coal producers also face take or pay commitments at export coal terminals such that the terms of those contracts impact on a producer's ability to continue utilising access for railing;

(3) reference tariffs that socialise Aurizon Network's revenue requirement across a very large cross-section of users;

(4) revenue cap mechanism which makes Aurizon Network immune to demand;

(5) review Events and Endorsed Variation Events allowing Aurizon Network to pass through cost changes;

(6) ability to submit a draft amending access undertaking at any time to vary tariffs in other circumstances;

(7) Access Conditions regime which allow Aurizon Network to manage any asserted risks of an expansion investment that are not already accounted for in the regulatory WACC; and

(8) limits on optimisation of the RAB (and the QCA's UT4 decision providing for deferral, which is net present value neutral for Aurizon Network, instead of optimisation).

(e) **Incenta's first principles analysis – regulated electricity and water entities as Aurizon Network's closest comparators**

The QRC also agrees with Incenta's first principles assessment that the alignment of Aurizon Network's systematic risks to regulated energy and water utilities is evident from a first principles analysis of the risks faced by Aurizon Network.[57]

In particular, the QRC supports Incenta's first principles findings that:[58]

the most important characteristics of the Aurizon Network business are that

- *its prices are regulated and reviewed at periodic intervals in line with cost, and*
- *the underlying economics of the Aurizon Network business is such that there should be substantial confidence that the revenue anticipated under the regulatory regime will be recoverable by Aurizon Network, which is also supported by the presence of long term take-or pay contracts*

The presence of cost based regulation limits the extent to which the market value of Aurizon Network would, in principle, vary with the economy as a whole (the test of systematic risk), since:

- *variations in volumes transported do not translate into changes in revenue (at least in NPV terms) in the short term because of the application of a revenue cap to Aurizon Network, and at price reviews the new prices are determined such that forecast actual sales will lead to costs being recovered*

[57] Incenta Economic Consulting, Review of Regulatory Capital Structure and Asset/Equity Beta for Aurizon Network and response to Stakeholder Comments: Report to the Queensland Competition Authority, December 2013 as updated with responses to comments in April 2014 (accessible at http://www.qca.org.au/getattachment/4601064c-5fe4-44f0-a32e-60d08c0f0e61/Incenta-Capital-Structure-Asset-Equity-Beta.aspx)

[58] Incenta at 32-33

- *differences between forecast and actual expenditure during a regulatory period are subject to a range of pass-through clauses and, outside of this, are corrected for on a forward-looking basis after each periodic price review*
- *the rate of return that is provided on regulated assets is updated at periodic price reviews in line with current market evidence, thus limiting exposure to interest rate risk, and*
- *the underlying economics of the Aurizon Network business, in combination with certain characteristics of the regulatory regime and presence of take or pay contracts is such that investors would not be expected to factor in a material prospect of assets being "stranded" in the future (that is, a situation where the regulated revenues may not be recoverable because of insufficient demand for the service at the regulated price).*

These characteristics – which we consider to be very important for the systematic risk of the Aurizon Network business – are most like those of the heavily regulated utility firms, for which regulated energy and water businesses provide the closest examples.

A review of beta determinations for regulatory entities with those characteristics demonstrates a more appropriate range for Aurizon Network's beta:

Figure 15: Recent Water and Electricity Entity Beta Determinations

	GAWB Final Decision (May 2015)	IPART (Sydney Water and Water NSW) (2015)	ESC (Goulburn Murray Water) (2016)	ESC (Melbourne Water) (2016)	AER (national electricity transmission businesses)
Beta	0.4	0.38*	0.38*	0..35**	0.38*

* Estimated asset beta based on an equity beta of 0.7, applying the Conine formula, 60% gearing and standard QCA parameter values

** Estimated based on an equity beta of 0.65, applying the Conine formula, 60% gearing and standard QCA parameter values

Aurizon seeks to make much of the differences between Aurizon Network and these entities based on:

(1) Aurizon Network having a narrower customer base – however for regulated entities like Gladstone Area Water Board (equity beta 0.4), a the bulk of their customers by volume are major industrials, not individual consumers;

(2) demand for coal being less stable and predictable – completely ignoring that electricity network businesses face major challenges through industry changes like batteries/storage solutions, household solar panels exporting power to the grid, distributed energy and off-grid power arrangements that have reshaped demand for the services provided by such electricity network businesses; and

(3) differences in the elasticity of demand – ignoring the fact that take or pay contracts, large sunk costs and lack of available alternatives, results in marginal producers continuing to operate provided they satisfy variable costs (as noted earlier in this submission).

Accordingly there is nothing in Aurizon Network's rebuttal which would lead the QRC to conclude that regulated water or electricity network businesses were not the closest comparators.

(f) **Relevance of deferrals to risk profile**

Aurizon Network's submissions assert that it faces significant regulatory risk, and use the Wiggins Island Rail Project (**WIRP**) revenue deferral that occurred during UT4 as the principal alleged example of that.

The QRC considers that the WIRP revenue deferral is not a regulatory (or commercial) risk of the kind that should be remunerated through the WACC (and MAR).

In the UT4 Final Decision, the QCA emphasised that revenue deferral is about the sharing of risk among users, not as between users and Aurizon Network. Aurizon Network, of course, is effectively kept net present value neutral due to the roll-forward to the capital on which a return is being deferred.

The purpose of deferral is therefore to ensure that existing WIRP users do not pay for the volume risk created by future expected WIRP users (who are not currently railing).

Aurizon Network has made much of how the access undertaking should treat expansion investment differently to the existing regulatory asset base (which it does). UT4 (and the undertaking that existed at the time of the WIRP investment) permitted Aurizon not to proceed with funding expansion investment if it was not satisfied that its risks were sufficiently covered. The inclusion of access conditions provided the mechanism for Aurizon to ensure that it was remunerated for any risks that were in excess of those reflected in the WACC (and therefore the regulated reference tariffs). This was precisely what occurred in the Wiggins Island Rail Project Deed (the **WIRP Deed**), where, as a precondition of granting access, Aurizon Network required the agreement of access seekers to:

(1) pay additional remuneration (the **WIRP Fee**); and

(2) pay compensation in the event of WIRP capital being optimised out of the RAB.

In submissions made in connection with the QCA's approval of the WIRP Deed access conditions, Aurizon Network made it abundantly clear that those access conditions were to compensate it for the risks it considered it faced in relation to the expansion investment:[59]

> *... mitigate against the significant additional risks to [QR Network] associated with an infrastructure project of the cost (~$900m), duration and magnitude of the WIRP project...[and] the payments are incentive based and linked to [QR Network's] performance in relation to the timing, cost and delivery of the installed capacity.*

In other words, this is not an issue for which the regulated return should be increased.

The issues to be reflected in the regulated WACC are only quite specifically "business as usual" operating risks applying to substantially de-risked sunk capital.

(g) **Conclusions on beta**

Based on the analysis above it is clear to the QRC that the UT4 asset beta of 0.45 overstates the systemic risks faced by Aurizon Network.

Rather the asset beta should be based on the asset betas determined for the closest comparators (water and electricity infrastructure entities), which are 0.4 or below, or Incenta's previous estimate of the asset beta for Aurizon Network of 0.42.

The QRC would reluctantly accept an asset beta of 0.45 where the UT4 approach to pricing was universally applied. However, it continues to consider the weight of evidence points to a lower estimate being more appropriate.

4.6 Debt risk premium

The QRC continues to hold the views its expressed in relation to assessing the debt risk premium (**DRP**) in relation to the UT4 decisions on this issue.

[59] QR Network, WIRP Access Conditions Submission, 4-5.

In particular, the QRC considers that to be appropriate the estimate of DRP should be based on debt with a 5 year term to maturity, which would more closely align with:

(a) Aurizon Network's actual debt financing arrangements (noting they have a mixture of some longer dated and some shorter dated debt); and

(b) the term of the proposed UT5 regulatory period (which itself is likely to influence the efficient term of financing for Aurizon Network, as the regulatory period is the period for which the QCA's decisions on MAR and reference tariffs provide certainty of revenue profile which would be anticipated to assist with debt financing).

The QRC also continues to consider that the Bloomberg methodology should be either utilised instead of, or at a minimum considered in combination with, the QCA's econometric methodology (referred to as the **PwC approach** in QCA decisions) in seeking to derive an appropriate estimate for DRP.

The QRC notes Aurizon Network's submissions are also based on that approach being used to calculate the DRP as a placeholder, and apparently seeking to reserve its rights to reconsider whether it wishes that methodology to apply once the average period has passed.[60]

That of course defeats the very point of having an averaging period which is set independently of knowing the outcome, and the QCA should not allow such reconsideration to occur so that Aurizon Network cannot game the outcome.

Aurizon notes the QCA's reference to the dummy variable regression method and single credit rating regression method in the DBCT Final Decision. However, the key issue Aurizon Network fails to mention is that those alternative methods were used because the benchmark credit rating applied to Dalrymple Bay Coal Terminal Management Pty Ltd was BBB. That lower credit rating introduces the unreliability to the PwC pooled regression methodology that the QCA (and its consultant, Incenta) were concerned about, due to the introduction of BBB- bonds.

The reasoning that led to the QCA departing from a strict application of the PwC approach in respect of the DBCT Final Decision therefore has no application to Aurizon Network or UT5 where a benchmark credit rating of BBB+ is being maintained.

4.7 Debt raising and hedging costs

Aurizon Network is proposing three additional allowances to be included in the return on debt, comprising of allowances for debt raising costs, cross-currency swap costs and interest rate swap costs, totalling 0.262% in aggregate.

As the individual breakdown of that 0.262% into the three components has been redacted it has unfortunately not been possible for the QRC to provide detailed comments on the appropriateness of the individual components.

The QRC considers that, given the materiality of the allowance being proposed, it is important in order for procedural fairness to be provided, for the QRC and other stakeholders to be given the individual breakdown. In the absence of that occurring, stakeholders are heavily reliant on the QCA to scrutinise the allowances sought.

In the UT4 Final Decision, the QCA's approach was to approve allowances of:

(a) 0.108% for debt raising costs;

(b) 0.113% for interest rate swap costs; and

(c) no separate allowance for cross-currency swap costs.

Those costs were based on benchmark costs estimated for the QCA by its consultants PwC and Incenta, leading to the QCA to note in the UT4 Final Decision that:[61]

[60] Aurizon Network UT5 Submission, 275.

[61] UT4 Final Decision MAR 215-216.

Our use of a 10-year term for the debt risk premium, together with our allowances for the transaction costs of interest rate swap contracts and debt raising costs, provides appropriate compensation for the cost of debt of a regulated benchmark entity which uses efficient debt management practices.

Given that an aggregate of 0.221% was accepted as appropriate in the UT4 Final Decision only a few months ago, it seems highly unlikely to the QRC that it would now be appropriate to materially increase (by over 18.5% of the UT4 allowance) the debt raising cost allowance.

The main basis on which this appears to be being sought is on the basis of Aurizon Network's assertion that it is efficient to source a greater proportion of its debt from foreign market bond issues.

Aurizon Network's submissions note that the PwC estimate of 10.8 basis points for debt raising costs was based on domestic corporate bonds. That is correct, but Aurizon Network fails to note that PwC in fact proposed a range of 9.9 to 10.8 basis points (and the QCA has already adopted the high end of that range).[62] As a result, the asserted higher cost of foreign corporate bonds are arguably already accounted for.

In addition, the QCA's Cost of Debt Decision noted the intent to provide regulatory certainty by picking a single point estimate for use by all regulated firms:[63]

The QCA intends to adopt a single estimate of benchmark debt financing costs of 10.8 basis points per annum for all regulated firms. This is consistent with past practice by the QCA in which the same allowance was provided to all firms regulated by the QCA. The QCA considers that providing a single allowance will ensure sufficient debt raising costs are provided and avoid complexities with a specific estimate based on benchmark debt balance that will not result in a material difference in the transaction cost allowance.

There is no reason to consider that is no longer appropriate. Aurizon Network has not explained how it is any different to the owner of Dalrymple Bay Coal Terminal which also sources international debt, and for which the QCA has very recently determined (in the DBCT Final Decision) the debt allowances provided to Aurizon Network in UT4 are appropriate.

In the MAR Draft Decision, the 11.3 basis points estimate for interest rate swap costs is noted as being derived by Incenta through a market quotation.[64] To the extent that the QCA is considering departing from that approach, an updated market quotation should be obtained that supports such a departure.

Aurizon Network seeks to make much of the need for cross-currency swaps as a result of an asserted need for greater foreign bond issues. However, as noted above, the QCA has already appropriately resolved to use the high end of the domestic corporate bonds based estimate to practically make allowances for the extra costs of foreign bond issues. Accordingly the QRC submits that no specific allowance should be provided for cross-currency swaps.

4.8 Gamma

The gamma parameter is a recognition that a company's cost of capital is effectively reduced due to shareholders ability to use dividend imputation credits received through franked dividends to reduce their own tax liabilities.

Gamma, as the value of dividend imputation credits, is the product of:

(a) the distribution rate – the ratio of distributed imputation credits to company tax paid; and

[62] QCA Cost of Debt Decision, 13.

[63] QCA Cost of Debt Decision 13.

[64] UT4 MAR Draft Decision, 222.

(b) the utilisation rate – a value-weighted average over the utilisation rates (of imputation credits) of all investors in the market.

There is no market for imputation credits and no directly observable value for imputation credits, so the determination of an appropriate gamma requires a regulator to form judgements about the appropriate methodologies to use and the weight to be given to the disparate and limited evidence that is available.

This is a contentious issue for regulators, particularly in relation to the AER's decisions which have been appealed to the Australian Competition Tribunal in relation to gamma. Of the four appeals which have occurred recently:

(a) AusGrid: the Tribunal overturned the AER's gamma estimate of 0.4 to be 0.25;

(b) ATCO Gas Australia: AER did not contest ATCO's appeal in relation to gamma – such that the Tribunal was not required to consider the merits of ATCO's appeal in relation to gamma;

(c) Victorian electricity distributors / ACT gas distribution – decision pending; and

(d) SA Power Networks: the Tribunal upheld the AER's gamma estimate of 0.4.

It is difficult to reconcile the decision in AusGrid with the decision in SA Power Networks, such that there is currently limited guidance which can be derived from that series of appeals.

The comments in the Australian Competition Tribunal's recent decision in *Application by SA Power Networks*[65] (the ***SA Power Networks Decision***) are instructive (our emphasis added):

> *156 In conclusion, the Tribunal is of the view, reflected in the diversity of expert opinion, that there is no generally accepted theoretical model for explaining the valuation of imputation credits. There is broad agreement across experts that the existence of the imputation system lowers, to some degree, the cost of equity capital to Australian, domestically operating, companies, relative to a classical tax system. That is, required returns ignoring imputation credits (ie expected cash dividends plus capital gains) will be lower if imputation credits are expected to be attached to cash dividends.*
>
> *157 Within the framework of the PTRM and "vanilla WACC" requirement of the NER, this translates into a reduction in the revenue allowance for corporate tax payments. Within the Officer framework underpinning that approach, that revenue reduction could be interpreted as reflecting that some part of company tax payments is a pre-payment (withholding) of personal taxes. Alternatively, the interpretation could be that the revenue reduction is the value accorded by the market to that pre-payment of personal taxes and reflected in the (non-vanilla) cost of equity capital. Under the "average investor" approach these should, in theory, coincide. Under the marginal investor approach, the relationship is indeterminate – unless specific assumptions about the identity (and constancy) of the marginal investor are made.*
>
> *158 Unfortunately, the available empirical evidence is inadequate to enable confident discrimination between these alternative perspectives. There are a range of studies, reviewed in the AER's Final Decision, using market prices which attempt to estimate the extent to which imputation credits are capitalised into stock prices and thus their market valuation. There are a range of results, and experts are divided on the merits of the various approaches and techniques.*
>
> *159 Consequently, the Tribunal is of the view that the AER did not err, nor was unreasonable, in giving most weight to the "utilisation" approach. It considered the range of alternative approaches, recognised the diversity of views of experts on their merits (both theoretical and empirical), and made a judgement call.*

[65] [2016] ACompT 11.

In that context, the QRC supports the QCA's existing approach to calculating gamma, producing an appropriate gamma of 0.47 (comprising a distribution rate of 0.84 and a utilisation rate of 0.56).

That position would be consistent with the UT4 Final Decision and all recent QCA decisions in relation to gamma, as shown in Figure 16 below:

Figure 16: QCA Gamma Decisions

	UT4 Final Decision: MAR (April 2016)	QR Final Decision (June 2016)	DBCT Final Decision (November 2016)	GAWB Final Decision (May 2015)	QCA Cost of Capital Market Parameters Decision (August 2014)
Gamma	0.47	0.47	0.47	0.47	0.47

Accordingly, regulatory certainty weighs heavily in continuing that approach to estimating gamma.

The QRC notes that the QCA has been responsive in changing the gamma in the past, to 0.47 (from the previously adopted 0.5) in response to new evidence, so the consistency is more attributable to the appropriateness of the gamma level than an indication of an unquestioning following of past QCA precedent.

The QCA approach (supported by the QRC) was described in the UT4 Final Decision: MAR as follows[66]

In summary:

- *Our estimate of 0.84 for the distribution rate was obtained based on Lally's approach of using data sourced directly from companies' financial statements in their annual reports (i.e. the 'annual report' approach). We considered Lally's approach to be superior to the studies based on ATO data, which Aurizon Network relied upon.*
- *Our overall estimate of 0.56 for the utilisation rate was obtained by assessing the strengths and weaknesses of the following estimates obtained using several methods:*
    - *dividend drop-off studies (0.35)—these studies compare stock prices before and after dividends are distributed to shareholders. Econometric analysis is used to infer the value of the imputation credits from the stock price changes following dividend distributions. The supposition is that the pre- and post-distribution share price difference reflects the value of imputation credits to investors*
    - *redemption approach (0.53)—this approach uses tax statistics to estimate the proportion of imputation credits redeemed by all investors with the ATO*
    - *equity ownership approach (0.56)—this approach calculates the shares of domestic and foreign equity ownership and assumes utilisation rates for these two classes of investors of one and zero, respectively*
    - *practitioner behaviour (0.75)—the extent to which analysts and valuers recognise the value of imputation credits*
    - *Lally conceptual test (at or close to one)—the test estimates the Australian cost of equity under complete segmentation (i.e. no international investors), and complete integration, of national equity*

[66] UT4 Final Decision: MAR, 270.

and world equity markets. Estimates of the cost of equity that lie outside estimates from the two extreme scenarios would be unreasonable, and Lally concluded that a utilisation rate of one (or close to one) produces a cost of equity that is reasonable (i.e. the result lies within the bounds).

As demonstrated by that summary, the QCA's approach has been developed having regard to all of the different expert views available, and making an assessment of the weight to be given the various studies and methodologies available.

The QCA engaged Professor Lally to provide specific advice on the determination of gamma, both in the context of UT4 and in a separate review process.

If anything, the gamma rate utilised by the QCA is not high enough. In particular, Professor Lally advised that:[67]

(1) the most appropriate estimate of theta is 1 (rather than the 0.7 used by the QCA);

(2) if foreign investors are recognised, which Dr Lally considers is not entirely consistent with the Officer model, then the most appropriate estimate of theta is at least 60%;

(3) a distribution rate of 0.83 (based on 20 high value listed firms) would underestimate the distribution rate; and

(4) based on this expert analysis:

(A) a gamma of 0.83, based on the most appropriate theta (of 1), and on a distribution rate of 0.83 which underestimates the distribution rate, would underestimate gamma; and

(B) a gamma of 0.50, based on a theta of 60% which is not consistent with the Officer model and on an underestimated distribution rate of 0.83, would also underestimate gamma.

Consequently, 0.47 remains the very lowest that the gamma parameter should be estimated at.

Strong arguments remain for why Aurizon Network's gamma should be at least 0.5.

The arguments raised by Aurizon and its consultants are not new. Rather they are the same arguments that the QCA has considered in great detail in the decisions noted above.

It is acknowledged that different regulators have adopted different estimates of gamma (with the most recent decisions set out in the table below).

Figure 17: Gamma Regulatory Precedents

	Australian Competition Tribunal and AER: SA Power Networks (Oct 2016)	Australian Competition Tribunal and AER: Ausgrid	Economic Regulation Authority of Western Australia: Brookfield Rail, Public Transport Authority and Pilbara Railways (Oct 2016)	Essential Services Commission of South Australia: SA Water Regulatory Determination 2016 (June 2016)
Gamma	0.4	Tribunal: 0.25 AER: 0.4	0.4	0.5

Aurizon Network places a lot of weight on the approach of the Tribunal in the Ausgrid determination. However, as discussed above, the QRC notes the clear divergence in the

[67] Lally, Review of the ACT's Gamma Decision, 13 July 2016.

subsequent Tribunal decision in SA Power Networks – such that the Ausgrid determinations commentary on gamma is far less relevant than the latest determination in SA Power Networks.

As the QCA has previously recognised, the dividend drop-off studies on which substantial weight was placed in the Ausgrid decision, have reliability issues. Lally's report describes such market based methods as his 'least preferred method' producing estimates of theta which are 'biased' and 'highly undesirable'.[68]

The QCA's view (correctly in the QRC's opinion) has always been that the appropriate definition of theta is a weighted average over the utilisation rates of imputation credits for all investors in the market.[69] In that regard, the QRC supports and agrees with the QCA's analysis, as set out most recently in the DBCT Final Decision, that a market-value definition is not required by the Officer model and market-value estimates are not the preferred method for estimating theta.[70] That position was also supported by Lally's recent analysis.[71]

If the QCA's estimate of gamma were to be revised, the advice of the QCA's expert consultant Lally, strongly suggests it should be revised upwards.

Given the range of estimates, the uncertainty in the basis for other estimates, and the absence of compelling new evidence, the QRC understands that the QCA may determine not to change from its settled methodology to estimating gamma, such that the appropriate gamma remains 0.47, but there is no basis for any reduction from that estimate.

4.9 Conclusions on Appropriate UT5 WACC

Based on the analysis set out above, the QRC considers the following parameters would provide an appropriate WACC.

Figure 18: WACC Conclusions

Parameter	Aurizon UT5 Proposal	QRC Appropriate UT5 WACC Parameters	QCA UT4 Final Decision
Risk-free rate	2.13%	**2.10***	3.21%
Risk-free rate term	10 years	**4 years**	4 years
Gearing Ratio	55%	**55%**	55%
Credit rating	BBB+	**BBB+**	BBB+
Asset Beta	0.55	**0.42-0.45**	0.45
Equity beta	1.0	**0.7**	0.8
Market risk premium	7.0%	**6.0-6.5%**	6.5%
Debt risk premium	2.47%	**2.12%***	2.72%
Debt raising	0.262%	**0.108**	0.108%

[68] Lally, Review of the ACT's Gamma Decision, 13 July 2016, 4.

[69] DBCT Final Decision, 118.

[70] DBCT Final Decision 119.

[71] Lally, Review of the ACT's Gamma Decision, 13 July 2016.

costs			
Interest rate swap costs		**0.113%**	0.113%
Cross currency swap costs		**-**	-
Gamma	0.25	**0.47-0.5**	0.47
Return on equity	9.13%	**6.9% - 7.3%**	8.41%
Return on debt	4.86%	**4.44%**	6.15%
WACC (post tax nominal vanilla)	6.78%	**5.55% - 5.73%**	7.17%

*Values as at December 2016

5 Capital Indicator

The QRC agrees that it is appropriate for the Capital Indicator to not include any scope or forecast expenditure relating to capital expansion projects.

Consequently the main query the QRC has is whether the proposed capital renewal projects, which represent over 90% of the capital indicator costs, are efficient. Efficiency of capital renewal clearly needs to take into account the trade-off that exists between investing in greater asset renewals rather that higher maintenance costs – which is referred to by Aurizon Network's submissions – but not demonstrated in any way.

The QRC considers there is insufficient information for the QRC to be able to make any detailed informed assessment of the efficiency or prudency of the proposed capital indicator, such that it is highly reliant on the QCA and its consultants to do so (and to consider the inter-relationship between efficient capital renewal and efficient maintenance costs in determining the appropriate level of renewal capital investment).

6 Maintenance Costs

6.1 Insufficient information

Aurizon Network's submissions in relation to maintenance costs are difficult to meaningful respond to, as they not provide enough detail for the QRC to be able to adequately consider the efficiency or appropriateness of particular maintenance costs. The QRC has sought expert advice and had it confirmed that there is insufficient information provided to enable a substantial analysis.

At a high level there is little that is controversial in Aurizon Network's described asset management philosophy, or the principle that Aurizon Network needs to meets is legislative and regulatory obligations in relation to safety matters.

However, the QRC's past experience is that that does not translate into Aurizon Network's maintenance costs allowance being a fair reflection of that described philosophy or what is

actually required under the applicable regulatory arrangements, from the perspective of the QRC and its members.

The QRC also notes that in previous reviews the QCA has found costs that are not efficient and reduced Aurizon Network's proposed allowances for maintenance costs. Given Aurizon Network's economic incentives to:

(a) overstate maintenance scope so that a higher MAR is recoverable (and then underspend compared to the maintenance allowance); or

(b) 'gold plate' or 'over-engineer' maintenance (as they get to recover the costs of doing so, which reduces below rail risks, and Aurizon Operations' above rail risks and costs),

the QRC has significant concerns about the efficiency of the costs claimed. That is particularly the case in the current economic environment, where other components of the coal supply chain have found efficiencies and reduced costs, which we do not see reflected in Aurizon Network's claim, despite the similarity of many of the inputs to these tasks.

Given that Aurizon Network's proposed maintenance costs allowance constitutes approximately 20% of Aurizon Network's proposed MAR,[72] it should be uncontroversial that the prudency of scope of maintenance and the efficiency of the cost of that maintenance (which combined go to the appropriateness of the claimed maintenance allowance) needs to be rigorously tested.

In that regard, the QRC:

(a) suggests the QCA should require more detail on Aurizon Network's maintenance costs and activities to be made public, such that the QRC has an opportunity to engage an expert consultant to properly consider the efficiency of the maintenance costs allowance being claimed;

(b) notes its significant reliance on the QCA (and any expert consultants it engages) in order to scrutinise the efficiency and appropriateness of the maintenance costs allowance being claimed; and

(c) considers that the QCA should continue the requirement for condition based assessments and give careful consideration to tools like:

    (1) X-factors;

    (2) a mid-regulatory period review; or

    (3) performance metrics,

    to seek to provide more certainty that the maintenance costs remain prudent and efficient across the regulatory term.

The QRC suggests the QCA give some consideration to fixing the maintenance allowance for the first year only, and then considering the maintenance allowance for future years as part of the annual review process. That would allow the maintenance allowance in subsequent years to be informed by issues like maintenance conducted, the results of condition based assessments (which are not yet available) and actual volumes in the first year of the regulatory period.

To resolve the information deficiencies, the QRC considers that the QCA or Aurizon Network should publish:

(a) more cost detail on major maintenance projects and initiatives (particularly in relation to mechanised maintenance activities where there are very significant increases in the allowance being sought);

(b) a breakdown of the costs of each activity type to provide more granularity, both by maintenance activity (i.e. to the level of sub-activities like turn-out grinding or undercutting) and by system;

[72] Aurizon Network UT5 Submission, 158.

(c) a comparison of proposed maintenance activities with network condition / system performance information, to provide a greater level of confidence that the proposed maintenance scope is reflective of the efficient maintenance needs;

(d) Aurizon Network's strategic asset plan (at least to consultant's engaged by stakeholders) given the weight that appears to be placed on it in planning maintenance activities and forecasting maintenance costs;

(e) more detail on assumed tasks for each maintenance activity (to increase the prospects of being able to engage in proper benchmarking and an assessment of reasonableness);

(f) a breakdown of the fixed / variable costs in Aurizon Network's asserted 'UT4 unit costs';

(g) more explanation of some of the discrepancies in the Aurizon Network submissions. By way of some discrete examples:

(1) Tables 27 and 28 under ballast undercutting list identical scopes for financial years 2018 and 2019 and again for 2020 and 2021, however the costs increase in real terms from $61.3 million to $62.7 million (from FY2018-2019) and from $64.9 million to $66.4 million (from FY2020-2021);[73] and

(2) Aurizon Network refers to “consolidation and relocation of maintenance depots” as an example of efficiency through innovation without providing any further details, yet some of the supply chain benefits listed appear to be contradictory (e.g. consolidation to centralised locations and strategic positioning to allow a maximum 2-hour response time appear to work against each other); and

(h) more detailed benchmarking or substantiation of why the indirect / overhead components of the allowances being sought are efficient (as there remains a very high proportion of overhead costs from the QRC's perspective).

6.2 Overview of response

From the limited information that is currently available, QRC considers the maintenance costs allowance being requested is excessive.

In terms of Aurizon Network's high level commentary:

(a) while the QRC acknowledges that the maintenance tasks is 'inherently linked' to the capital investments previously made – that is not the same as being 'inherently linked to the RAB' as Aurizon Network claims. In particular, newer assets which were built during high construction cost periods (during the term of UT3) and have not been substantially depreciated have added significantly to the RAB, but would (given their recent development and under-utilisation) not be anticipated to have contributed to the efficient maintenance costs in the same way. That is particularly the case for the Goonyella to Abbot Point Expansion project (**GAPE**).

(b) In relation to the Wiggins Island Rail Project (**WIRP**) the QRC notes the inconsistency between the current claims that the higher RAB inherently requires a corresponding increase in maintenance costs with the following submissions made by Aurizon Network:[74]

> *Aurizon Network expects that the new infrastructure constructed as part of the WIRP programme will initially require a low level of maintenance work. The incremental maintenance task is expected to*

[73] Aurizon Network UT5 Submission, 166.

[74] Aurizon Network, Proposed New Reference Tariff: Train services to Wiggins Island Coal Export Terminal, December 2014, at 21-22.

be limited to scheduled preventative works … No ballast cleaning, or renewal activities are likely to be required. In the absence of a major weather or other event (e.g. derailment), Aurizon Network expects that limited corrective works would be required.

…

It is important to recognise that the WIRP programme includes the renewal and replacement of existing assets in the Blackwater and Moura systems. These works are expected to improve the robustness and reliability of infrastructure in the Gladstone area and contribute to reductions in future maintenance costs.

The QRC agrees that the WIRP investments should involve lower maintenance costs (given the recent timing of their development) and should have reduced maintenance costs more broadly for those parts of the network they are integrated with. However, that is not reflected in Aurizon Network's requested maintenance allowances for the relevant systems.

(c) Aurizon Network's proposed approach of escalating UT4 'unit rates' by the maintenance cost index (**MCI**) will result in an 8% increase to the total maintenance expenditure for the UT5 regulatory period. That appears manifestly excessive and should lead to the QCA applying careful consideration and serious scrutiny to determine whether:

(1) the MCI remains an appropriate methodology for measuring the change in prices/costs of providing maintenance (the QRC considers it is not given it may no longer properly reflect changes in real terms of Aurizon Network's cost base); and

(2) even if it does, whether it is appropriate to employ Aurizon Network's methodology of converting UT4 allowances to unit rates and escalating them at the MCI, the QRC considers that is clearly not appropriate – as the allowances in UT4 were approved as efficient as total allowances not unit rates, and the MCI was intended to escalate an approved allowance to future years of a regulatory period not to be utilised to roll-forward allowances between regulatory periods.

In particular, the QRC notes that the substantial escalation based on inflation appears:

(3) contrary to the experiences of the QRC members in relation to construction and maintenance costs (which are dropping or stable);

(4) contrary to Aurizon Network's claims about its productivity initiatives and cost saving initiatives (including its actual costs of labour reducing,[75] when labour costs are supposed to represent 33% of the MCI); and

(5) not appropriate for cost categories which would not be anticipated to have any close connection or correlation to the MCI.

By using unit rates, the QRC is also concerned that fixed maintenance costs (which form part of the unit rate) have been treated as being entirely variable in nature, and have been adjusted for the forecast volume when that is not appropriate.

(d) the recovery of costs associated with mechanised maintenance assets should (to the extent considered efficient) be provided for over the true life of those assets – rather than recovered through the maintenance allowance over a shorter regulatory period or using a formulaic method for depreciation which understates the useful economic life of such assets;

(e) the QCA's expressed views in respect of UT4 presumably represented the QCA's views of Aurizon Network's efficient maintenance costs at the point of approving UT4

[75] Aurizon Network UT5 Submission, 157.

– not some kind of minimum or base which Aurizon Network can automatically maintain while adding costs or seeking to expand scope or cost allocations in a manner that is inconsistent with the UT4 Final Decision's assessment as to what is efficient or prudent;

(f) any reduction of costs from UT4 levels is not an automatic guarantee of categories of cost being efficient or prudent – given that efficiencies and productivity gains should be expected. In particular, given the increasing volumes further efficiencies from scale and scope should be anticipated. The QRC submits a general efficiency dividend in the range of 1-3% should be manifestly achievable – yet these real unit rate reductions are not apparent in the allowances claimed by Aurizon Network;

(g) the 'innovative asset management' methodologies referred to in Aurizon Network's submissions have not evidently produced lower cost (or other improvements likely higher availability or reliability);

(h) one of the primary maintenance drivers from UT4 to UT5 is maintenance planning and support (listed as $17.6 million), explained in the Aurizon Network submission as costs that were previously allocated among the broader maintenance product categories.[76] If that was genuinely the case, QRC would anticipate there should be corresponding reduction in the direct cost categories (which are not evident from Aurizon Network's submissions);

(i) while QRC supports preventative maintenance rather than a 'fix on fail' approach, it considers the emergency replacement scenario described on page 153 over-dramatizes the differences in cost.

QRC also notes the inconsistency of the Aurizon Network approach of claiming the UT4 maintenance allowance methodology must be given 'significant weight'[77] but the UT4 WACC approach should be subject to wholesale changes.

In relation to the MCI, we also note that the QCA did not approve the MCI on the basis that it would be applied across regulatory periods. The risk and incentive regime under which Aurizon Network has operated to date has involved:

(a) an allowance being approved for the undertaking period (that is appropriate for that period), and escalated at MCI; and

(b) Aurizon Network retaining the benefits of any efficiency improvements which are achieved beyond any improvements which are reflected in the allowance. For example, if Aurizon Network achieves improvements in labour productivity, Aurizon Network will capture the resulting benefits for the remaining regulatory period.

The existing regulatory settings seek to create an incentive for Aurizon Network to achieve efficiency improvements within a regulatory period, with the benefits of these improvements then flowing to customers from commencement of the following regulatory period, when efficient costs are reassessed. Aurizon Network's UT5 proposal represents an attempt to bypass the assessment of efficient costs, so that the benefit of efficiency improvements can be retained across regulatory periods. This would result in Aurizon Network earning monopoly profits.

To the extent the QRC feels it is able to comment more specifically on the claimed maintenance cost allowance based on the limited information provided by Aurizon Network, those comments are set out below.

6.3 Ballast Undercutting

(a) **Mainline ballast undercutting**

[76] Aurizon Network UT5 Submission, 149.

[77] Aurizon Network UT5 Submission, 143.

Aurizon Network is proposing to add an additional 18km of mainline ballast undercutting across FY2020 and FY2021 to 'catch-up' on the reduction in scope determined to be appropriate by the QCA in the UT4 Final Decision.[78]

That addition should be rejected given:

(1) Aurizon Network has raised no new submissions in relation to why that additional mainline ballast undercutting is now appropriate when it was not found to be within the efficient scope recently in respect of UT4; and

(2) the scope ultimately provided in respect of UT4 was based on Aurizon Network's own cost model and the assessment by the QCA (and its expert consultant) of the scope of the mainline ballast undercutting that was within Aurizon Network's capability.[79]

(b) **Addition GPR data runs**

Aurizon Network is seeking to include an allowance for additional ground penetrating radar (**GPR**) runs.

QRC is not opposed to such an allowance, provided that the additional efficiencies in maintenance that should be gained through the greater data available are taken into account by introducing some form of efficiency factor to the maintenance allowances that are provide in respect of UT5.

If such an allowance is to be provided, the QRC is strongly opposed to it being based on a single data point (the financial year 2014 actual cost)and escalated at MCI (an index which seems unlikely to have a strong correlation to the costs of ground penetrating radar).

(c) **Procurement of new machinery**

No real supporting evidence has been given regarding the cost and productivity of the current ballast undercutting machine (the RM900) compared to the new ballast undercutting machine (the RM902).

To the extent that the QCA considers the acquisition of the RM902 is efficient, the QCA must ensure that the claimed productivity initiatives are properly reflected in the maintenance costs allowance.

6.4 Rail grinding

(a) **Adjustment to UT4 cost base**

Aurizon Network has submitted that the QCA 'incorrectly assumed that the rail grinding task was 100% variable with tonnes' and consequently 'the deduction applied by the QCA upon finalisation of the UT4 volume forecasts was too high'[80].

The finding referred to was based on expert advice provided to the QCA by Jacobs, which was noted in the UT4 Decision as follows:[81]

> *For rail grinding, Jacobs found that under Aurizon Network's proposal the scope (in km) per million tonnes is relatively constant over the UT4 period, which suggested that the scope is directly proportional to volumes under Aurizon Network's cost build-up.*

It is not clear from Aurizon Network's submissions what proportion of the rail grinding costs they say are fixed or variable or what evidence they have to indicate that that is the case. The QRC anticipates that there is a considerable proportion of rail grinding costs that are not fixed, e.g.

[78] Aurizon Network UT5 Submission, 168.

[79] UT4 Final Decision MAR, 139.

[80] Aurizon Network UT5 Submission, 172.

[81] UT4 Final Decision MAR, 115.

plant maintenance, labour and machine consumables such as fuel and grinding stones should all be directly proportional to the hours the machines worked (and therefore correlate closely to tonnage).

From the QRC's perspective the QCA should not be reversing its approach on this issue (which was based on expert advice from Jacobs) in the absence of new evidence from Aurizon Network and expert advice supporting any change.

(b) **Efficiency of costs**

Aurizon Network claims that its proposed costs for rail grinding should be accepted as efficient based on being 'commensurate' with unit rates tendered to other rail infrastructure providers.[82]

While QRC appreciates that that sort of 'benchmarking' may provide some indication of efficiency, that is not the same as the actual services on the Aurizon Network having been subject to a competitive tender process. The QCA should consider (and have expert consultants consider) the efficiency of the proposed costs.

6.5 Resurfacing

No real supporting evidence has been given regarding the cost and productivity of the previous resurfacing fleet and the new resurfacing fleet of machines. QRC particularly queries whether it is prudent to replace so much of the resurfacing fleet at the same time – which Aurizon Network admits creates a 'step-change in costs'.[83]

To the extent that the QCA considers the acquisition of the new fleet is efficient, the QCA must ensure that the claimed productivity initiatives are properly reflected in the maintenance costs allowance.

6.6 General maintenance

No real evidence has been given demonstrating whether it is reasonable to extrapolate from the UT4 period the greater scope of maintenance activities that is proposed.

New rail stressing work practices are listed as a productivity initiative that will reduce rail breaks and track buckles (and by extrapolation presumably derailments), resulting in a reduction in self insurance premiums. However, QRC anticipates that, in addition to self-insurance savings, the savings from greater availability and reduced risks of derailment costs above anticipated 'self insurance levels' should be taken into account (and it is not evidence that has occurred).

6.7 Signalling

QRC queries whether 'traction engineers' should be costs wholly allocated to the below rail regulated business or whether they are in part attributable to Aurizon's unregulated above rail business (such that only some of their costs should be allocated to the maintenance allowance).

6.8 Other direct maintenance activities

The QRC submits that many of these miscellaneous costs are inappropriate to escalate at the MCI which is unlikely to have much correlation with costs like traction power and telecommunications.

6.9 Indirect maintenance costs

There is even more limited information given on indirect maintenance costs.

[82] Aurizon Network UT5 Submission, 172.

[83] Aurizon Network UT5 Submission, 175.

(a) **Return on plant**

The QCA should ensure that:

(1) the WACC that is used to calculate the return on plant used in maintenance activities is reduced to reflect an appropriate WACC (see section 4 of this submission above); and

(2) careful consideration is given to the prudency and efficiency of the values claimed for the new undercutting machinery and resurfacing fleet that are being acquired (and the timing of those acquisitions).

(b) **Return on inventory**

The QCA should ensure that:

(1) the WACC that is used to calculate the return on inventory used in maintenance activities is reduced to reflect an appropriate WACC (see section 4 of this submission above), not the real pre-tax WACC of 6.7% Aurizon Network proposes;

(2) the allocation of costs relating to mixed depots is reasonable (given that the QRC queries whether labour hours booked would really correlate strongly to the level of inventory held that related to maintenance relative to other activities in the way Aurizon Network's allocation methodology appears to assume it would); and

(3) the overall level of inventory held is efficient.

7 Operating Expenditure

7.1 Insufficient information

Similar to maintenance costs, Aurizon Network's submissions in relation to operating costs are difficult to meaningful respond to, as they do not provide enough detail for the QRC to be able to adequately consider the efficiency or appropriateness of particular operating costs.

Given that Aurizon Network's proposed operating costs allowance constitutes a significant proportion of Aurizon Network's proposed MAR, it should be uncontroversial that the efficiency of the claimed allowance needs to be rigorously tested.

In that regard, QRC:

(a) suggests the QCA should require more detail on Aurizon Network's operating costs and activities to be made public, such that QRC has an opportunity to engage an expert consultant to consider the efficiency of the operating costs allowance being claimed; and

(b) notes its significant reliance on the QCA (and any expert consultants it engages) in order to scrutinise the efficiency and appropriateness of the operating costs allowance being claimed.

The QRC notes that its members have been able to significantly reduce their cost base (both in terms of direct operating costs and overhead), and consider Aurizon Network needs to justify why it has not been able to make comparable savings and productivity improvements.

7.2 Asserted costs of regulatory compliance

Aurizon Network's submissions seek an additional allowance for the asserted 'range of additional regulatory obligations on Aurizon Network'.[84]

QRC strongly considers that Aurizon Network's compliance obligations under UT4 are not onerous, and impose little additional resources requirements that would naturally be required by a below rail network provider to effectively manage its business (irrespective of whether it was regulated). There is also nothing new in Aurizon Network's claims for additional cost allowances for regulatory compliance costs, and no reason those claims are any more convincing now than they were when the QCA (rightly) considered them inappropriate during the UT4 decisions.

It is counter-productive to provide additional allowances to Aurizon Network which provide them with economic incentives to continue to prolong and compliance the regulatory process.

7.3 Labour escalation

QRC questions how it can be appropriate to escalate costs based on a wage price index, when Aurizon Network mentions multiple times how it has made labour cost savings.

7.4 Benchmarking

The QRC strongly disagrees with Aurizon's assertions that regulators should:[85]

> *'focus less on the results of benchmarking exercises conducted by its consultants, and place greater weight on the operating expenditure forecasts submitted by the service providers'*

Clearly a regulator should consider both benchmarking and the forecasts submitted by a service provider (and stakeholders comments on each). However, the Tribunal decision referred to does not support the overreaching assertion by Aurizon Network. Aurizon Network may be well placed to understand their efficient costs of doing business, but their economic incentives are to significantly overstate such costs (and any QCA process that involved giving greater weight to Aurizon Network's forecasts would create real risks for the rigour of, and potential for bias in, the QCA's decision making process).

7.5 Direct operating expenditures: system wide and regional costs

Aurizon Network has sought to significantly increase its operating cost allowance in respect of network control, safe working and operations costs by simply reallocating a greater proportion of costs to coal traffics. If an allocation of this nature is inappropriately high, that will result in coal access services cross-subsidising non-coal access services.

In particular the QRC is concerned about the following reallocation:

Figure 19: System wide and regional costs: coal/non-coal allocations

	UT4 Non-coal allocation	Aurizon Network proposed UT5 Non-coal allocation
Network control, safe working and operations	9%	2%

[84] Aurizon Network UT5 Submission, 195.

[85] Aurizon Network UT5 Submission, 207.

While it may be true that no dedicated resources are provided for non-coal traffic in the network control centre, there is clearly activity which would not be being conducted in the absence of the passenger or freight services.

Given issues like statutory passenger priority under the *Transport Infrastructure Act 1994* (Qld), the QRC finds it hard to believe that such services only take 2% of the available resources. The QRC also considers it is likely that the time (and costs) involved in managing non-coal train services will be well in excess of the proportion of GTK railed (given issues like their special needs and lower gross tonnage per service), such that this is not a reasonable basis for making allocations of this cost category (and even an alternative basis like numbers of train paths would be likely to result in an insufficient allocation to non-coal services).

7.6 Infrastructure management

There is insufficient information provided for QRC to make any material comments on this category of operating costs.

7.7 Business Management

The business management costs Aurizon Network is proposing represent a very substantial increase from the UT4 allowances. That remains the case even allowing for the Network: Finance and Network: Legal costs being reallocated from corporate overhead to business management.

As noted above, the QRC strongly considers that Aurizon Network should not benefit from a greater allowance given its inefficient and combative approach to the regulatory process (which leads to both a longer approval process and a more detailed compliance framework) and therefore should not receive higher allowances for the costs of regulatory compliance. Aurizon Network has been the main contributor to the current structure of the regulatory framework, and the QRC feels that many of the complications that Aurizon Network feels impose a burden are the direct result of previous Aurizon Network behaviour. The complexity involved in the standard user funding agreements are a typical example of that.

Similarly, the QRC is concerned about costs previously allocated to other Aurizon activities being included in the operating cost allowance of the regulated below rail business. If such an allocation is inappropriate that will result in the regulated business cross-subsidising Aurizon's unregulated business.

The QRC is deeply concerned that the major projects group, which has been involved in significant above rail and unregulated below rail business development proposals, is now passing on half of its costs to the regulated business. There is no evidence that the major projects group will continue in the UT5 regulatory period to dedicate 50% of its time/costs to regulated activities (even if that turned out to be the case for the UT4 regulated period, which is itself unsubstantiated). In that regard, the QRC notes that it is hard to see how it is consistent with Aurizon Network's submissions on the capital indicator (that it is not planning any major new expansion projects in the UT5 period) to simultaneously claim that 50% of the major projects group's activities relate to the regulated below rail network.

It is also not clear why the Network Regulation team will no longer be involved in unregulated projects.

While there is no in-principle objection to legal and finance costs being allocated directly rather than as part of corporate overhead, there is no transparency on whether by virtue of that re-allocation Aurizon Network is seeking a greater proportion of the costs of those activities to be borne by the regulated business. There is no substantiation which has been provided to support the newly proposed allocations.

Similarly, it is also not evident how users or the QCA will have any visibility of the allocation of responsibilities of these functional areas between the regulated and non-regulated business over the UT5 regulatory period, or any ability to reduce the cost allowances if their involvement in the non-regulated business of Aurizon was to increase.

Figure 20 Business management: coal/non-coal allocations

	UT4 allocation	Aurizon Network proposed UT5 allocation
Network Regulation	90%	100%
Major Projects	0%	50%
Finance	Not clear was previously part of corporate overhead	100%
Legal	Not clear was previously part of corporate overhead	90%

7.8 Indirect operating expenditures: Corporate overhead

While at first glance it appears that Aurizon Network has substantially reduced its corporate overhead allowance, that reduction is either wholly or predominantly due to the reallocation of Network Finance and Network: Legal costs (which were incorporated into this component in UT4 but are being treated by Aurizon Network as part of the Business Management component in UT5).[86]

The QRC notes that its members have undergone a very significant reduction in corporate overhead (not just a reallocation) in response to the downturn in coal prices that occurred during UT4.

This has involved (among other things):

(a) less layers of management;

(b) a significant shrinking of the labour force;

(c) greater productivity; and

(d) less use of consultants/external service providers – and capturing significantly improved pricing from such consultants/external service providers.

That transformation of cost base is not restricted to the mining sector, but has been more broadly reflected across all of corporate Australia.

The QRC struggles to understand how it can be appropriate for Aurizon Network to remain immune to pressures and economic movements of that nature, by asking for an increase in corporate overheads.

In relation to allocations, it is impossible for the QRC to assess whether the changes to the allocation methodology in relation to Finance Shared Services and Enterprise Real Estate are appropriate. QRC is concerned that changing these allocations has probably occurred because Aurizon Network has determined that will produce an increase in the operating cost allowance which Aurizon Network is able to claim (without changing how much the Aurizon Group incurs in relation to these activities). If that allocation is not appropriate, that is tantamount to the regulated business cross-subsidising the un-regulated activities of the Aurizon Group, and should be rejected.

Given the economic context, Aurizon Network having redacted most of the details of how it has allocated corporate overhead costs of the Aurizon Group to Aurizon Network and many of the individual costs items, and the potential for vertically integrated entities to cost-shift and cross-subsidise, the QRC requests particular scrutiny of the corporate overhead costs claimed.

The QRC considers a rigorous benchmarking exercise needs to be conducted in relation to Aurizon Network's operating costs.

[86] Aurizon Network UT5 Submission, 197.

7.9 Indirect operating expenditures: Risk and insurance

As with all costs, the QRC requests the QCA carefully scrutinise the proposed insurance costs.

At a principle level, the QRC remains unconvinced as to the prudency of the self-insurance premiums that Aurizon Network claims, given Aurizon Network's extensive use of the cost pass through avenue provided by the Review Event mechanism in its access undertakings.

Given that, in practice, users end up paying for replacement of below rail track infrastructure damaged by unforeseen events, it remains difficult to see why significant self-insurance premiums continued to be justified.

While the Finity analysis assumes the following events will not be insured or self-insured (and instead recovered through the cost pass through mechanisms):

(a) major weather events where below-rail losses to the network exceed $1 million;

(b) catastrophic damage to the network from perils such as earthquake and other nature disasters where losses exceed $1 million; and

(c) liability losses which exceed $8 million,

there is nothing in the undertaking provisions which prevents Aurizon Network from seeking to use the cost pass through mechanisms for costs below those amounts (i.e. costs for which it is seeking self-insurance premiums). Consequently, at a minimum, either the self-insurance premiums allowance should be reduced or the undertaking cost pass through mechanisms should be restricted such that they do not apply to events below the above thresholds (for which the self-insurance premium has been provided).

7.10 External operating expenditures: transmission, connection and electrical energy charge

QRC accepts these charges being passed through via the MAR at cost, subject to QCA scrutiny as to whether those costs, including decisions in relation to investment in new feeder stations, are efficient.

For the avoidance of doubt, QRC does not accept that the supply of electricity is beyond the declared service.

7.11 Other costs

(a) **Asset condition assessment**

QRC supports the inclusion of costs related to the conduct of the condition based assessment (subject to QCA scrutiny as to whether those costs are efficient). The QRC would expect that these costs would decrease over time as Aurizon Network becomes more experienced with conducting such assessments.

(b) **Costs associated with development of SUFA**

QRC supports the non-inclusion of costs Aurion Network regards as attributable to the development of SUFA.

(c) **Flood review event**

QRC acknowledges that the costs associated with the 2015 and 2016 Flood Review events are the subject of separate submissions (and QCA consideration) and are not included in Aurizon Network's UT5 submissions.

8 Return of Capital (Depreciation)

The QRC is willing to support the continuation of the return of capital / depreciation methodology approved by the QCA in respect of UT4 during the UT5 period.

9 WIRP Revenue Deferral

9.1 Deferrals and risk

Aurizon Network is seeking to incorporate in the RAB the majority of the WIRP capital investment on which recovery was deferred for the period of UT4.

Aurizon Network has resisted deferrals on the basis of the risk that it asserts such deferrals give rise to.

However, as discussed in more detail in section 4.5(e) (in the context of the beta parameter):

(a) deferrals are net present value neutral for Aurizon Network – deferrals are about allocation of costs and risks as between users, not a risk to Aurizon Network; and

(b) Aurizon Network agreed to develop the WIRP infrastructure on the basis of access conditions in the WIRP Deed which most relevantly include:

  (1) an additional return through the WIRP Fee for risks above that borne in relation to the existing network (which are compensated for through the regulated WACC); and

  (2) provision for recovery of the additional capital if the WIRP investment is ever subject to optimisation (such that it is misleading for Aurizon Network to suggest that deferrals represent a risk to recovery of the capital).

In other words, Aurizon Network's risks from deferrals have been entirely compensated for by the WIRP Deed arrangements and it is not appropriate that those asserted risks to automatically result in such deferrals coming to an end.

9.2 WIRP Moura

QRC is supportive of the continuing deferral of the WIRP Moura related capital, given Cockatoo Coal's current circumstances, and uncertainty of the timing for future production from the relevant project.

As noted above, the QRC does not consider this poses the risk to Aurizon Network that Aurizon Network asserts that it does in relation to future non-recovery of the deferred amount.

9.3 WIRP Blackwater deferrals

The QRC is opposed to the Blackwater deferrals ceasing in their entirety (as proposed by Aurizon Network), and opposed to the re-allocation of costs and risks among users that also form part of Aurizon Network's proposal.

In particular, the QRC notes:

(a) the allocation of the WIRP balloon loop costs made in the UT4 Final Decision to the WIRP Moura system should not be re-allocated to other WIRP customers as:

  (1) that is clearly unwarranted cross-subsidisation of the future WIRP Moura users by the current and future users forming part of the WIRP Blackwater, WIRP Rolleston and Existing Rolleston subgroups; and

(2) as noted above, a deferral of the WIRP Moura related portion of the WIRP balloon loop costs does not pose the financial risk to Aurizon Network that it asserts or mean that it will not be recovered; and

(b) serious consideration should be given to introducing the WIRP capital into the RAB in a more staged or progressive manner, to prevent the price shocks that would be produced by Aurizon Network's proposal. In particular, consideration should be given to not introducing WIRP capital relating to any non-railing customer's allocation.

10 Forecast Volumes

The QRC considers the accuracy of the forecast volume figures should be carefully considered by the QCA with a view to minimising the timing differences caused by differences between forecast and actual volumes (and as part of efficiently 'right-sizing' the operating and maintenance allowances).

However, the QRC is not in a position to identify whether any changes are required to the volume forecasts proposed by Aurizon Network.

11 Conclusions

For the reasons set out above, the QRC considers that the pricing positions proposed by Aurizon Network in its UT5 submissions, make it clearly not appropriate for the QCA to provide approval in accordance with section 138(2) QCA Act.

Aurizon Network has failed to demonstrate that the QCA's approach in respect of UT4 is so fundamentally flawed that it would justify the wholesale departures from regulatory certainty that Aurizon Network is asserting.

There are aspects of the UT4 decision that the QRC considers are biased in Aurizon Network's favour, principally being the estimates of MRP, beta and gamma.

In that regard the QRC considers new approaches are justified, particularly in reducing the asset beta to a level more comparable to that suggested by the QCA's consultant Incenta and the recognised closest comparators (regulated water and electricity network businesses).

However, the QRC would be willing, on balance, to reluctantly accept the approach in UT4 as appropriate as a complete package. It is supported by the reasoning evident in the UT4 decisions and regulatory precedent (of previous QCA decisions and decisions of other regulators) and expert advice received by the QCA from a range of expert consultants. Accordingly, the QCA's UT4 approach should, in general, continue to apply.

QRC looks forward to working with the QCA and all stakeholders to modify the pricing arrangements for UT5 to a document that is appropriate to accept.

If you have any queries in relation to this submission, please do not hesitate to contact the QRC.

12 Major References

Aurizon Network, Submission 2017 Draft Access Undertaking, 30 November 2016 (***Aurizon Network UT5 Submission***)

Castalia Strategic Advisor, February 2017 (***Castalia Report***)

Queensland Competition Authority, Decision Queensland Rail's Draft Access Undertaking, June 2016 (***QR Final Decision***)

Queensland Competition Authority, Final Decision, Aurizon Network 2014 Access Undertaking – Volume 1 Governance and Access, April 2016 (***UT4 Final Decision: G&A***)

Queensland Competition Authority, Final Decision, Aurizon Network 2014 Access Undertaking – Volume IV Maximum Allowable Revenue, April 2016 (***UT4 Final Decision: MAR***)

Queensland Competition Authority, Final Decision, DBCT Management's 2015 draft access undertaking, November 2016 (***DBCT Final Decision***)

Queensland Competition Authority, Final Decision Cost of capital: market parameters, August 2014 (***QCA Cost of Capital: Market Parameters Decision***)

Queensland Competition Authority, Final Report Gladstone Area Water Board Pricing Monitoring 2015-2020, May 2015 (***GAWB Final Decision***)

Queensland Competition Authority, Final Decision, Cost of debt estimation methodology, August 2014 (***QCA Cost of Debt Decision***)

Draft Decision, Aurizon Network 2014 Draft Access Undertaking – Maximum Allowable Revenue, September 2014 (***UT4 MAR Draft Decision***)

Annexure 1 – Report from Castalia

1 Introduction

As part of the draft access undertaking (UT5) proposal for the 2017-2021 period, Aurizon Network has included or referenced seven expert reports to support its proposed weighted average cost of capital (WACC) of 6.78 percent.

The reports are:

- The Brattle Group: Aspects of the WACC
- Frontier Economics: The Market Risk Premium
- Frontier Economics: Equity Beta
- CEG: Debt Risk Premium of Coal Transporters
- CEG: Best Estimate of Inflation – Revaluations and Revenue Indexation
- Ernst and Young: Market Evidence on the Cost of Equity

Aurizon in its submission uses these reports to propose substantial change to the approach and methodology of the Queensland Competition Authority (QCA) used in the final decision for UT4 in October 2016—a month before the Aurizon UT5 submission.

Aurizon acknowledge this in their submission stating:

> *"Aurizon Network recognises that the access undertaking for the UT4 period has only recently been finalised, however rather than simply looking to 'roll forward' the UT4 WACC, Aurizon Network has undertaken a comprehensive review of the WACC methodology and parameters from first principles."*

The extensive nature of this review and the plethora of accompanying expert reports suggests that Aurizon believes that the QCA UT4 decision is fundamentally wrong.

We have been asked by the Queensland Resources Council, representing the users of the Aurizon network, to review and assess the key issues raised by the economic reports prepared on behalf of Aurizon. Given the time constraints and the sheer volume of submissions and the empirical evidence, we are not able to address every single issue raised in those reports.

Rather, our recommended approach is to recognise that:

- good regulatory practice places high value on regulatory stability and predictability.
- WACC issues were thoroughly ventilated and discussed during the UT4 process, including through a separate QCA conference.

Hence, in considering the broad-ranging submissions on behalf of Aurizon, the QCA needs to ask whether there are new circumstances and evidence that would justify a departure from the previous regulatory approach.

In Section 2, we start by asking whether there is any evidence that suggests the QCA got its UT4 approach to WACC fundamentally wrong.

In Section 3 we discuss the treatment of inflation. While we see no reason to change the forecasting methodology, there are alternative approaches to the way inflation enters the regulatory model that may reduce or eliminate the effect of forecast errors.

In section 4 we consider the proposed treatment of other WACC components and how the QCA should respond to Aurizon's proposal to move away from the UT4 approach given the absence of any evidence that the UT4 approach was wrong.

2 Did QCA get the WACC fundamentally Wrong?

The QCA's approach and methodology for WACC is entirely orthodox and aligned with the practices of other Australian regulators such as the AER, IPART, ACCC, ESC, and ERA. That is not to say that the QCA approach is the same in all instances but that the variations fall well within the reasonable and well accepted range of approaches.

There are two key issues with the derivation of WACC using CAPM:

- CAPM itself is a theoretical construct and is not well supported by empirical evidence. However, we acknowledge that it is widely used and accepted and is the least imperfect of the many WACC models; and
- The key CAPM parameters (risk free rate, market risk premium and the equity and asset betas) are unobservable directly and can only be estimated by a variety of imperfect approaches. For any given WACC parameter there are nearly as many methodologies for its estimation as there are experts in the field.

Hence, the derivation of WACC by regulators is an area that is constantly evolving and the expert reports presented on behalf of Aurizon present some useful insights that can contribute to a productive discussion and evolution of the regulator's assessment.

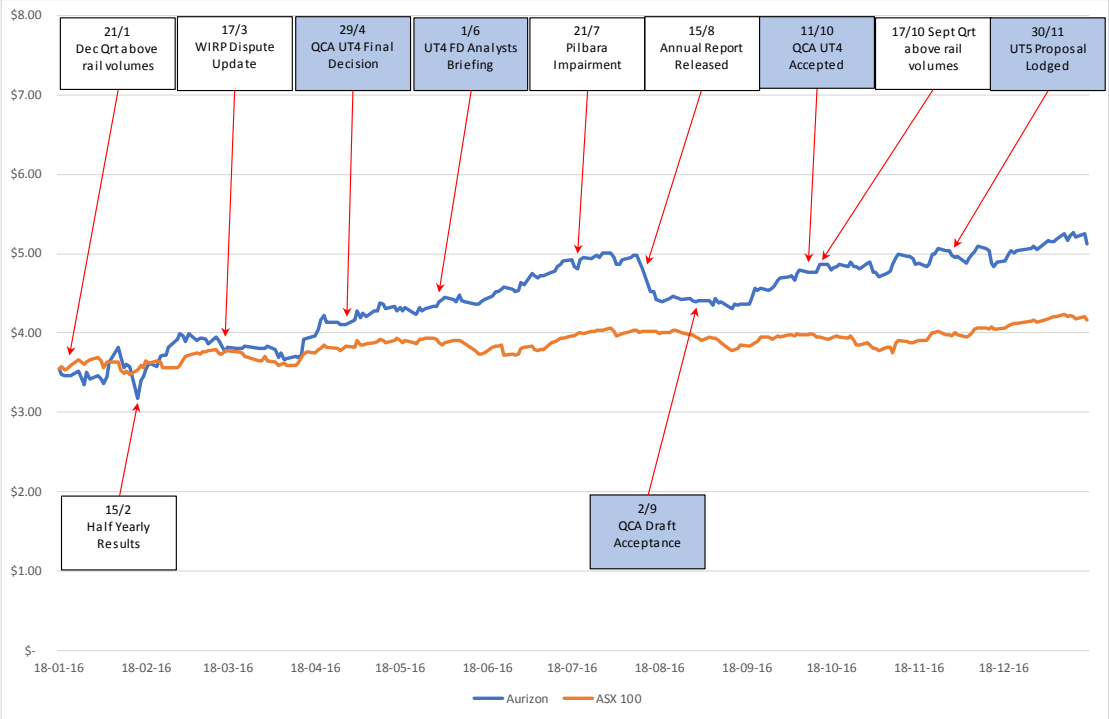
However, having just settled on the approach to the WACC components in UT4, the QCA needs to be convinced that any change to the approach would genuinely result in a better or preferable result and not one that is merely different. Economists may have many good reasons to tinker with the data or the estimation techniques, or to argue for marginal changes in modelling. However, that is not how a regulator should approach WACC. In practice, a regulator such as the QCA would know that any decisions about WACC based on the CAPM would be approximations of the real world.

There is a strong interest from both sides of the regulatory debate—both service providers and users—in a regulatory framework that is stable and predictable and not one that changes in response to the latest, esoteric, WACC "fad".

If the UT4 WACC was fundamentally incorrect, and did not provide an appropriate return to investors that reflected Aurizon's risks, then there should be a negative impact on the share price of Aurizon.

In Figure 2.1 we show the Aurizon stock price over the last twelve months to mid-January 2017 and compare it to movements in the ASX 100 Index. We also show the timing of all of Aurizon's Australian Stock Exchange (ASX) announcements, including the QCA decisions on UT4.

Figure 2.1: Aurizon and ASX 100



Source: ASX data

Aurizon's share price, like that of all listed companies, is influenced by a multitude of factors and it is impossible to isolate the impact of any regulatory decision with any certainty. However, what is clear is that Aurizon outperformed the ASX 100 Index over the last twelve months.

Aurizon operates more than the regulated below rail network. During the period depicted above:

- Aurizon wrote off its investment in the project to construct rail infrastructure in the West Pilbara
- Its above rail volumes, mainly coal in Queensland and the Hunter Valley, remaining steady or slightly declined
- Aurizon received notice of termination from the WIRP Deed customers, a commercial arrangement which Aurizon Network sought to compensate for risks which it claimed were beyond those reflected in the regulatory WACC.

Overall, the announcements with respect to these aspects of Aurizon's business have been consistently and materially negative in recent years.

If the regulator gets the WACC perfectly right, and if Aurizon as the listed company was a pure regulatory player, then we would expect the share price to remain constant. This is because for regulated businesses, the WACC allowance varies over the cycle (by contrast, in competitive businesses, cyclical variations in WACC do not affect cash flows, but rather lead to variability in the share price).

The fact that despite generally negative announcements for the unregulated parts of the business the share price continued to rise suggests that the QCA got the regulatory WACC about right in UT4. There is no evidence that the QCA's regulatory announcements have had any negative impact on share prices in either the short term—

immediately after the announcement—or across the entire period. If anything, the underlying slow rise in the share price suggests that the regulatory WACC for UT4 may have been perceived by the market as being somewhat generous.

3 Compensation for Inflation

The current common Australian regulatory practice of using a nominal WACC on an escalating regulatory asset base (RAB) with inflationary gains deducted from the maximum allowable revenue (MAR), creates the potential for windfall gains and losses arising from the mismatch between forecast and actual inflation.

Regulators have good reasons to continue to use the current approach, as it links regulatory WACC determinations to financial markets where regulated businesses finance their activities using nominal debt and equity. Using a nominal WACC provides a regulated cash flow profile that better matches the servicing of nominal debt and equity.

However, concern about the forecast error has led to two types of responses:

- Attempts to improve inflation forecasts
- Proposals such as the one made by CEG to apply a common value for inflation to both:
  - Adjust MAR in the regulatory period for the inflationary gain from an escalating RAB; and
  - Roll forward the RAB at the end of the period.

In this section, we discuss the proposals presented by CEG either to improve the inflation forecast or to eliminate the effect of forecast error.

We begin by setting out the context of the current hybrid approach.

3.1 Regulators Use a Hybrid Approach

To implement the principle of Financial Capital Maintenance (FCM), regulators need to compensate investors for inflation. This can be done through either:

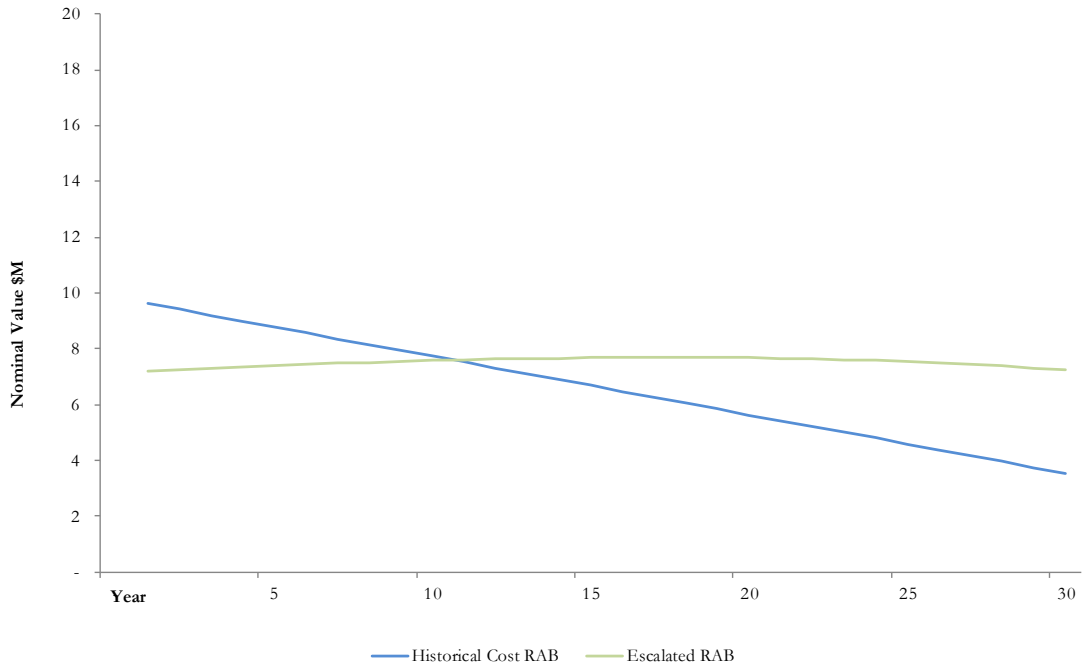
- Using a real WACC (no inflation) and escalating the RAB by actual consumer price index (CPI); or
- Using a nominal WACC (including inflation) on a nominal (un-escalated) asset base.

If either of these approaches is used consistently, the present value of investor returns over the life of the asset is the same and is equal to the initial investment. However, the profiles of the returns are different.

- Using a real WACC "back-ends" the return—that is a significant portion of investor returns occur through capital gains
- Using a nominal WACC "front-ends" the return—that is a significant portion of the returns occurs through annual revenue

We show this in Figure 3.1. It compares total returns (depreciation + return on capital) using a nominal WACC on a historical cost asset base with a real WACC on an escalated asset base.

Figure 3.1: Investor Returns under Nominal and Real WACC (2.5% inflation)



The present value of both cash flow profiles is the same, but the timing of those cash flows is significantly different.

Regulators in Australia typically use a hybrid approach to compensating investors for inflation which combines aspects of both the historic cost and escalation approaches.

Under this hybrid approach:

- The MAR for a regulatory period is set by applying a nominal WACC to a RAB escalated by forecast CPI, with the resulting RAB revaluation gain deducted from depreciation to avoid doubly counting; and
- At the beginning of the next regulatory period, the RAB is rolled forward and escalated by the actual CPI.

The rationale behind this hybrid approach is a balance between two competing objectives:

- Firms are financed by nominal debt and equity holders are likely to seek nominal rather than real returns. Thus, a nominal WACC provides a cash flow profile that is more likely to match the need to service nominal debt and provide the returns that equity requires.

  In addition, investors, analysts and financial markets generally understand and are familiar with nominal debt and nominal WACC so regulators' decisions on the level of WACC for a regulated entity align with market norms; and
- On the other hand, regulators prefer real returns as they better support intergenerational equity.

A significant disadvantage of the hybrid approach is that it relies on forecasts of CPI to be accurate to properly compensate investors for inflation.

Under the hybrid approach, investors:

1. Gain compensation for inflation in the regulatory period through the **market expectations of inflation** that are embedded in the nominal WACC.
2. Lose compensation for inflation in the regulatory period through the deduction of the inflationary gain in the RAB which is calculated using **forecast inflation**.
3. Gain compensation for inflation at the end of the period through the RAB roll forward to the start of the next period using **actual inflation**.

The mismatch arises because:

- Market expectations of inflation (1) can only be imperfectly inferred, while inflation forecasts (2) are highly uncertain. Thus, there will always be forecast error between (1) and (2)
- Actual inflation (3) is clearly *ex post*, so will always be different even if (1) and (2) are aligned.

3.2 Reducing forecast error

CEG propose to reduce forecast error by using break-even returns between nominal and inflation linked Commonwealth government bonds to infer market expectation of inflation.

The use of market-based inflation forecasts, such as the calculation of the break-even returns or inflation swaps, is intuitively appealing: economists expect that the outcome of multiple trades should embody the best available market information. However, the jury on the predictive power of market-based forecasts is still out. The obvious problem is that market-based forecasts are influenced by idiosyncratic factors, including less than rational inflation expectations.

We note that in its literature review on the sources of bias in market based forecasts, CEG did not review literature that directly tests the predictive power of such market-based forecasts compared to model-driven forecasts, such as the RBA forecast. For example, a paper by Bauer and McCarthy of the San Francisco Federal Reserve economic research department (FRBSF Economic Letter, September 21, 2015) finds that market based forecasts consistently perform worse than forecasts based on economic models.

On the other hand, a paper by Grothe and Meyler in the European Central Bank Working Paper Series ("Inflation Forecasts: are market based and survey based measures informative?", no. 1865, November 2015) finds that both market based and survey based measures outperform statistical models of inflation forecasts.

In the RBA Bulletin for the December Quarter 2016, Angus Moore observes that various survey based and market based measures have been moving out of synch with each other. The difference between inflation expectation surveys and the break-even rates is particularly surprising, since one would expect that the break-even returns would represent the expectations of market participants.

Overall, we would suggest that while market based inflation forecasts contain some useful information, there is no consistent or reliable single measure that the QCA could adopt with confidence. For example, CEG present evidence from the literature on the consistent upward bias of inflation swaps. In their Figure 7 on page 22, they present a chart of the 10-year inflation swaps and market break-evens. This chart shows that there are significant periods when the two measures overlap. If we are to believe that inflation swaps are consistently upwardly biased, then it is difficult to find a coherent explanation for such an overlap.

The RBA and other central banks around the world use a range of survey based and market based data to assess inflation expectations, and then use statistical techniques to overcome backward-looking biases of those who form future expectations. Such techniques are far from perfect, and there will obviously be periods when the RBA forecasts will get it wrong compared to one or another market based measure.

However, we believe that QCA is best placed to continue relying on the RBA to use a mix of information and its specialist expertise to forecast inflation.

3.3 Eliminating the effect of forecast error

The mismatch—the effect of forecast error—can be eliminated by:

- Aligning market expectations of inflation with forecast inflation; and
- Using the inflation adjustment made during the regulatory period to roll forward the RAB from the beginning of the first regulatory period to the next regulatory period—that is roll forward with the previous forecast rather than actual inflation.

Under this approach, (1), (2), and (3) described in Section 3.1 will always be equal and there is no possibility of a mismatch or forecast error resulting in windfall gains or losses to investors.

In this case, the inflation forecast simply becomes a cash flow deferment factor. By using a stable deferment factor across multiple regulatory periods, the QCA would provide stable and predictable cash flows.

In fact, an attempt to refine inflation forecasting would perversely lead to instability in cash flows and hence to less desirable regulatory outcomes.

Does it properly compensate for inflation?

Investors may perceive that this approach doesn't properly compensate them for inflation. After all, they are only receiving "forecast inflation".

This isn't the case because they will always receive the market expectation of inflation in the nominal WACC.

This approach, means that the value of the forecast inflation, used consistently could be any number. As shown in Figure 3.1, it only changes the cash flow profile, but the present value remains the same. The inflation adjustment is now just a cash flow deferment factor.

What is the optimum cash flow profile?

Once the forecast mismatch has been eliminated by use of a single value in the "inflation" adjustment, there are two possible approaches to estimate that value:

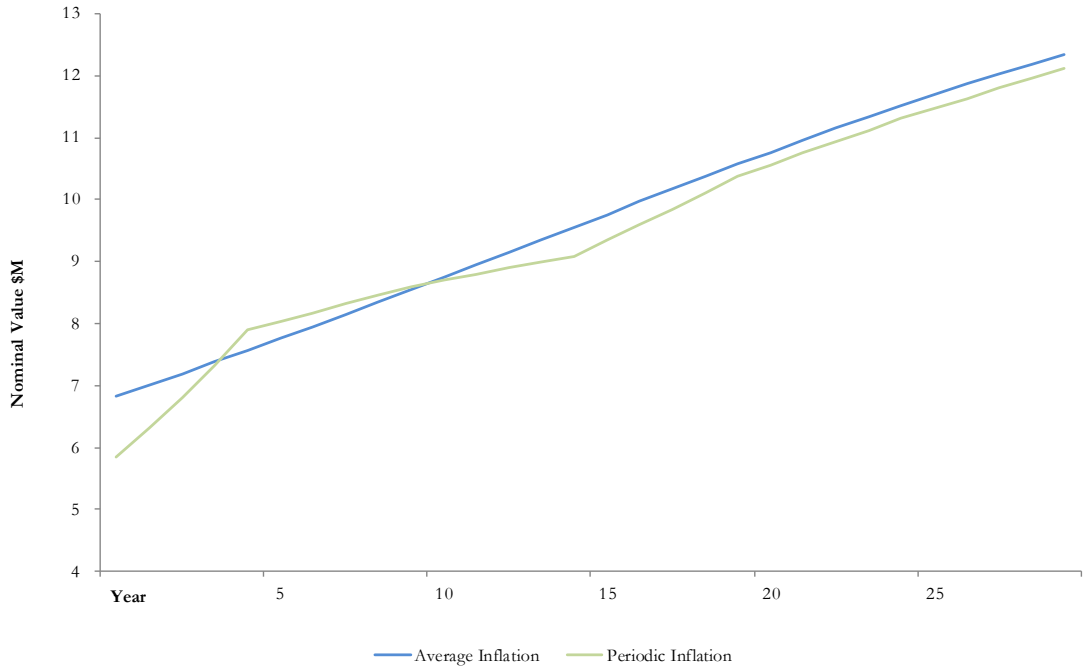
- Use a contemporaneous forecast for each regulatory period based on either the swap rates or the RBA official inflation forecast; or
- Use a constant long run measure of inflation across multiple periods—for example the midpoint of the RBA target range.

Using a long run forecast has the advantage that the resulting return profile will be stable and the mix of current revenue and future capital gains will remain constant as shown in Figure 3.1.

Using a contemporaneous forecast will, if inflation expectations vary materially, introduce an unnecessary volatility to the profile of investor returns. We show an

example of this instability in Figure 3.2 where we have used historical actual inflation over the previous thirty years at the start of six five-year regulator periods as a proxy for the forecast of inflation that would have been made at that time. We also show the profile that results from using the average inflation over the thirty-year period.

Figure 3.2: Investor returns under average and periodic inflation forecasts



The inflation rates used as proxies for the forecast inflation are:

- Average inflation 1985 to 2016—4.3%
- Periodic inflations:
  - 1985 to 1990—9.2%
  - 1991 to 1995—3.1%
  - 1996 to 2000—2.6%
  - 2001 to 2005—4.3%
  - 2006 to 2010—3.5%
  - 2011 to 2015—3.3%

The periodic rates are those that would have been set at the start of the regulatory period using the actual inflation in the previous year. The variations in Figure 3.2 are not large, but as the volatility in the deferment factor does not serve any useful purpose, a more certain and stable long run forecast should be used.

3.4 Conclusions on inflation forecasting

The RBA inflation forecast has been widely used by regulators in Australia. It is based on the RBA's expert judgement, combining surveys, market based data and statistical analysis.

The breakeven return approach, while providing potentially useful information, is likely to be part of the RBA's considerations. Used on its own, breakeven analysis is not clearly

superior to the RBA forecast. We do not see that there is any compelling evidence that it is a sufficiently "better" approach that would justify a departure from established regulatory precedents.

We do see potential in the use of an alternative approach to the way in which inflation is treated in the regulatory model that may eliminate forecast error as outlined in Section 3.3.

4 Proposed Shifts away from UT4

The table below summarises the differences between the QCA decisions with respect to the UT4 WACC and the Aurizon proposal. As we comment, in the absence of compelling reasons to change the approach, the principle of regulatory continuity and predictability strongly supports continued application of the approach adopted in UT4.

Table 4.1: Summary of WACC Components

	UT4 Final Decision	Aurizon UT5 Proposal	Aurizon UT5 update to December	Castalia assessment of responsible regulatory reponse	Castalia Comment
Nominal Risk Free Rate	3.21%	2.13%	2.79%	2.10%	QCA used 4 year RFR. While Aurizon's proposal to use 10 year RFR is consistnent with approach used by other regulators to compensate for the imperfections of the CAPM, there is no evidence such compensation is required
Market Risk Premium	6.50%	7.00%	7.00%	6.5%	There is no perfect way to ensure that an estimate of the MRP from historical data will produce a realistic assessment of contemporaneous MRP. There is no obvious reason to change
Asset Beta	0.45	0.55	0.55	0.45	Approach developed for UT4 remains compelling
Gearing Ratio	55%	55%	55%	55%	
Tax Rate	30%	30%	30%	30%	
Gamma	0.47	0.25	0.25	0.47	There is no compelling evidence to change the approach
Equity Beta	0.8	1.0	1.0	0.8	
Cost of Equity	8.41%	9.13%	9.79%	7.30%	
Debt Margin	2.94%	2.73%	2.6%	2.3%	QRC should continue to use 4 year BBB rated bonds
Nominal Cost of Debt	6.15%	4.86%	5.36%	4.44%	
Vanilla WACC	7.17%	6.78%	7.35%	5.73%	

Below we explain our views with respect to each individual component.

4.1 Market Risk Premium

The market risk premium (MRP) is the difference between the required return on a market portfolio and the risk free rate. The MRP is not observable and, therefore, prone to estimation error. In theory, the MRP for estimating the WACC for the next regulatory period should be the forward-looking expectation of MRP.

In practice, very few regulators estimate forward-looking MRP. Forward looking estimates are theoretically attractive, but because they require forecasts of cash flows of market participants, tend to suffer from very high estimation errors. Historical long-term averages have considerably lower margin of error, but may be less reflective of specific market conditions over the next regulatory period. On balance, regulators tend to use historical long-term averages because they are less prone to estimation error, even though it is well understood that there is no particular reason to expect that market risk preferences over the next 5 years would exactly equal the average of the past 60 to 80 years.

MRP is clearly a well-researched subject, and there is no shortage of historical estimates. The ACCC has used a value of 6.0 percent in its recent decisions on NSW State Water

and Telstra, while the AER have used an MRP of 6.5 percent in its last ten decisions[1]. As the AER stated in its Rate of Return Fact sheet in April 2015:

"Our point estimates for the market risk premium (MRP) and equity beta are derived after considering a range of evidence. We adopted a MRP of 6.5 per cent"

The submissions on behalf of Aurizon Network make some interesting methodological points, but do little to add to the broad empirical and practical understanding of the topic.

Given the empirical uncertainties, we think the key question is what are the risks of accepting any given estimate of MRP as a predictor of MRP over the next 5 years?

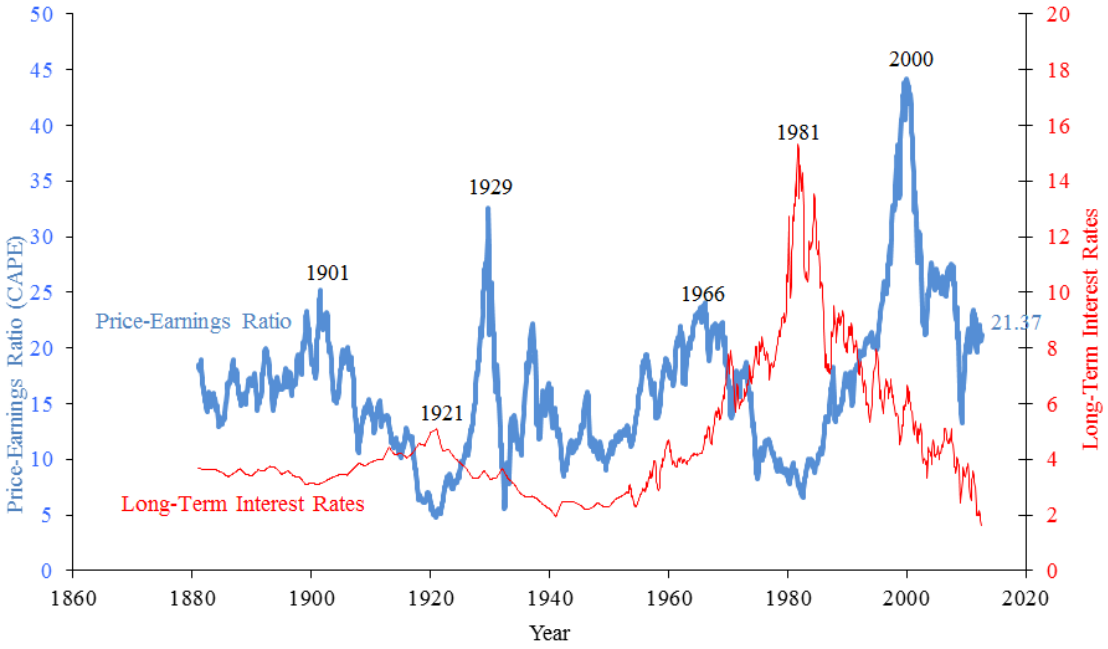
Figure 4.1 shows long term price earnings ratios and interest rates. There is little correlation between the two overall and little stability of the relationship, in fact:

- Between about 1940 and 1965 there is a reasonable correlation suggesting that equity returns also rose as interest rates rose
- Between about 1970 and 1980, interest rates rose and equity returns fell; and
- Between about 1990 and 2000, the reverse occurred.

The current situation does not appear to be an outlier in that equity returns and interest rates are not exactly equal to their long run averages but also are not close to historical extremes such as 1929, 1981 and 2000.

This suggests that investors are currently demanding less than the long-term risk premium for investment in equities.

Figure 4.1: Price/Earning Ratios and Long-term Interest Rates



Source: Standard and Poors

[1] Final decisions for each of the NSW electricity distribution businesses (Ausgrid, Endeavour and Essential Energy), TransGrid, Directlink and TasNetworks, and 'preliminary' decisions for Ergon, Energex and SA Power Networks.

Since the estimate used in UT4 remains within the range of reasonable estimates we suggest that the QCA should retain its UT4 approach as there is little evidence to justify a change.

4.2 Gamma

There is no consensus view on how to obtain a reliable estimate of gamma. Conceptually, we agree with the Frontier view that gamma should estimate the value of the imputation credits. However, this observation brings us no closer to a practically applicable estimate.

There have recently been four appeals to the Australian Competition Tribunal in relation to gamma. Of the four recent appeals, only one has been decided conclusively in a way that supports Aurizon's proposal for a lower gamma.[2] Of the other three, one did not require substantive consideration by the Tribunal[3], one has not yet been decided[4], and one was decided in a way that supports the QCA UT4 higher estimate.[5]

In the absence of a consensus view on the appropriate methodology for estimating gamma, or the appropriate value for gamma, the key question for the QCA is whether there are compelling reasons why it should change the approach adopted in UT4. Where there are several alternative methodologies and differing expert views on the most appropriate methodology, the regulator must exercise judgement and avoid jumping from one methodology to another in response to intellectual fads.

4.3 Term of risk-free rate

As a matter of regulatory practice, we accept that many regulators in Australia have moved away from the strict theoretical requirement that the term of the risk-free rate be equal to the length of the regulatory period. Rather, regulators often use 10-year government bonds to estimate the risk free rate because:

- The 10-year bond is the most liquid risk-free instrument
- 10-year bond yields tend to be relatively more stable
- Using 10-year bond provides a safety margin for investors. Given the available hedging instruments, shorter-term RFR should still enable investors to hedge their risks and to ensure that they recover their cost of debt. However, having 10-year RFR reduces the hedging requirement, and means that investors can still recover their cost of debt even if they do not have a perfectly efficient debt structure. In essence, using 10-year bonds to set RFR reduces risk for investors and transfers the costs of any market or procurement inefficiencies on to users.

In our view, if there was evidence that Aurizon is struggling to recover its cost of debt or that it was facing financeability issues, then the QCA could be justified in considering whether it should provide an extra cushion by moving to the 10-year RFR. However, we are not aware of any evidence that such issues exist or that the 4-year RFR used in UT4 caused any concerns.

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[2] *Applications by Public Interest Advocacy Service Ltd and Ausgrid Distribution* [2016] ACompT 1.

[3] *Application by ATCO Gas Australia Pty Ltd* [2016] ACompT 10. The regulator did not contest ATCO's appeal in relation to gamma, and so the Tribunal was not required to consider the substance of ATCO's appeal.

[4] Appeals by the five Victorian electricity distributors and the ACT gas distributor (hear by the Tribunal in November 2016).

[5] *Application by SA Power Networks* [2016] ACompT 11.

4.4 Beta

Finally, we wish to comment on the range of evidence presented in relation to beta. Beta of a stock measures the change in the returns of a market portfolio resulting from the addition of that stock to the portfolio. In practice, we think of beta as measuring the variability of the returns from the stock in question relative to the market portfolio as a whole.

It is obvious that such variability may derive from a number of factors, including changes in the costs of production, shifts in price and demand for the output, exogenous shocks and so on. For many goods and services, the factors that determine such variability are related to the nature of the goods. Hence, if you wanted to estimate the beta of an unlisted producer of such goods and services, it would make sense to look for market comparables from listed producers of similar goods and services.

However, when it comes to the provision of regulated services, the very detailed allocation of risk and responsibilities typically associated with regulatory regimes means that the variability in returns is likely to be determined by the regulatory provisions rather than by the nature of the goods and services being supplied.

In practice, the variability in returns may be driven by a mix of industry-specific and regulation-specific factors. For example, we note that the observed betas of pure-play gas pipelines in Australia tend to be consistently higher than the betas of electricity distribution companies, even though there are broad similarities in the regulatory model.

The problem is precisely that broad similarities or differences between regulatory regimes tell you relatively little about the specifics of risk allocation, and at times can even be misleading. As Frontier point out, it is difficult to find simple correlation between the type of the regulatory regime (e.g. price cap vs. revenue cap) and observed betas. However, this has more to do with the fact that simple high-level descriptors (such as defining regulation as light-handed/heavy-handed or price cap/revenue cap) are relatively uninformative, rather than with the absence of regulatory effect.

We note, however, that even with respect to high-level definitions, the conventional wisdom has long been that betas for companies in the same sector in jurisdictions with higher power regulation are greater than in jurisdictions with lower powered regulation.[6] This is, of course, based on high level definitions of the power of regulation and by international standards the form of regulation applying to Aurizon is relatively low powered. In their report, the Brattle Group propose an interesting compromise between industry-specific and regulation-specific factors in looking for market comparables. They say that the QCA should use the observed betas for North American gas pipelines because these pipelines have:

- Comparable industry characteristics because, like coal rail systems, they are in the business of carrying a single commodity product under long-term contracts
- Comparable regulatory characteristics because they are regulated under broadly similar approach to economic regulation that is applied in Australia.

However, we think the arguments for the alleged comparability of the North American gas pipelines are not convincing:

[6] www.openknowledge.worldbank.org/handle/10986/11575

- The risk allocation in the gas carriage contracts typically used in North America is materially different to the risk allocation under the typical Australian rail access agreements
- On-shore gas production locations tend to be significantly shorter lived than coal mines, increasing stranding risks for mid-stream service providers
- Until recently, the domestic US gas market was isolated from the rest of the world and hence, the balance of demand and supply was heavily influenced by local factors. This may change once the LNG export terminals currently under construction become operational, but historical beta estimates would capture variability that is highly specific to the North American gas market conditions. By contrast, Queensland coal is largely exported, and faces much more diversified market risks
- While there are many broad similarities between the Australian and North American approach to economic regulation of monopolies, there are also many material differences in how regulatory decisions are made and the risks that regulated companies take.

In our view, there is nothing in the Brattle Group report that should convince the QCA that North American gas pipelines are a better comparable than the Australian regulated companies.

In the table below, we take a more detailed look at how various risks are allocated under the proposed UT5 and what that risk allocation tells us about the appropriate comparables.

Table 4.2: Determinants of Risk that Drive Variability of Returns

Business Risk	Aurizon characteristics	Industry Specific Influences	Regulation-specific Influences	Balance of influences
Revenue Risk	▪ Aurizon's revenue cap operates on a per coal system basis ▪ Aurizon operates a large network with long distances. Transport costs may be relatively significant for some users, and hence increase in price could potentially lead to fall off in demand ▪ Aurizon has no obligation to invest and is able to negotiate additional charges with users for expansion projects ▪ Aurizon contracts need to be renewed by application between 1 and 3 years prior to the expiry of the contract ▪ Certain Aurizon access agreements provide a discount for early relinquishment of access rights	▪ There can be some variability in the demand for carriage of coal ▪ Sunk investment in coal mines creates incentive for mining companies to produce as long as coal price is above marginal cost ▪ Queensland coal mines are relatively low on the global cost curve, and coal quality is relatively high. This provides significant protection to Aurizon	▪ Annual price setting process allows Aurizon to respond quickly to changes in demand to remain at maximum allowed revenue	▪ Regulatory factors dominate industry influences ▪ Annual variability in revenues likely to be similar to the Australian electricity distribution businesses (i.e. very little variability)
Expenditure	▪ Operating cost allowances set	▪ Rail operators have	▪ The key regulatory	▪ The detail of the

Business Risk	Aurizon characteristics	Industry Specific Influences	Regulation-specific Influences	Balance of influences
Risk	for the regulatory period ▪ Operating cost allowance determined based on efficient costs, taking into account a range of information including benchmarking	more control over timing of maintenance expense than other infrastructure service providers due to long-lived nature of assets and relatively broad definitions of expected performance standards ▪ Operating cost are often contracted out over long periods (such as periodic ballast clearing) and hence are relatively easy to forecast	risk is that the expenditure allowance would not be sufficient and that there will be an error in the forecast of future costs ▪ Aurizon deals with a small number of users who are well informed and have an incentive to ensure that Aurizon maintains the network to the required standard ▪ Risk of forecasting error in rail maintenance is likely to be lower than for more complex networks (such as power and telecommunications)	regulatory regime dominates: the regulator's approach to examining the expenditure proposal are more important than the specifics of the industry ▪ However, Aurizon forecast error is likely to be lower than in other sectors and Aurizon may have greater ability to smooth its expenditures ▪ Participation by well-informed users in the regulatory process reduces risk if inappropriate squeeze by regulators as users have an incentive to ensure Aurizon maintains performance standards
Stranding or Bypass Risks	▪ Limited cross system traffic and regional and remote network	▪ Aurizon faces the risk that future coal developments in new Queensland coal basins do not use its network ▪ Decline in global coal demand and loss of Queensland competitiveness could eventually strand assets	▪ Rolling 20-year depreciation allowance ensures that assets are depreciated over the expected life of coal mines. The regime provides for acceleration in depreciation if industry risks rise	▪ While there are some industry-specific standing risks, the regulatory regime is designed to minimise such risks
Political Risk		▪ Risk of anti-coal regulations, although such regulations are unlikely to be retroactive to already operating mines.	▪ Risk of political influence over regulatory decisions same as for all other Australian regulated businesses	▪ Some industry specific risk

Overall, we believe that to the extent that Aurizon is exposed to the variability of returns, the drivers of such variability are primarily to do with the workings of the regulatory regime rather than with the specifics of the industry in which it operates.

In our view, Aurizon's exposure to the risk of regulatory error is most directly comparable to the exposure of the regulated Australian electricity distribution businesses. This is because Australian regulators such as the QCA and the AER tend to follow broadly similar decision-making processes, take a similar approach to examining evidence and have similar ways of coping with uncertainty and arriving at regulatory judgements. In this respect, Australian regulators differ substantially from the North American regulators.

To the extent that industry-specific factors affect Aurizon—and they clearly do—we believe they would tend to reduce the variability of returns rather than increase them compared to the regulated electricity businesses. For example, the lack of precision in how performance targets are defined (compared to very specific definitions applied to the electricity networks) would tend to allow Aurizon to reduce the variability of its expenditures by maintaining to a budget rather than to a performance requirement.

The reality is that there is no ideal market comparator for Aurizon. During the UT4 process, the QCA has convincingly put to bed the idea that North American coal rail freight companies provide a useful comparator. Clearly, there is almost no similarity between Aurizon's regulated below rail business serving a diversified export-oriented market and competitive vertically integrated coal freight businesses serving a closed domestic market where coal competes with the over-supply of gas.

The Brattle Group makes a valiant attempt to come up with a new international comparator. However, we believe that for all its imperfection, the choice of the Australian regulated electricity businesses as comparators remains the right choice. The specifics of the regulatory regime, and the particularly Australian way of implementing regulation, dominate the variability of returns that Aurizon is likely to face.

As a counterargument, Aurizon raises the issue of deferred revenue with respect to Wiggins Island Rail Project. Aurizon states that the decision by the QCA to defer revenue demonstrates its exposure to the stranding risk, which does not exist for the electricity lines businesses.

Even if this argument was correct, it is not a valid argument for substituting a whole new set of comparables. For example, if such decisions by the QCA do create additional stranding risk, it does not prove that Aurizon is more like the North American gas pipelines. Rather, if the QCA decision did introduce additional stranding risk, it could be used as an argument for a possible small upward adjustment in the beta compared to the UT4 decision: that is, the risk of the variability in returns may be slightly higher than the QCA had thought at the time.

However, we believe it is quite evident revenue deferral as implemented by the QCA does not create risk of the kind that should be remunerated through the WACC.

In its UT4 final decision, QCA quite rightly emphasises that revenue deferral is about the sharing of risk among users, rather than between users and Aurizon. The purpose of deferral is to ensure that existing WIRP users do not pay for the volume risk created by future expected WIRP users.

The example of revenue deferral does highlight an important point, however: the access undertaking makes an important distinction between the existing asset base and expansion investment. Aurizon does not have to proceed with expansion investment if it

is not satisfied that its risks are fully covered, and the access conditions provide the mechanism for Aurizon to ensure that it gets appropriately remunerated for its risks. This was precisely the purpose of the WIRP Deed. Aurizon is always able to seek additional remuneration for the additional risks posed by expansion investment.

Under the WIRP Deed, Aurizon receives a monthly payment from users in addition to its regulated access revenue. There is also an optimisation fee to address the risk that the QCA does not accept WIRP project costs into the RAB.[7] What this means is that the risks remunerated by WACC should quite specifically be "business as usual" operating risks applying to substantially de-risked sunk capital. The process for obtaining access conditions deals with any additional risks posed by expansion capital projects.

5 Conclusion

We have reviewed the economic reports submitted on behalf of Aurizon in relation to the UT5 WACC. These reports seek a wholesale revision in the QCA's approach to the derivation of various WACC parameters.

We have also reviewed market evidence from the performance of Aurizon shares to assess the likelihood of regulatory error that would justify such a wholesale revision. We believe there is no such evidence. The market is telling us that the QCA got the Aurizon WACC broadly right in UT4. This suggests that the prospect of regulatory error for UT5 is likely to be minimised by retaining the UT4 approach rather than by changing methodologies which provide no greater assurance that the QCA's estimates will reflect actual unobservable cost of capital.

In this respect, even if the proposed changes may increase the precision of the estimates, there is no guarantee that such additional precision would improve the quality of the regulatory decision-making because of what is being estimated. For example, Frontier propose a historical longer time series for the estimate of the MRP. In principle, more data should reduce the risk that the estimate of the historical average is wrong. However, since the historical average is in any case an imperfect proxy of the expected MRP, and since we have no practical or reliable way of estimating where the expected MRP is likely to sit relative to the historical average over the next 4 years, it is not obvious to us that a technical change in the estimation would lead to a superior regulatory decision.

In our view, the Australian regulators have rightly tended to value the stability of such long-term parameters to ensure regulatory certainty and to reduce the risk that regulatory errors would compound from period to period. Stable parameters increase the chance that regulatory errors would wash out over many regulatory periods.

While we believe that the proposed changes to WACC parameters are not justified, we believe that the proposal to eliminate the forecast risk in compensation for inflation has potential and could be investigated further.

[7] "Final Decision: Wiggins Island Rail Project Stage 1 Rail Infrastructure Access Conditions", QCA, May 2012 pp4

Annexure 2 – Allens' advice to the QRC regarding pricing matters

Allens
Level 26
480 Queen Street
Brisbane QLD 4000 Australia

GPO Box 7082
Brisbane QLD 4001 Australia

T +61 7 3334 3000
F +61 7 3334 3444
www.allens.com.au

ABN 47 702 595 758

Allens › ‹ Linklaters

17 February 2017

Andrew Barger
Queensland Resources Council
133 Mary Street
Brisbane City QLD 4000

Dear Andrew

Interpretation and Application of QCA Act in respect of Pricing Matters

1 Background

Aurizon Network has made a number of submissions relating to pricing matters in connection with its submission of the 2017 Draft Access Undertaking (***UT5***) regarding the proper interpretation of:

(a) the powers and discretion of the Queensland Competition Authority (***QCA***) in relation to approval of access undertakings under the *Queensland Competition Authority Act 1997* (Qld) (***QCA Act***); and

(b) the relevance and application of the pricing principles in section 168A of the QCA Act.

You have requested our advice on the application of those issues to pricing matters in UT5.

2 Approval of access undertakings and the QCA's discretion

Section 138(2) QCA Act provides that:

(2) The authority 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 this part;

(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.

That is supplemented by sections 138(5) and (6) QCA Act which provide that:

(5) The authority may not refuse to approve a drafting access undertaking only because the authority considers a minor and inconsequential amendment should be made to a particular part of the undertaking.

(6) In this section –

***minor and inconsequential amendment**, in relation to part of a draft access undertaking, means an amendment that, if made, would have no real effect or consequence in relation to that part of the undertaking and the undertaking as a whole.*

We consider the interpretations put forward by Aurizon Network (in section 2.1 of their UT5 submissions) are inconsistent with the clear wording of section 138 QCA Act.

It is clear from the plain wording of section 138 that:

(a) section 138(2) QCA Act provides a minimum threshold criteria which must be satisfied in order for the QCA to be empowered to approve a draft access undertaking (a ***DAU***) – namely that the QCA considers it appropriate;

(b) in determining whether a DAU is appropriate the QCA must have regard to each of the matters section out in section 138(2) QCA Act, including a very wide discretion for the QCA to consider 'any other issues the authority considers relevant'; and

(c) if the minimum threshold criteria for approval are met, the QCA has a discretion to approve a DAU, but is not compelled to do so subject only to the restrictions on that discretion noted in section 138(5) QCA Act.

Consequently, if the QCA considers that while a DAU meets the minimum threshold criteria for approval but could be more appropriate through further amendments it can refuse to approve the DAU. The only exception to that is where the only amendments the QCA considers should be made are 'minor and inconsequential' amendments, in which case the QCA would effectively be compelled to provide approval.

Pricing matters, by their very nature, are not minor or inconsequential amendments, as pricing will always have a real effect or consequence on users, Aurizon Network and suppliers in related markets such as rail haulage providers.

The existence of the QCA's discretion is made clear by the express reference to 'may approve' in section 138(2) QCA Act.

Section 32CA(1) of the *Acts Interpretation Act 1954* (Qld) (***AIA***) relevantly provides that:

(1) In an Act, the word may, or a similar word or expression, used in relation to a power indicates that the power may be exercised or not exercised, at discretion.

While the application of the AIA may be displaced by a contrary intention (section 4 AIA), there is clearly no contrary intention evident in the QCA Act. Rather, section 138(5) would serve absolutely no purpose if the QCA was bound to accept a DAU as soon as it met the minimum appropriateness criteria as Aurizon Network is asserting.

The decisions referred to in the Aurizon Network submissions are not relevant, and are definitely not authority for the proposition that Aurizon Network asserts, that the QCA Act compels the QCA to approve an undertaking that it considers appropriate even if there is the potential for it to be more appropriate. They were decided under distinctly different legislative contexts concerning declaration or coverage (which is necessarily a binary outcome as to whether regulation should apply, as distinct from approving the terms of an undertaking which will clearly involve judgement between possibilities which may both meet the minimum threshold criteria for potential approval).

3 Relevance and interpretation of the s168A Pricing Principles

3.1 Relevance of the section 168A Pricing Principles

Aurizon Network's submissions (in section 2.5 of their UT5 submissions) also misinterpret the relevance of the pricing principles in section 168A QCA Act.

As is evident from the extract of section 138(2) QCA Act earlier in this advice, the pricing principles in section 168A QCA Act form only one of eight different factors the QCA must have regard to in determining whether a draft access undertaking is appropriate (the ***s138 Factors***).

The critical points in understanding the place of the pricing principles is that:

(a) section 138(2) QCA Act does not impose a list of mandatory conditions that must be satisfied before an undertaking can be approved; and

(b) section 138(2) QCA Act does not prescribe the weight to be given to each of the s138 Factors by the QCA or prescribe any particular factors which must be given primary or greater weight.

Rather, section 138(2) QCA Act specifies a number of matters which the QCA must 'have regard to', and provides the QCA with a wide discretion as to how the s138 Factors are taken into account in determining whether a DAU is appropriate.

This is important in understanding the relevance of the section 168A pricing principles, because (as one of the factors the QCA must 'have regard to' under section 138(2)(g)) the only requirement of the QCA Act is that they be taken into account and considered in making the appropriate decision about whether to approve or refuse to approve an undertaking.

There is no requirement in the QCA Act that the appropriate decision is consistent with or gives priority to any particular one or more of the factors to which regard is to be had. The QCA's role is clearly specified in the QCA Act as one involving balancing of a number of factors to reach an appropriate decision on a draft access undertaking. Consequently, a particular factor may be given less weight, or departed from, or not followed, in what the QCA ultimately determines is the appropriate decision on the relevant draft access undertaking.

In fact, it is clearly evident on a review of the factors to be taken into account (as set out in section 138(2) QCA Act) that the QCA Act is not intended to provide for the QCA to follow or ensure its decision is absolutely consistent with all of the factors to be had regard to – as there is often a clear tension between some of the factors. To mention the obvious examples:

(c) there is a clear tension between the 'legitimate business interests of the owner or operator of the service' (s 138(2)(b) QCA Act) and 'the interests of persons who may seek access to the service' (s 138(2)(e) QCA Act); and

(d) section 138(2)(f) QCA Act refers to 'the effect of excluding existing assets for pricing purposes' when any such exclusion is likely to have some tension with providing 'a return on investment commensurate with the regulatory and commercial risks involved' (pricing principle in s 168A(a), to be had regard to under section 138(2)(g) QCA Act).

That, of itself, makes it clear that it is possible for the QCA to determine the appropriate position for the DAU as being one that is not consistent with a particular section 138 Factor, including the section 168A pricing principles.

If the QCA was to determine the appropriate position as one which 'is not consistent' with the pricing principle in section 168A(a) QCA, that does not invalidate the QCA's decision, provided it has considered the pricing principle and then has nevertheless determined that, despite being inconsistent with that pricing principle, it remains the appropriate position.

3.2 Aurizon Network's asserted 'contrary statutory indications'

In section 2.5.3 of their submissions, Aurizon Network seeks to point to sections 138A(2), 100(4), 168C(3)(b) or 168C(4) of the QCA Act as suggesting that the QCA is not empowered to make decisions that are not consistent with the pricing principles.

In fact, those provisions are, if anything, statutory indications that the general position is that the QCA *does* have a discretion to consider an appropriate undertaking is one that is not consistent with one or more of the pricing principles, such that a carve-out for particular issues is required. They would serve no purpose if Aurizon Network was correct in its assertion that the QCA is not empowered to approve an undertaking that is not consistent with the pricing principles.

In relation to section 138A, we note that what it is stated not to authorise is an access undertaking requiring / permitting the owner or operator to treat access seekers differently in negotiating access agreements or amendments to access agreement or treated users different in providing access – where that is inconsistent with the pricing principles. It says absolutely nothing about precluding an undertaking being inconsistent with the pricing principles where differential treatment is not involved.

In relation to section 100 and 168C the 'does not authorise' language used in those sections would not be interpreted as a prohibition on an undertaking being inconsistent with the pricing principles as Aurizon Network seems to imply. Rather those words simply clarify that the exceptions provided in those sections for conduct in accordance with approved access undertakings do not apply to conduct which is inconsistent with the pricing principle. In other words, those references just make it clear that whether the relevant prohibitions (on conduct that prevents or hinders access or unfair differentiation) apply is not resolved simply by reference to whether that conduct is permitting by an approved access undertaking. That is, those sections provide protection against that type of conduct in addition to whatever protections the approved access undertaking contains.

In addition, we note for completeness that the difference between the language of section 138(2) QCA Act ('having regard to … the pricing principles) and the language in the section Aurizon Network refers to (that particular conduct is not authorised if it is inconsistent with the pricing principles) is very clear. As such, principles of statutory interpretation will apply with the presumption the legislature intended for different meanings (and we continue to consider section 138 QCA Act will be given the meaning noted earlier in our advice).

3.3 Relevance of the reference to 'at least' in section 168A(a)

Aurizon Network's submissions seek to place very strong emphasis on the pricing principle in section 168A(a) QCA Act that the price for access should:

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

Section 168A(a) QCA is expressed in terms of generating revenue that is 'at least enough' to meet efficient costs and provide a return commensurate with the regulatory and commercial risks involved. We acknowledge it does not preclude earning in excess of those amounts.

However, consistent with our analysis above, whether such excess revenue is appropriate is a matter for the QCA to determine having regard to the other s138 Factors.

We consider the QCA is correct in its analysis in the Final Decision on Queensland Rail's draft access undertaking (at pages 209-2010) that returns in excess of that amount are relevant to other s138 Factors including that such returns

(i) would distort competition in relevant markets and impact adversely on investment in coal exploration and production as the resulting pricing would be higher than the efficient price (relevant to section 138(2)(a), (d) and 69E QCA Act);

(ii) would not be in the interests of access seekers and holders, who have an interest in paying a return that does not provide windfall gains and monopoly rents (relevant to section 138(2)(e) and (h) QCA Act).

(iii) would be against the public interest as such windfall gains would have potential to reduce competition and discourage investment in downstream markets such as coal mining and coal tenements, reducing economic growth in Queensland, and an expectation that a regulatory regime would allow windfall gains would cause investors to favour projects in jurisdictions where that was not the case reducing the chances they would invest capital in Queensland (relevant to section 138(2)(d)); and

(iv) by reducing the incentive for investment in dependent markets that rely on access to the network provider's below rail services will increase the risk to the network provider of asset stranding (relevant to section 138(2)(b)).

If Aurizon Network is seeking to suggest (as appears to be the case from its submissions) that the 'at least' wording requires some kind of absolute bias towards providing a higher return, we disagree. We consider the QCA is clearly open to form the views it has previously expressed that selecting values for WACC inputs that are consistently biased towards a higher cost of capital does not reflect an appropriate balancing of the s138 Factors (see page 29 of the Final Decision on the Dalrymple Bay Coal Terminal draft access undertaking).

To the extent that Aurizon Network seeks to draw inferences from the explanatory notes explanation of the introduction of the pricing principles, those notes do not override the clear and plain wording of section 138 QCA Act as discussed above. In particular, they do not result in the pricing principles (either generally or in respect of the principle in section 168A(a)) having some 'overriding' nature or priority.

Please do not hesitate to contact us if you have any queries in relation to this advice.

Yours sincerely

John Hedge
Partner
Allens
John.Hedge@allens.com.au
T +61 7 3334 3171

Jessica Rusten
Associate
Allens
Jessica.Rusten@allens.com.au
T +61 7 3334 3415