

Queensland Rail's Response to Industry Comments on Queensland Rail's Draft Access Undertaking 2 (DAU2)

16 November 2018

Public Version

 QueenslandRail

Table of Contents

1. Background	3
1.1 Draft Access Undertaking	3
1.2 Approach to DAU2	3
1.3 Collaborative Submissions	4
2. West Moreton System Reference Tariffs	4
2.1 Lower Tonnage Scenario	4
2.2 Optimisation of Assets	5
2.3 Weighted Average Cost of Capital (WACC) – Equity Beta and Market Risk Premium	5
2.4 87 Train Path 'Constraint'	8
2.5 Capital Expenditure	9
2.5.1 Transparency of capital expenditure forecasts	9
2.5.2 Consideration of the deferral of capital expenditure	9
2.5.3 Role of the QCA in reviewing proposed capital and potential for deferral	14
2.6 Maintenance Costs	15
2.6.1 Transparency of maintenance forecasts	15
2.6.2 Fixed versus variable costs	15
2.6.3 Other issues	15
2.7 Operating Costs	16
2.7.1 Train control costs	16
2.7.2 Allocation of operating costs to the West Moreton System	17
3. Standard Access Agreement	18
3.1 'Good Faith' Obligation - (Clauses 1.2, 1.3, 6.7(c), 8.8(b), 18.2(c) and Schedule 3 Clauses 2.2 and 5.4(a).) 18	18
3.2 Productivity and Efficiency (Clause 1.3(a))	18
3.3 Security (Schedule 1)	19
3.4 Permitting Access to be Applied for Other Than Through an Access Application	19

4. Other Matters Raised by Stakeholders	20
4.1 Renewals	20
4.2 Capital Prudence	20
4.3 Master Planning and Extension Coordination	20
4.4 Operating Requirements Manual (ORM)	21
4.5 Ad Hoc Planned Possessions	21
4.6 Ceiling Revenue Limit	21
4.8 Fixed Charges and Relinquishment Fees	25
4.9 Consolidation of Additional Train Services and Ad Hoc Train Services	26
Attachment 1: Frontier Economics' Expert Report – Asset Optimisation	28
Attachment 2: Frontier Economics' Expert Report – WACC	29

1. Background

1.1 Draft Access Undertaking

On 14 August 2018 Queensland Rail submitted 'Queensland Rail's Draft Access Undertaking 2' (DAU2) to the Queensland Competition Authority (QCA) in response to an initial undertaking notice issued by the QCA.

The QCA published DAU2 on 16 August 2018. QCA staff on 21 September 2018 published an issues list to assist stakeholders in preparing submissions on DAU2, and requested submissions by the deadline of 17 October 2018.

On 19 October the QCA published the industry submissions and requested that further "collaborative submissions" be provided to it by 16 November 2018.

1.2 Approach to DAU2

Queensland Rail remains committed to working with industry and the QCA towards the approval of DAU2. Queensland Rail undertook to:

- **actively engage** industry in ongoing consultation both prior to lodgment and throughout the QCA approval process; and
- adopt a **targeted** approach.

Queensland Rail did not consider it necessary to embark upon a complete rewrite for DAU2, but rather used AU1 as the foundation for the development of DAU2. Queensland Rail appreciates industry's recognition of Queensland Rail's approach with submissions noting:

*"NHG commends the more incremental approach to changes proposed by Queensland Rail in respect of the wording of the 2020 DAU and related standard access agreement (SAA) given the rigorous and recent review conducted by the QCA in respect of AU1. That has allowed this submission to focus on only those issues of concern in the amendments, and NHG anticipates it will make the process for consideration of those documents more efficient....."*¹

*"... Queensland Rail deserves some credit for the more incremental approach taken to changes to the wording in those documents, and taking the trouble to explain their rationale, such that Yancoal's submissions on those matters are less extensive."*²

*"Aurizon Bulk notes that in DAU2 Queensland Rail have proposed a number of changes commensurate with conversations held between the parties in the leadup to their submission to the QCA."*³

A consultative approach during the approval process for DAU2 will result in an efficient, timely process that limits the number of differences left for QCA adjudication. Industry submissions have also taken a targeted approach and Queensland Rail notes the commitment of industry to meaningful discussions.

¹ New Hope Submission Cover Letter, 17 October 2018

² Yancoal Submission, 17 October 2018, p 2

³ Aurizon Bulk Submission, p 1

1.3 Collaborative Submissions

The QCA has requested collaborative submissions. Queensland Rail is supportive of the QCA's approach. However, given the complexity of some of the matters raised, it has not been possible to develop joint or agreed submissions within the allocated timeframe. Queensland Rail held initial meetings with some industry stakeholders to discuss their submissions, and is committed to continue working with industry to develop collaborative submissions post lodgement on 16 November 2018.

This submission addresses Queensland Rail's approach to material issues discussed with industry to date, and provides additional information to clarify issues raised. However, it does not address all issues raised in the latest submissions as these matters are going to be addressed through continued discussions seeking to find common ground on issues where possible. On that basis, Queensland Rail intends to make further submissions (on a collaborative basis where possible) following additional consultation.

2. West Moreton System Reference Tariffs

2.1 Lower Tonnage Scenario

West Moreton System coal tonnage levels during the DAU2 term are currently uncertain, with Queensland Rail's forecasts varying between 2.1 million tonnes per annum (mtpa) and 9.1 mtpa (approximately an 80% variation). The reasons for this uncertainty and variability are set out in detail in Queensland Rail's DAU2 Explanatory Document (14 August 2018).

Notably, at a 2.1 mtpa scenario, there would be only one coal mine operating on the West Moreton System, being Cameby Downs Mine owned by Yancoal. Queensland Rail does not intend to seek an access charge for Yancoal at the 2.1 mtpa scenario under an established 'building blocks' methodology, but rather seeks to negotiate an agreed reference tariff.

At lodgement of DAU2 Queensland Rail agreed with Yancoal to postpone elements of Queensland Rail's DAU2 until post lodgement to allow time for the negotiation of the reference tariff, and ensure full consultation with West Moreton stakeholders including Yancoal, New Hope and Aurizon Coal on these important matters. Matters for consultation include:

- seeking to negotiate a reference tariff for QCA approval with Yancoal for a 2.1mtpa scenario,
- a possible loss capitalisation model at the 2.1mtpa scenario; and
- the possibility of providing reference tariffs for QCA at pricing points between 2.1mtpa and 9.1mtpa.

Queensland Rail has been holding regular meetings with Yancoal and considers that these meetings have been constructive. Queensland Rail will extend this consultation to New Hope and Aurizon Coal in the near future.

Both Yancoal and New Hope have requested that the QCA provide an opportunity, with a sufficient timeframe, for that further consultation and submissions:

"Yancoal therefore requests that the QCA provide the opportunity for further submissions on low tonnage scenario reference tariffs, with a sufficient timeframe prior to those submissions being due for QR and Yancoal to further progress the consultation that has occurred to date."⁴

⁴ Yancoal Submission, 17 October 2018, p 3

"Consequently, NHG considers that it would be appropriate to provide stakeholders with a further opportunity to provide submissions on the appropriate pricing in a low tonnage scenario if that remains a perceived risk."⁵

Queensland Rail agrees with Yancoal and New Hope and it is Queensland Rail's intention to make a West Moreton pricing submission to the QCA in February 2019 reflecting this consultation and addressing the lower tonnage pricing scenario.

2.2 Optimisation of Assets

Both New Hope and Yancoal have suggested that one approach the QCA should consider in relation to the lower tonnage scenario is the optimisation of part of the West Moreton System asset base. Queensland Rail submits that optimisation is not an appropriate approach. Detailed reasons why optimisation of the West Moreton Regulatory Asset Base is not appropriate are set out in the expert report by Frontier Economics attached to this submission.

2.3 Weighted Average Cost of Capital (WACC) – Equity Beta and Market Risk Premium

Queensland Rail has sought expert advice from Frontier Economics in relation to the submissions made by Yancoal and New Hope on DAU2, insofar as they relate to the allowed return on assets. These submissions pertain to:

- (a) the set of comparator firms used to determine the gearing and beta parameters; and
- (b) the process used to estimate the market risk premium (**MRP**).

The QCA's approach to WACC (including the core WACC formula and basis on which individual parameter estimates are derived) has been consistent since the first rail access undertaking was approved by the QCA in 2001, and has not changed despite significant expert opinion and argument submitted by Aurizon Network on the derivation of various WACC inputs.

In determining the WACC for rail entities, the QCA has consistently set a network wide WACC rate. That is, the WACC has been determined on the characteristics of, for example, Queensland Rail's entire below rail network, rather than having separate WACC calculations for each individual system based upon that system's characteristics.

In developing the WACC rate for DAU2, Queensland Rail sought to minimise debate with respect to allowed returns by accepting the QCA's established WACC methodology, save to update the Asset Beta and associated Equity Beta and Debt/Equity ratio.

However, in relation to the selection of appropriate comparators, Yancoal and New Hope have both submitted that they use only a coal rail service in the West Moreton and Metropolitan Systems and that the coal reference tariff should therefore relate to (be based on) only the risk of that service. That is, to the extent that the risk for the West Moreton/ Metropolitan coal service differs from that of the other services provided by Queensland Rail, it would be appropriate to estimate different betas and apply different allowed returns for the different services – each according to its degree of risk.

In accordance with Queensland Rail's commitment to retaining the QCA established methodology/precedence in relation to WACC for rail services, Queensland Rail continues to retain a

⁵ New Hope Submission – Volume 2 Overview and Reference Tariffs, 17 October 2018, p 9

WACC calculated on a network wide basis. Queensland Rail also notes the complexity and cost of the QCA assessing and determining a WACC for each of its systems. Therefore, Queensland Rail has sought advice from Frontier Economics in relation to a network wide WACC. However, Queensland Rail reserves the right to make further submissions on the calculation of a West Moreton System specific risk calculation if the QCA was minded to move away from its previous approach.

In Frontier Economics' July 2018 report, they set out their preferred estimates for beta and gearing for Queensland Rail as a single aggregated entity. Frontier's November 2018 report (attached to this submission) states that Frontier Economics maintains their view that these estimates are appropriate for that purpose. Consequently, Queensland Rail confirms the submission of a gearing parameter of 28% and an equity beta parameter of 0.98. Queensland Rail notes that the Yancoal and New Hope's submissions do not raise issues about the Frontier Economics' estimates for the aggregated Queensland Rail services.

The attached Frontier Economics' report also notes that Yancoal and New Hope have both submitted that, conditional on the appropriate task being to estimate beta for the West Moreton/Metropolitan coal Systems only, the beta allowance should be set equal to the QCA's beta allowance for Aurizon Network's Central Queensland Coal Network (**CQCN**). Frontier's view is that this would be inappropriate for two reasons:

- The QCA's estimation process relies exclusively on data from electricity and water firms which is an inappropriate approach for estimating gearing and beta for a coal rail network; and
- In any event, there are material differences between the CQCN and West Moreton/Metropolitan coal Systems.

Frontier Economics concludes that, even if the QCA determines to estimate beta for the West Moreton/Metropolitan coal Systems only, simply adopting the QCA's allowances for the CQCN would be inappropriate.

The two networks operate under different forms of regulation (price cap for Queensland Rail and revenue cap for CQCN) and there are several other material differences as set out in Table 2 and Section 2.2 of the Frontier Economics July 2018 report.⁶

In their attached report, Frontier Economics refer to the differences between the CQCN and the West Moreton/Metropolitan coal rail Systems set out in the *Queensland Coal Transport Report* published in July 2018 by the Queensland Department of Transport and Main Roads.⁷ That report highlights material differences between the CQCN and West Moreton/Metropolitan coal rail Systems in terms of scale and type of coal exported:

- In FY18, total Queensland coal exports were 222.4 million tonnes, of which 215.1 (96.7%) were transported on the CQCN and 7.3 million tonnes (3.3%) were transported on the West Moreton/Metropolitan Systems.
- On the CQCN, 162.9 million tonnes (75.7%) of coal exports were high value metallurgical coal used in steel making while 52.2 million tonnes (24.3%) was lower value thermal coal, which is at greater risk of replacement by alternative energy sources.
- On the West Moreton/Metropolitan Systems 7.3 million tonnes (100%) was thermal coal.

⁶ Frontier Economics, July 2018, Estimates of asset beta and equity beta for Queensland Rail, pp. 11-14.

⁷ Queensland Department of Transport and Main Roads, July 2018, Queensland Coal Transport Report, <https://www.tmr.qld.gov.au/business-industry/Transport-sectors/Coal-transport-infrastructure-development#role>.

- The average indicative price of metallurgical coal exported in FY18 was \$201 per tonne, whereas the average indicative price of thermal coal exports was \$104 per tonne.
- The indicative value of coal exports on the CQCN was \$38.2 billion compared with only \$0.76 billion over the West Moreton/Metropolitan Systems.

Table 1 below shows the number of mines and ports served by the CQCN and WM-Metro rail Systems.

Table 1: Comparison of CQCN and WM-Metro Systems

RAIL SYSTEM	NUMBER OF OPERATING MINES	NUMBER OF RAILING DESTINATIONS
QR – West Moreton/Metro	2	1 (QBH – Port of Brisbane)
Aurizon – Newlands	3	1 (Abbot Point)
Aurizon – Goonyella	17	2 (Hay Pt and Dalrymple Bay)
Aurizon – Blackwater	11	2 (RGTanna and Wiggins Island, plus direct to power stations)
Aurizon – Moura	3	2 (RGTanna and Wiggins Island, plus direct to power stations)
Total Aurizon CQCN	34	5

Source: Aurizon – Coal Rail Corridor Fact Sheets and Queensland Rail Information.

A number of the key differences between the two coal systems are summarised in **Table 2** below.

Table 2: Key features of CQCN and WM-Metro Systems

QR: WM-METRO	AURIZON: CQCN
Serves 2 mines	Serves 34 mines
Operates a single system	Operates 4 systems
	Has a portfolio of long term contracts
Price cap	Revenue cap
Exclusively thermal coal	Largely high-value metallurgical coal used in steel making
Entire network can go down due to weather and major derailment events (e.g., 2011 flooding)	Unlikely for all four systems to go down at one time

Source: Queensland Coal Transport Report; Aurizon - Coal Rail Corridor Fact Sheets, Frontier Economics, Estimates of asset beta and equity beta for Queensland Rail, July 2018.

Frontier Economics and Queensland Rail remain of the view that:

- There are relevant and material differences between the regulation and other attributes of the West Moreton/Metropolitan Systems and the CQCEN. For this reason, it would be inappropriate to simply adopt the same beta allowed for the CQCEN.
- In any event, the QCA's beta allowance for the CQCEN is not an appropriate estimate of the systematic risk of a coal network; it is an estimate of the systematic risk of an electricity/water utility. This is because the CQCEN beta allowance is determined solely by regard to data from electricity and water utilities.

In relation to the MRP, Queensland Rail has proposed to adopt the QCA's most recent MRP allowance of 7.0%. Yancoal and NHG have both submitted that a lower allowance would be more appropriate.

The attached Frontier Economics report concludes that the available evidence supports an MRP allowance of at least 7.0% for reasons including:

- The QCA sets an MRP allowance relative to the prevailing 4-year risk-free rate, whereas the standard approach is to set an allowance relative to the prevailing 10-year risk-free rate. Since there is a difference of approximately 0.5% between the 4-year and 10-year risk-free rates, the QCA's allowance is only 6.5% when expressed in the usual way.
- New Hope has proposed that the MRP should be estimated without regard to the 'Wright' approach. Frontier Economics explains that this effectively implies that the MRP should be assumed to be constant across all market conditions, which would:
 - be inconsistent with advice (and common sense) that the MRP is not constant over time and over different financial market conditions;
 - be unsupported by the QCA's empirical analysis; and
 - generate implausible outcomes, such as cost of equity **falling** during a financial crisis – as weight is shifted to approaches that produce constant MRP.
- Yancoal has submitted that a lower MRP is supported by the empirical evidence and a regulatory trend towards reducing MRP allowances. However, the attached Frontier Economics report concludes that there is no basis for concluding that the empirical evidence or regulatory precedent supports a reduction to the MRP allowance:
 - The empirical evidence, including the QCA's own evidence, supports an increased MRP allowance; and;
 - Other regulators, particularly those seeking an estimate of the MRP that is commensurate with the prevailing conditions in the market, are generally not decreasing MRP allowances to 6%.

In summary, the Frontier Economics report concludes that the available evidence supports an MRP allowance of at least 7.0%. Queensland Rail maintains the submission that the MRP should be set to the QCA's current allowance of 7.0%.

2.4 87 Train Path 'Constraint'

Queensland Rail intends to make a submission to the QCA post 16 November 2018 providing correspondence from the Department of Transport and Main Roads as well as evidence of business practices demonstrating that there is no 87 train path constraint on coal train services in the Metropolitan System.

2.5 Capital Expenditure

2.5.1 Transparency of capital expenditure forecasts

Queensland Rail notes the concern raised by New Hope and Yancoal that the cost information redacted makes it difficult for customers to form a view about the proposed capital expenditure by project.

The purpose of the redactions is to allow Queensland Rail to preserve its competitive position in the market where future work may go out for competitive tender. Queensland Rail can make the complete version of the capital expenditure submission available to access holders to review on a confidential basis.

2.5.2 Consideration of the deferral of capital expenditure

Yancoal and New Hope have variously made comments that:

- greater deferral is required for a lower tonnage scenario — with a perception that capital expenditure scenario has been developed divorced from demand.
- it appears that capital expenditure has been developed in the context of the 2018-19 Asset Management Plan — which assumes current tonnes.
- Queensland Rail has made a 'blithe assumption' of 'business as usual' and not considered changed capital.
- Implausible that so much of Queensland Rail's costs are fixed irrespective of volume and that it is not prudent to defer more capital expenditure when the demand outlook is at such a low level.

Queensland Rail is very aware of customer concerns about the cost of the system becoming unaffordable using a traditional building block approach for a low tonnage scenario. However, for the reasons set out below, Queensland Rail does not consider that a major scale back of capital expenditure at this time is a prudent approach to managing the West Moreton System and believes that managing short term pricing issues is preferable (e.g. through a loss capitalisation or other model).

Future volumes and demand outlook

While there is the prospect that the DAU2 period could see a drop off in coal tonnes moved on the West Moreton system to 2.1 mtpa in the short term, Queensland Rail does not consider that there is a realistic prospect of this volume of coal becoming the long term outlook for the West Moreton System.

Queensland Rail is aware of continuing interest in several coal mine developments in the region which would use the current available capacity on the system, and should all potential development of the system proceed, it is possible that expansion of the system would be required.

Potential mining development for the West Moreton System include:

- New Acland Coal Stage 3 – which has yet to receive approvals but continues to be a prospect for development albeit with uncertain timing.

- [REDACTED]

⁸ https://www.ehp.qld.gov.au/management/impact-assessment/eis-processes/comeby_downs_expansion_project.html

- development in the Surat Basin which has the capacity to at least use the available capacity of the rail line and Port of Brisbane loading terminal.

Queensland Rail notes the ARTC's Inland Rail business case was developed with an assumption of 19 mtpa of coal — the maximum port capacity for the Port of Brisbane to 2050.⁹

The 2018-19 Asset Management Plan applied the following strategic volume assumptions for the West Moreton System are shown in Table 3.

Table 3: West Moreton System volume assumptions (from 2018-19 Asset Management Plan)

Short Term 1-5 years	Medium Term 5-10 years	Long Term >10 years
<p>Coal tonnage uncertainty:</p> <ul style="list-style-type: none"> • planning at current 6.25 mtpa (net) to 2020 • 2.1 mtpa or 9.1 mtpa possible post 2020, or potential variant on these volumes <p>Additional agricultural volumes possible, although planning agricultural volumes for the 12 months ended September 2017</p> <p>Inland Rail announced, but uncertainty about potential scope, timing and funding.</p>	<p>Short term tonnage uncertainty resolved</p> <p>Medium term tonnage scenarios range from</p> <ul style="list-style-type: none"> • Coal tonnage to 9.7 mtpa coal (net) (limit of available capacity – no additional infrastructure expenditure required); or • Greater than 9.7 mtpa with development of Surat Basin coal reserves (infrastructure enhancement required) <p>Additional agricultural volumes possible, although planning agricultural volumes for the 12 months ended September 2017</p> <p>Greater certainty about the potential scope and route for Inland Rail</p>	<p>Tonnage scenarios range from</p> <ul style="list-style-type: none"> • Coal tonnage to 9.7 mtpa coal (net) (limit of available capacity – no additional infrastructure expenditure required); or • Greater than 9.7 mtpa with development of Surat Basin coal reserves (infrastructure enhancement required) <p>Certainty about Inland Rail, with potential for new arrangements to be commencing.</p>

While there is uncertainty in the short term, Queensland Rail's 2018-19 Asset Management Plan assumes that for the medium term, the system will at least operate up to the 9.7 mtpa of capacity that is currently available, which matches the available capacity of the Port of Brisbane. There is further potential that capacity beyond this level may be required.

Queensland Rail's capital expenditure planning has not adopted a long term view of a 2.1 mtpa scenario, instead notes the ongoing uncertainty around tonnes and that the West Moreton System will likely be required to provide its available capacity for the foreseeable future.

Capital expenditure considerations for a low volume scenario

Stakeholders have commented that it is implausible that so much of Queensland Rail's costs are fixed irrespective of volume and that it would be prudent to defer more capital expenditure while the demand outlook is at such a low level.

Queensland Rail has taken the following factors into consideration when determining the capital expenditure for both the 2.1 mtpa and 9.1 mtpa scenarios:

⁹ ARTC 2015 Inland Rail Program Business Case, p 312

- Notwithstanding the short term potential of lower volumes on the West Moreton system, the medium to long term outlook is demand that coal tonnages to 9.7 mtpa. In this environment, Queensland Rail considers that it is prudent to undertake capital expenditure (such as timber bridge replacement) even if volumes are lower, which also minimises the potential impact on future available capacity. This avoids the need to be undertaking additional 'catch-up' capital expenditure when the system is operating closer to its capacity constraint. Queensland Rail considers that a negotiated pricing mechanism to deal with short term affordability issues is preferred to creating a capital expenditure gap that needs to be addressed in the future.
- Capital expenditure is required for asset renewal that will occur as a consequence of volumes railed during the AU1 period. The spend is required to ensure that the asset is not degraded to a point that requires additional (and more expensive) work in the future. Everything Infrastructure advised:

"A long-lived asset, with a maintenance cycle of several years, in the short term, variations in costs caused through changes in levels of service (e.g. traffic volume changes or loading) may not be immediately apparent. This is because many of the cost changes will not manifest themselves until towards the end of the maintenance cycle, or not until signs of fatigue or failure require that the asset be renewed earlier than expected.

Therefore, as train tonne kilometres are a main driver for infrastructure wear and tear costs, it can be reasonably assumed that each additional service kilometre and/or gross tonne on a line will impose a cost because it moves forward the point in time at which the infrastructure must be rehabilitated or renewed. Once affected, without any rehabilitation, the point of time in the life span of the infrastructure prior to the additional service kilometres and/or gross tonnes being imposed (i.e. the previous condition) cannot be restored. Hence we note that a reduction of traffic in the short term cannot reduce the maintenance or cost function for the wear already imposed.

Thus to prolong the life span of the asset, and delay prohibitively expensive renewal projects, a "steady state" of maintenance needs to be applied in the long term which will result in maintaining the asset at a similar point of time prior to the deterioration."¹⁰

If there was the long term prospect of volumes on the West Moreton System being low volume indefinitely, Queensland Rail would likely need to reconsider its asset strategy. However, as indicated above, there is no evidence that this is a reasonable assumption.

- There is an increase in capital expenditure required for signalling and telecommunication assets that is required irrespective of volume to ensure the continued safe operation of the system.

Ultimately Queensland Rail, not access holders, are taking the risk of future demand for rail volumes on the West Moreton system, including the risk of not recovering capital expenditure on the system. Access holders sign access agreement reflecting the period for which they are seeking certainty about access to infrastructure and reflecting their own volume requirements.

Queensland Rail has also acknowledged that it will not be able to recover the full cost of infrastructure necessary to provide Yancoal with the services it requires for 2.1 mtpa with a fully cost reflective access charge.

It is not in Queensland Rail's financial interests to be performing unnecessary capital expenditure on the West Moreton system. Queensland Rail does however, have a responsibility as the Rail Infrastructure

¹⁰ Everything Infrastructure, Review of Queensland Rail's Analysis of Approaches to Common, Fixed and Variable Costs, 10 March 2016 pg 16-17

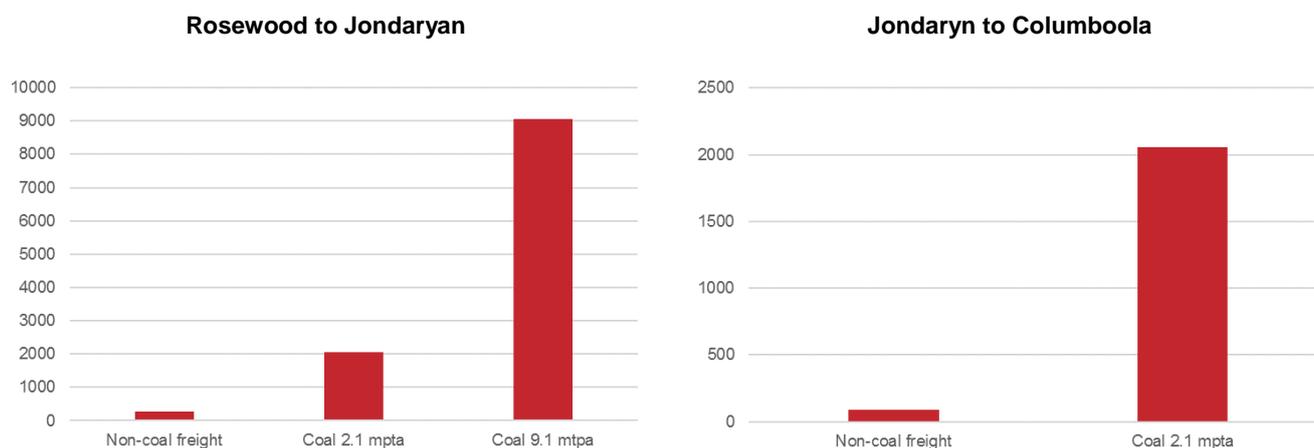
Manager to ensure that it is performing the maintenance and capital expenditure necessary to ensure that rail infrastructure in use is safe and reliable.

Non-coal freight tonnage impact

Queensland Rail notes that stakeholders have challenged the assessment that some capital expenditure is not tonnage dependent because of the statement made that some capital expenditure would not be necessary to meet the non-coal volumes on the system.

Figure 1 shows the assumed annual volumes for non-coal freight and the low and high volume coal scenario. The presence of coal volumes on the West Moreton system (even at 2.1 mtpa) changes the overall capital and maintenance regime from a strategy that would be applied for a very low volume non-coal system.

Figure 1: Forecast coal and non-coal freight DAU2 by corridor (net tonnes)



Yancoal has also suggested that from the commentary in Attachment 3 of the Queensland Rail submission, that capital investment in some of the proposed West Moreton capital expenditure is part of a strategy to increase agricultural and non-coal freight on the West Moreton system.¹¹ With the exception of the Toowoomba Range Tunnel Lowering Project that is being funded by the Queensland Government, there are no capital expenditure projects included in the DAU2 program that is for the purpose of increasing non-coal freight.

The existing infrastructure is more than able to accommodate forecast non-coal demand, noting that forecasts included in DAU2 of 3.5 return train paths per week of agricultural freight through Rosewood to Toowoomba are well above the actual average 1.5 return train paths per week used for agricultural produce in 2017-18.

Timber bridge replacement program and other technically life expired assets

Yancoal has said that *“it considers it more prudent to seek to manage timber bridges and other technically life expired assets in other ways, such as implementing or increasing speed restrictions of increasing*

¹¹ Yancoal, p 14

*maintenance, unless and until it is clear that there is volume growth on the West Moreton system.... Yancoal acknowledges that it is possible that some capital investments are required for safety reasons, but given the limited disclosure provided, QR has not demonstrated or substantiated that being the case.*¹²

Queensland Rail notes that it is possible for capital expenditure on timber bridges to be deferred, with an associated increase in maintenance costs to prolong the life of the asset. Speed restrictions will reduce some, but not all impact related wear or time based degradation (e.g. perished, split, rot, piped and termite damage that occurs irrespective of speed or volume).

The timber bridges planned for replacement in the DAU2 period are bridges that have been identified with multiple defects and that Queensland Rail considers are prudent to replace over the period. Queensland Rail anticipates that the QCA's engineering consultants will undertake a review of the bridges that have been identified for replacement.

As discussed above, with the medium to long term outlook for coal volumes on the West Moreton system to be at a level closer to the existing capacity of the system, Queensland Rail considers that it is a sensible strategy to continue with timber bridge replacement.

Queensland Rail also notes there are longer term system benefits from undertaking work where the system is not operating close to the capacity constraint. Further, should future demand not eventuate, it is Queensland Rail not access holders taking the capital expenditure risk.

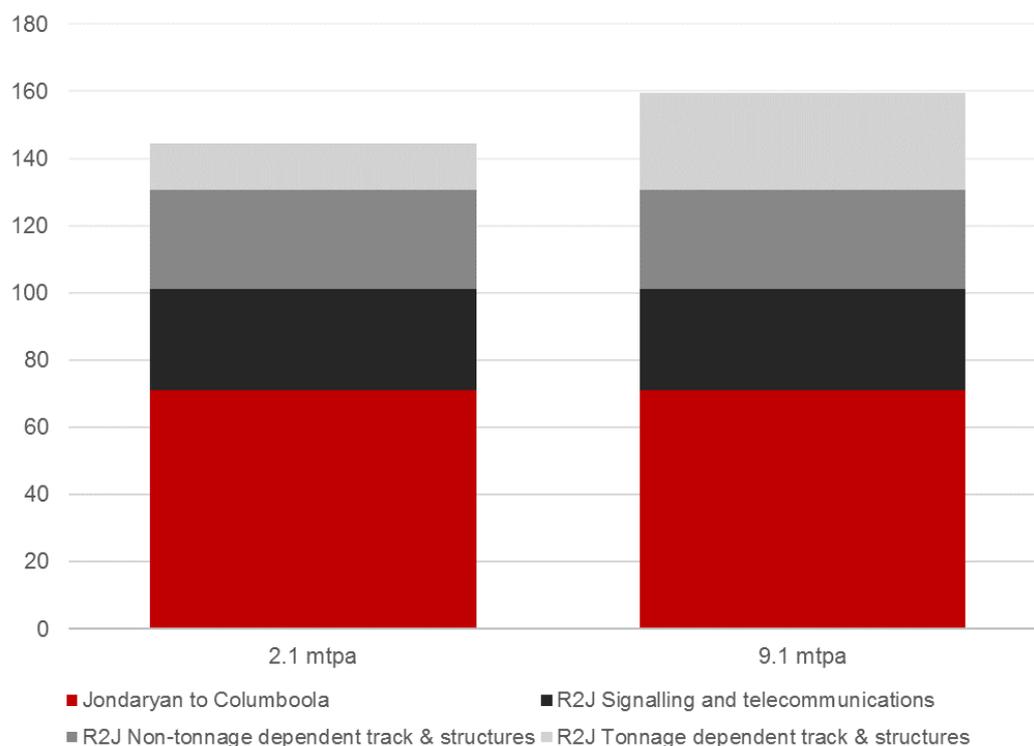
Capital expenditure considerations for a low volume scenario

A breakdown of the proposed capital expenditure for the DAU2 period by type is shown in Figure 2. Queensland Rail notes that for the low volume scenario:

- 49% of the planned capital expenditure for the low tonnage scenario is on the Jondaryan to Columboola section of track, which is constant for both the 2.1 mtpa and 9.1 mtpa scenarios.
- 21% of the capital expenditure is for signalling and telecommunications assets — which are not tonnage depend and are located in the Rosewood to Toowoomba section of the line. Many of these assets which will become life expired during the DAU2 period and/or require upgrade to meet compliance requirements. Queensland Rail does not consider it prudent to extend the life of these assets through maintenance given the risks associated with asset failure.
- 21% is for non-tonnage dependent track and structure work including timber bridge replacement, culvert replacement, resleepering, level crossing reconditioning, replacement of concrete sleepers with gauge issues on tight radius curves, and greaser replacement/upgrades.
- 10% of expenditure is for tonnage dependent track and structure capital expenditure on the Rosewood to Jondaryan section. The capital expenditure estimated for these activities is 52% lower than for the 9.1 mtpa scenario.

¹² Yancoal, p16

Figure 2: DAU2 capital expenditure by cost driver (\$ million)



2.5.3 Role of the QCA in reviewing proposed capital and potential for deferral

Queensland Rail notes that Yancoal has requested that the QCA pay particular scrutiny to which capital investments can prudently be avoided or deferred to a point at which future volumes and volume growth are more certain. New Hope also commented that even the potential for a low tonnage scenario to eventuate would surely give rise to consideration of what capital would be prudent to defer given the clear potential for a material change in volumes.

Queensland Rail has discussed its future demand forecasts in Section 2.4 of the DAU2 Submission. However, as set out in the Attachment 5 to the DAU2 Submission, the majority of the capital expenditure projects planned for the DAU2 period are for asset renewal and/or compliance purposes.

As an accredited rail infrastructure manager (**RIM**) under the *Rail Safety National Law*, Queensland Rail must ensure, so far as is reasonably practicable (**SFAIRP**), the safety of its railway operations. Even with uncertainty regarding future volumes on the West Moreton system, Queensland Rail must continue to prioritise safety throughout the DAU2 period. Accreditation is granted by the National Rail Safety Regulator on the basis that Queensland Rail has the competence and capacity to manage the risks to safety of persons arising or potentially arising, from its railway operations, and to implement its safety management system. Queensland Rail must continue to plan and deliver activities to maintain and operate the West Moreton System in accordance with Queensland Rail's Safety and Environmental Management System (**SEMS**).

Queensland Rail anticipates that the QCA will review the governance arrangements used to identify assets to be replaced, the standard they will be replaced to and whether the estimated costs for doing so are efficient.

However, the QCA should recognise that the means by which Queensland Rail assesses whether risks are managed SFAIRP is by the application of its SEMS. Queensland Rail must not, without a reasonable excuse, contravene its SEMS. In fact, to do so is an offence under the Rail Safety National Law.

2.6 Maintenance Costs

2.6.1 Transparency of maintenance forecasts

Queensland Rail notes the concern raised by New Hope and Yancoal that the information redacted makes it difficult for customers to form a view about the proposed maintenance costs for DAU2.

The purpose of the redactions is to allow Queensland Rail to preserve its competitive position in the market where future work may go out for competitive tender. Queensland Rail can make the maintenance costs submission available for access holders to review on a confidential basis.

2.6.2 Fixed versus variable costs

Both New Hope and Yancoal have indicated a view that maintenance costs being estimated as 57.3% fixed is too high.

The QCA and stakeholders would be aware that Queensland Rail had concerns during the AU1 process that the amount allocated for fixed costs were too low. Queensland Rail notes that the QCA has previously found that the variable costs for lower tonnages would be only a small part of the maintenance costs:

"at low tonnages, only a small part of the maintenance cost is variable but this increases to around 20% at 5 MGT and 30% at 10 MGT for concrete and about 10% more for timber. By 20 MGT, the variabilities have increased to about 45% and 55% respectively and they then increase steadily, until they are over 80% at 60 MGT, as asset renewal becomes increasingly tonnage-based."¹³

However, for the reasons set out in the DAU2 Submission, Queensland Rail proposed applying the QCA's methodology for adjusting the 6.25 mtpa scenario to derive the 2.1 mtpa and 9.1 mtpa scenarios. Queensland Rail has adopted the QCA estimates for the tonnage dependent maintenance activities. Given the conclusions of the GHD report, Queensland Rail considers that using the QCA's approach is reasonable for the circumstances.

If anything, Queensland Rail considers that applying the QCA's estimates of fixed and variable cost components likely underestimates the 2.1 mtpa maintenance cost estimates.

2.6.3 Other issues

New Hope concerns	Queensland Rail comment
Figure 7 in Attachment 5 shows an increase in total maintenance costs from AU1 to that proposed in connection with the 2020 DAU for the low tonnage scenario. This is counter-intuitive given the reduction in tonnage for this scenario compared to AU1.	The title of Figure 7 should have included a clarification that these costs were for the 6.25 mtpa cost scenario.
Page 13 of Attachment 5 suggests that the bridges are	Maintenance costs for bridges have been adjusted for both

¹³ QCA, Working Paper 2 Usage-related infrastructure maintenance costs in railways, December 2000, p 14

New Hope concerns	Queensland Rail comment
generally fit for purpose but don't meet modern design standards. This would suggest an ability to defer some expenditure particularly if volumes decrease, such that speed restrictions or other measures could be imposed without removing capacity that was required to meet demand.	the low and high volume scenario. The bridges planned for replacement during the DAU2 period have multiple defects. Delaying replacement of these bridges (even with speed restrictions) would increase proposed maintenance costs for the DAU2 period.
Table 7 of Attachment 5 shows rail renewal as 50% fixed. This is, by contrast, considered to be highly variable as rail is not replaced unless worn to below wear limits.	Queensland Rail notes the comments that rail renewal is related to wear limits. The QCA made the assessment of rail renewals costs as being 50% fixed. The QCA did not disclose how it arrived at this amount.
Similarly, rail repair would be expected to be highly variable with volumes.	The QCA made the assessment of rail repair costs. It did not disclose how it arrived at this amount.
The 36 days of closures proposed in Section 4.6 of Attachment 5 lends itself to the use of contractors. QR has not indicated any plans for the use of contractors to help reduce maintenance costs to more efficient levels and convert more of the fixed costs to variable costs.	Applying the QCA's methodology for estimating fixed and variable costs requires a reduction in the overall costs of each activity. This implies the need for reduced labour, materials and other inputs (including track machinery time). How this is ultimately achieved is a management decision for Queensland Rail.
The clear implications from QR's estimated future costs (relative to the previous costs), in Table 16 and Figure 9 of the QR Submission, is that QR has a fixed labour force with only the allocation of expenditure changing either side of Jondaryan.	Queensland Rail's maintenance submission sets out the reasons why the methodology for the allocation of maintenance costs has changed from the AU1 period to DAU2. The allocation of costs to the Jondaryan to Columboola section of track reflects Queensland Rail's planned maintenance for 2018-19, with maintenance planned by the location of works. Queensland Rail rejects the inference that it has reallocated fixed labour costs to this section to support the 2.1 mtpa scenario.

2.7 Operating Costs

2.7.1 Train control costs

New Hope commented that it cannot be efficient for the West Moreton and Metropolitan Systems train control functions to be located and operated separately as coal volumes decline. 'Boards' used to manage a network can be split or amalgamated. It also noted that Queensland Rail has not explained why two controllers 24/7 are required for the West Moreton System. Arguably it would be more efficient to have two controllers on day shift while there are maintenance workers seeking track access, and only one for the rest of the time.

As noted in its submission Queensland Rail proposed that it does not consider that the difference between having one mine or two mines hauling coal in the West Moreton System to materially change the operating costs of providing infrastructure services for the West Moreton System. This includes those costs allocated for train control.

Staffing levels at a control centre predominately drive the costs of a centre. While in some circumstances they can be influenced by the amount of traffic over a network, in practice staffing levels are primarily linked to the:

1. amount of network managed by the control centre;

2. type of signalling systems adopted; and
3. safe management of staff workload.

The system is serviced by two boards given the significant geographical span of the network. These are split between:

1. Brisbane West Board with track sections between Ipswich-Willowburn; and
2. Brisbane Far West Board with all remaining lines on the network west of Willowburn.

As set out in the DAU2 submission, the boards operating the West Moreton system are co-located with network controllers for the South West System, Western System and North Coast Line (South), rather than the Metropolitan System.

A large amount of the West Moreton System is serviced by Direct Traffic Control. This is a labour-intensive system that relies upon generating text-based movement authorities that are read out by the train control and repeated back by the rail traffic crew.

In developing Network Control Officer (**NCO**) numbers, shift rotations and daily duty requirements, Queensland Rail must consider human factors risks for matters of safety. For train control, this includes, but is not limited to, the overall workload of NCOs.

Independent of the system throughput, the daily duties of the NCOs include:

1. Daily train control on mainlines (including holding traffic at appropriate locations for relief arrangements);
2. Execution and management of the daily train plan, including responding to changes in operator requirements and track possessions;
3. Managing ad hoc safe access to the track for maintenance purposes;
4. Collation of operations data for reporting; and
5. Supervision/management tasks.

2.7.2 Allocation of operating costs to the West Moreton System

New Hope stated that 54% of total operating costs are overheads in one form or another. This suggests inefficiencies or cost allocation biased towards the West Moreton System (where costs are more easily recovered through reference tariffs).

As set out in its submission, total operating costs for the West Moreton System reflect the operating costs from the 2016-17 Below Rail Financial Statements. The cost allocators applied to the West Moreton System were approved by the QCA as part of the Costing Manual 2017. The Below Rail Financial Statements, including application of the cost allocators are audited by the Queensland Audit Office.

Queensland Rail rejects the inference that the cost allocation is biased towards the West Moreton System on the basis that these costs can be recovered through reference tariffs.

3. Standard Access Agreement

Stakeholders made submissions on a number of aspects of the draft Standard Access Agreement (SAA).

Queensland Rail has commenced discussions with stakeholders on the issues raised. It has not been possible in the timeframe available to finalise those discussions, but Queensland Rail has committed to continue to work with stakeholders and believes based upon the discussions agreement will be able to be reached, differences resolved, in relation to various issues.

In particular, Queensland Rail is considering its approach to the following issues.

3.1 'Good Faith' Obligation - (Clauses 1.2, 1.3, 6.7(c), 8.8(b), 18.2(c) and Schedule 3 Clauses 2.2 and 5.4(a).)

Stakeholders expressed concerns regarding the removal of the good faith obligation, particularly in relation to productivity and efficiency variations.

Queensland Rail considers that the inclusion of a definition of 'good faith' is an appropriate way of addressing stakeholder concerns. Queensland Rail will discuss the drafting of an appropriate definition with stakeholders.

3.2 Productivity and Efficiency (Clause 1.3(a))

Clause 1.3(a) of the DAU 1 SAA requires Queensland Rail to reasonably consider variations to an existing access agreement to create or accommodate productivity or efficiency improvements.

In DAU2, Queensland Rail has clarified that the efficiency improvement is associated with the supply chain and listed a number of factors to which Queensland Rail must have regard when considering the productivity and efficiency improvements. Importantly the factors listed are not the only factors to which Queensland Rail can have regard.

Stakeholders opposed the changes. Yancoal argued that the changes reduce the extent of Queensland Rail's obligation in respect of productivity and efficiency gains¹⁴ and given the high cost nature of infrastructure, these obligations are critical to the ongoing viability of coal services. New Hope argued that the changes introduced ambiguity and suggests that the changes would somehow operate to narrow potential variations.¹⁵

Queensland Rail agrees that efficiency and productivity improvements are important. However, the changes proposed in DAU2 do not reduce Queensland Rail's obligations, or narrow potential variations. Under DAU2, Queensland Rail still must give reasonable consideration to proposed changes to the access agreement to allow efficiency or productivity improvements. In making that assessment, there are a number of factors Queensland Rail will look at, which are all reasonable factors when assessing efficiency. The list of factors does not constrain Queensland Rail, which may take into consideration anything that is relevant.

¹⁴ Yancoal Submission, 17 October 2018, section 9.

¹⁵ NHG Submission, Volume 2, 17 October 2018, section 3.1

3.3 Security (Schedule 1)

Schedule 1 of the SAA has been amended to permit Queensland Rail to seek security equal to at least six months' access charges. The change has been made to reflect Queensland Rail's risk exposure for the payment of access charges, relinquishment fees or other amounts payable and aligns with security amounts approved in other undertakings.

Yancoal argues that the increase in security costs is unreasonable¹⁶ stating there has been no justification for the substantial increase and there have been no prior defaults to justify the change in risk. NHG argues, amongst other things, that Queensland Rail can "manage the risk more appropriately" than by requiring security.

Clause 17 of the SAA gives Queensland Rail the ability to increase or decrease the amount of security required. As stakeholders are aware, Queensland Rail's approach to security is reasonable and where an access holder has a demonstrated track record of meeting their financial obligations, security has been significantly reduced or even set to zero. [REDACTED]

However, it is important for Queensland Rail to have the ability to maintain an appropriate amount of security. Despite some of Queensland Rail's customers being 'parent' corporate entities, these corporate entities often have complex company structures. This can result in the entity with which Queensland Rail contracts not having the financial backing of the larger parent. In these circumstances Queensland Rail needs the ability to impose an appropriate security requirement.

Queensland Rail submits that there is no basis for the assertion that Queensland Rail will impose onerous or unnecessary security requirements – no stakeholder has submitted that this has been the case to date, notwithstanding that the three month limitation on security was not imposed until the QCA's approval of AU1 in October 2015.

3.4 Permitting Access to be Applied for Other Than Through an Access Application

AU1 has a rigid access application process, which can lead to inefficiencies for simple matters. Access applications can also be submitted to anyone in Queensland Rail, which has caused delays in processing the applications. DAU2 increases the flexibility of the application process while still protecting the rights of access seekers. DAU2 has also specified where access applications should be submitted.

Yancoal and New Hope both expressed concerns about how the new forms of application reconciled with the definition of access application in Part 2 of the DAU (the negotiation process).

The changes proposed in DAU2 are not intended to interfere with the prescribed negotiation process, only to remove a level of formality that may be unnecessary in some circumstances.

However, Queensland Rail does consider it necessary that there be some certainty about when a communication is intended to constitute a formal access application, and that needs to be clear at the time that communication is received by Queensland Rail. That certainty avoids any prospect of disputes about the proper position of any party in a queue formed later. Queensland Rail will discuss further proposed drafting amendments with industry.

¹⁶ Yancoal Submission, 17 October 2018, section 9.

4. Other Matters Raised by Stakeholders

4.1 Renewals

DAU2 retains one-off renewals (limited to coal and bulk freight). These renewal rights are limited to contracts with terms of five to ten years (inclusive) with a maximum renewal term of five years. These changes are designed to balance the desire of coal and bulk freight users for access charge certainty with the risks faced by Queensland Rail.

Yancoal,¹⁷ New Hope¹⁸ and Aurizon Bulk¹⁹ all expressed concerns about the changes to renewal rights. Yancoal and New Hope expressed the view that the contract should be evergreen, (Queensland Rail's interpretation of this being that there are ongoing renewal rights) to reflect the long-term payback period in mining.

Queensland Rail believes the relatively minor changes it is proposing to the renewal provisions are appropriate and clarify the operation of those provisions. Queensland Rail is, and always has been, open to negotiating long term access contracts with access seekers. Thus, it is Queensland Rail's view that the certainty access seekers require can be obtained by signing long term access contracts.

Queensland Rail is concerned about the competitive impacts of evergreen contracts suggested by Yancoal and New Hope. The approach has the potential, where there are network capacity constraints, to exclude new entrants. That is, with evergreen contracts Queensland Rail would be unable to provide capacity to a new entrant who may have a higher value use for the rail capacity covered by the evergreen contracts. This would be an inefficient allocation of constrained resources.

4.2 Capital Prudency

Queensland Rail has included a new clause 1.5 in Schedule E which requires the QCA to set out its rationale for a decision or determination. New Hope has argued that this change is unnecessary and adds complexity to the QCA's decision making process when assessing prudency.²⁰

Queensland Rail maintains that the introduction of clause 1.5 is an appropriate amendment. Capital prudency tests are a key part of the regulatory regime. The operation of the prudency test can have significant financial implications for Queensland Rail and can influence future investment decisions. It is appropriate, given the importance of the prudency test, that all stakeholders understand the methodology and data that is utilised by the QCA. Transparency will help in delivering appropriate regulatory decisions by ensuring effective scrutiny and increase stakeholder understanding of the operation of the regulatory regime, thereby decreasing regulatory uncertainty.

4.3 Master Planning and Extension Coordination

Industry has sought greater clarity around the proposed Master Planning Process. For example, Yancoal was concerned about protections from cost overruns, and customer input, amongst other things.

¹⁷ Yancoal Submission, 17 October 2018, pp 19 – 20.

¹⁸ New Hope Submission – Volume 2 Undertaking and Standard Access Agreement, 17 October 2018, pp 11 – 12.

¹⁹ Aurizon Bulk Submission October 2018, Section 2.4.

²⁰ New Hope Group Submission – Volume 2 Undertaking and Standard Access Agreement, 17 October 2018, section 2.3.

Queensland Rail believes that it can resolve many of the issues raised by industry and will continue consultation on this post lodgement of this submission.

4.4 Operating Requirements Manual (ORM)

The ORM is part of the current access undertaking, which means that Queensland Rail will need to submit a draft amending access undertaking to the QCA to make minor changes to the ORM. Also the ORM largely deals with matters that are purely operational. DAU2 removes the ORM from the undertaking and requires Queensland Rail to consult industry when changes to the ORM will have a material effect on third parties.

Yancoal, New Hope, Aurizon Coal and Aurizon Bulk all opposed the removal of the ORM from the access Undertaking, primarily because of the view that this removes QCA oversight.

The ORM was intended to facilitate administrative efficiency, and includes operational issues previously included in the SAA, and other matters that are simply required for Queensland Rail to be able to manage its network.

Queensland Rail is committed to working with industry to seek a resolution that balances the perceived need for QCA 'oversight' with administrative and operational efficiency.

4.5 Ad Hoc Planned Possessions

Queensland Rail provided a definition of 'Ad Hoc' Planned Possession' into DAU2's Network Management Principles. Industry understood this to be a new type of possession and therefore opposed it in their submissions.

By way of clarification, 'Ad Hoc' planned possessions are not a new type of Possession. This is the most common type of Possession on the network. Queensland Rail defined the term to ensure that it is clear that access holders are afforded the same protections under the access undertaking as is provided in relation to timetabled Planned Possessions which sit permanently in the Master Train Plan (For example, full consultation and three months' notice of the Possession etc).

4.6 Ceiling Revenue Limit

Aurizon Bulk has noted that:

"the methodology for calculating the Ceiling Revenue Limit has been carried forward from AU1 to DAU2. It is too generous to QR and irrelevant (refer 1.4 AU1 Pricing methodology — floor and ceiling limits) in its existing format as it contemplates below rail rates that are substantively above what the market can bear. A Floor and Ceiling approach to setting rates is reasonable but should consider market conditions for each of the rail systems that QR manages and reasonable rates of return (refer Pricing Certainty)."

Aurizon Bulk has provided a lengthy discussion on the issue, particularly as it relates to the Mount Isa Line. Queensland Rail notes that in essence Aurizon Bulk appears to be making an argument that the use of a Depreciated Optimised Replacement Cost (DORC) valuation to calculate a ceiling price for the Mount Isa Line is too high because its use would generate access charges that are higher than the market can bear.

Queensland Rail agrees with Aurizon Bulk that access charges set to the Ceiling Revenue Limit — given the current volumes — on the Mount Isa Line would make rail freight unaffordable. This is not in the interests of Queensland Rail, rail operators, end customers or Queensland.

As set out on the Queensland Rail website:

“Queensland Rail sets its access charges on the Mount Isa Line so that it at least covers the operating, maintenance and capital renewal costs of providing service (floor revenue), taking into account the forecast volumes on the system.

Queensland Rail does not receive government subsidies for the provision of infrastructure access services on the Mount Isa Line, so if it is not able to cover these costs, the service is not financially sustainable. Access revenue is important to support the maintenance and asset renewal on the Mount Isa, so that rail remains a reliable link in the North West Minerals Province export supply chain.

Further, as the rail transport is in direct competition with road transport for a number of the commodities hauled on the Mount Isa Line, particularly intermodal freight, Queensland Rail sets its access charges to ensure that efficient above and below rail transport costs remain competitive with road transport.”²¹

Queensland Rail does not consider that the presence of potential market contestability is reason for the QCA to exclude DORC as an option for estimating the Ceiling Revenue Limit. Queensland Rail notes that clause 3.2.3 (c) of AU1 already provides for the value of assets used in clause 3.2.3 (a) (Determination of Ceiling Revenue Limit) is as agreed by the Access Seeker and Queensland Rail, or failing agreement, as determined by the QCA.

Further, as Aurizon Bulk observes, the presence of a potentially contestable rail freight market places a real constraint on the level to which access charges can be set, which means that Queensland Rail does not have the ability or incentive to use any market power to adversely affect competition.

As Queensland Rail noted in its preliminary submission to the QCA's declaration review:

“In the future without declaration, Queensland Rail would be materially constrained in the provision of below rail services for the purposes of transporting freight by:

- a. Strong competition from road operators, which provide a closely substitutable service in respect of the transportation of freight, other than some bulk commodities being transported over long distances. Parties requiring freight transportation services can readily shift to moving freight by road in the event of an increase in access price and/or decline in quality of service provided.*
- b. Customers' ability to pay, which constrains the access prices that can be imposed by Queensland Rail, including for the purposes of transporting bulk commodities*
- c. Queensland Rail's statutory obligations and position as a statutory authority, including obligations to have approved and comply with strategic and operational plans, as well as its obligations under the TSC.*
- d. Queensland Rail's incentives to maximise demand for its below rail services due to significant spare capacity on its systems.*
- e. The fact that Queensland Rail is not vertically integrated in a relevant respect.*

²¹ <https://www.queenslandrail.com.au/business/access/Compliance%20and%20reporting/Mount%20Isa%20Line%20-%20Questions%20and%20Answers.pdf>

Within this framework, Queensland Rail does not consider that DAU2 requires additional pricing limits to be included to place additional constraints on the way in which Queensland Rail negotiates access charges.

Queensland Rail also notes the comments of Aurizon Bulk that:

“While Ceiling Revenue Limits could act as a trigger to reduce below rail access prices across the Network, in the case of the Mount Isa Line, the limit is set at a level that appears irrelevant based on current and forecast utilisation. The result of this appears to be a situation whereby:

- a) New users of the Mount Isa Line are subject to the same below rail access tariffs as existing users, with no user (existing or new) benefit passed on from the relatively low incremental cost of new volume and increased utilisation; and*
- b) Working on the premise that QR's costs for the Mount Isa Line are largely fixed and the incremental cost of accommodating additional volume is low, any new volume is likely to be highly profitable for QR.”*

As discussed above, the Mount Isa Line operates at a level where revenue is marginally above the estimated system floor revenue of covering operating, maintenance and capital renewal costs. The Mount Isa Line operates without the support of a Queensland Government TSC and in an environment that is increasingly competitive with road transport.

Aurizon Bulk is correct that new users on the Mount Isa Line are subject to the same below rail access tariffs as existing users, where they are moving the same commodity in the same geographical region. However, Queensland Rail does not consider that the price differentiation limits are intended to trigger price reductions for new and existing users when new volumes are contracted, and revenue remains well short of a ceiling price.

This may be possible in some instances where Queensland Rail is able to negotiate lower prices with access seekers, in an environment where demand is strong. However, Queensland Rail must take into account a range of competing considerations in setting access charges including:

- the level of competition with road transport and the objective of maximising freight on rail;
- ensuring the ongoing financial viability of the system, which means at least covering system floor costs;
- having sufficient revenue to support investment in the rail network to support the overall competitiveness of rail e.g. upgrade from steel to concrete sleepers and heavier rail to support system reliability; and
- access prices already in place for like commodities on the Mount Isa Line to not contravene the price differentiation provisions of AU1.

Queensland Rail does not consider it necessary to further limit Ceiling Revenue Limits that will contravene its legitimate business interests.

4.7 Increasing Flexibility of Pricing Rules

Queensland Rail has a QCA approved reference tariff for coal services on the West Moreton and Metropolitan Systems. For all other traffics Queensland Rail negotiates access charges with access seekers, within prescribed pricing rules in the access undertaking.

In its submission, Aurizon Bulk made the following comments in respect of Queensland Rail's proposed amendments to the limits on price differentiation:

- agrees with Queensland Rail that the current price differentiation methodology is too restrictive and does not promote greater use of the network; and
- considers Queensland Rail's proposed changes to be reasonable, but is seeking rules that will provide greater pricing certainty in determining price.

As set out in the DAU2 Submission, Queensland Rail has proposed the adoption of the limits on price differentiation rules that apply for the ARTC Interstate Rail Access Undertaking on the basis that Queensland Rail and ARTC are operating in similar markets and the limits on price differentiation have already been considered by the ACCC. This is intended to apply in circumstances where there is no approved reference tariff.

Queensland Rail notes that the purpose of proposing an alternative approach to the limits on price differentiation is to maximise the use of the available rail infrastructure, which is a challenge where rail transport is increasingly competing with road transport for market share. In a competitive market environment, it is not in Queensland Rail's interests to be setting access charges that would preclude access to rail infrastructure for any customer seeking to move freight.

Aurizon Bulk has also indicated concerns that Queensland Rail may develop a process that supports only the highest bidders without protective structures to prevent Queensland Rail from pricing the best paths for those that can afford to pay the most.

Queensland Rail notes that there may be circumstances in the future as the SEQ network becomes constrained that there is competition for preferred departure/rival times for just-in-time freight, typically connecting to the North Coast Line System for grocery deliveries to North Queensland. Queensland Rail considers that the access undertaking should allow some flexibility for the allocation of what would be premium paths, noting that access seekers would have choice to participate in such a process. This is not unlike the ARTC arrangements where different levels of service are provided.

Queensland Rail believes that its proposed changes will improve flexibility of pricing arrangements, which would lead to allocative efficiency, because:

- it reduces Queensland Rail's financial loss from providing below rail services; and
- helps allocate train services to users who value them the most.

Queensland Rail's view is that any constraints other than the current floor and ceiling approach would detrimental to efficient outcomes as it would:

- preclude the possibility that Queensland Rail would ever earn sufficient revenue to cover its costs, including an appropriate rate of return, which would:
 - not promote effective investment in the network; and
- increase the need for subsidy from the Queensland Government if it were applied to non-Mount Isa systems; and
- obscure the magnitude of financial loss incurred by Queensland Rail.

4.8 Fixed Charges and Relinquishment Fees

Queensland Rail's fixed charges/take-or-pay arrangements take into account the market in which the train service is operating, the level of contestability with road and the need for financial sustainability (particularly for the Mount Isa Line).

Commodity	Indicative take-or-pay arrangements
Minerals concentrates, fertiliser, acid, intermodal mining inputs, bulk sugar	[REDACTED]
Intermodal freight on the North Coast Line	[REDACTED]
Grain and livestock	[REDACTED]

Section 2.3 of Aurizon Bulk's submission seems to propose that the QCA should consider the level of relinquishment fees charged where an access holder needs to reduce paths during the course of an agreement for whatever reason. Aurizon Bulk said that relinquishment fees would generally need to be associated with the costs that would otherwise have been avoidable if not contracting the volumes.²²

Both Pacific National and Aurizon have commented that DAU2 requires a relinquishment fee equivalent to 80 per cent of the present value of the aggregate take or pay charges payable on a train path to the end of the contract term. This approach to relinquishment fees acts as a very strong disincentive for long term contracting and supply chain certainty and does not promote the efficient operation.

Aurizon Bulk has suggested that it would be reasonable to consider limiting Queensland Rail to a maximum number of paths payable under a relinquishment, such as one year.

Particularly on the Mount Isa Line where Queensland Rail does not receive financial support through the TSC, a level of revenue certainty is required in setting access charges for the system overall to ensure the financial viability of the system (i.e. at least cover the operating, maintenance and capital renewal costs of providing the service). Take or pay arrangements assist in managing these risks.

Queensland Rail notes that there is no obligation on access seekers to sign contracts for any length of time, and if they are uncertain about future volumes, they can sign shorter term agreements, although this may expose access seekers to greater price uncertainty (within the limits on price differentiation). Where access holders in a system have longer term contracts, they also have price certainty for that period.

While Queensland Rail notes the concerns about contracting longer terms where relinquishment fees exist, it considers that the arrangements are consistent with its legitimate business interests and access seekers continue to have options on contract length and certainty.

²² Aurizon Bulk Submission section 2.3

Queensland Rail does not support a 12 month cap on take or pay obligations, regardless of contract length as it would have the effect of making the contract term meaningless.

Matter of clarification

Aurizon Bulk has suggested that where a customer relinquishes a path, with a net reduction in Queensland Rail's revenue, this ought to lead to a relative reduction in costs for that system. Aurizon Bulk seems to suggest that Queensland Rail is able to 'quickly flex it's cost base when volumes shift'. It cites the reduction in expenses on the Mount Isa Line from \$70 million to \$59 million between 2015-16 and 2016-17 which coincided with the cessation of Aurizon's daily intermodal train services from Townsville to Mount Isa.

Queensland Rail notes that the change in costs is coincidental to, not because of the cessation of Aurizon's daily intermodal service. The lower expenses in 2016-17 were in large part due to the accounting treatment of the repair of a major derailment on the line as capital expenditure rather than maintenance. The accounting treatment was reflected in:

- \$3.1 million reduction in derailment expenses compared to 2015-16 – with costs associated with repairs of a major derailment on the Mount Isa Line capitalised rather than expensed due to the significant level of track repair required.
- \$5.2 million reduction in maintenance costs, in part due to timing issues, but also due to a decision to install concrete sleepers as part of derailment repairs, with these costs treated as capital expenditure rather than maintenance.

The fixed cost nature of rail infrastructure makes 'flexing' to match reduction in revenues impossible to achieve, with limits around how many costs can be avoided. While incremental maintenance costs can be avoided, access charges set to also cover operating costs which are largely fixed in the short term and make contributions to asset renewal will not change in the short term.

4.9 Consolidation of Additional Train Services and Ad Hoc Train Services

Aurizon Bulk has proposed that *the Standard Access Agreement (SAA) should also be amended to consolidate the request for Additional Train Services and Ad Hoc Train Services under one request for extra train services, and for any extra train services to be counted towards the Access Holder's annual contracted paths consumed.*

Specifically, Aurizon Bulk has said that:

"The SAA under AU1 and under DAU2 provide a number of pathing options for customers; contracted paths in the master train plan, and a variety of different daily train plan options.

Clause 8 of the SAA provides the ability for the Access Holder to request either Additional Train Services (Clause 8.2) or Ad Hoc Train Services (Clause 8.3), which in QR has no obligation to provide. The application of both Additional and Ad Hoc Train Services is similar, with both essentially being formed from an Access Holder's additional requirements for a train path, whether for a short or long term period. The definition for each is similarly blurred in the SAA:

- *"Ad Hoc Train Service means a train service additional to the number of Train Services permitted under this agreement and **varying from the Train Service Description**, but agreed to by QR." (emphasis added) and*
- *"Additional Train Service means the operation of a Train in accordance with this agreement that **would be a Train Service but for it being in addition to the Train Service Levels** set out in the Train Service Description (emphasis added)."*

Queensland Rail considers that the definitions included in the SAA to be clear that the two services are different.

Ad Hoc Train Services will generally include unscheduled repositioning of rollingstock and other relocations and movements that are incidental to the provision of contracted train services. In recognition that these incidental Train Services are not contracted revenue services, Queensland Rail typically includes a schedule of rates in Access Agreements for Miscellaneous Services, which are considerably lower rates than for a normal contracted Train Service.

In addition, 'Ad Hoc Train Services' may include services with a different Origin or Destination, and other material differences to the contracted services, for which the Access Holder may otherwise not have an access agreement.

Queensland Rail does not support the consolidation of the definitions into a single definition or consider that there is any case to allow for Ad Hoc Train Services to be considered as an offset against contracted take or pay obligations.

Attachment 1: Frontier Economics' Expert Report – Asset Optimisation

14 NOVEMBER 2018

RESPONSE TO SUBMISSIONS ON LOW VOLUME SCENARIOS

A REPORT PREPARED FOR QUEENSLAND RAIL

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CONTENTS

1	Introduction	1
1.1	Queensland Rail’s undertaking	1
1.2	Overview of submission responses	1
1.3	QCA Act criteria	3
1.4	This report and summary of opinions	3
<hr/>		
2	Regulatory treatment of low volume scenarios	4
2.1	The parties’ commercial incentives are aligned	4
2.2	Loss capitalisation is a reasonable response to present circumstances	4
2.3	An asset optimisation would not be appropriate at this time	6
2.4	Existing miners should not be subsidised	9

Tables

Table 1:	Summary of Queensland Rail’s West Moreton system financial performance	12
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Figures

Figure 1:	Newcastle coal FOB prices, thermal	10
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1 INTRODUCTION

1.1 Queensland Rail's undertaking

In August 2018, Queensland Rail submitted a draft access undertaking (DAU2) which would commence from 2020. A key part of the undertaking relates to tariffs for the West Moreton and Metropolitan system, which is used to transport coal, passenger and other freight traffic.

Queensland Rail seeks QCA approval for the following:

- West Moreton System coal reference tariff of: \$22.39/000 gtk (\$2020-21) at 9.1mtpa; and
- Metropolitan System reference tariff of: \$18.13/000 gtk (\$2020-21) at 9.1 mtpa.

In its DAU2 submission, Queensland Rail identified a coal volume demand scenario on the West Moreton and Metropolitan Systems of only 2.1mtpa in 2020-21 associated with the proposed New Acland Stage 3 mine not being developed or being delayed. The calculated draft ceiling tariff at 2.1mtpa is:

- West Moreton System coal reference tariff of: \$52.58/000 gtk (\$2020-21); and
- Metropolitan System reference tariff of: \$18.13/000 gtk (\$2020-21).

As part of its consultation, Queensland Rail has agreed with Yancoal to postpone elements of Queensland Rail's DAU2 until post lodgement with the QCA to ensure full consultation with West Moreton stakeholders on the treatment of low volume scenarios. Matters for consultation include:

- seeking to negotiate a reference tariff for QCA approval with Yancoal for a 2.1mtpa scenario,
- a possible loss capitalisation model at the 2.1mtpa scenario; and
- the possibility of providing reference tariffs for QCA at pricing points between 2.1mtpa and 9.1mtpa.

In developing options, Queensland Rail is cognisant that it would not be in it or users' interests to discourage future network growth (by setting tariffs too high or not providing enough certainty).

1.2 Overview of submission responses

1.2.1 New Hope

New Hope's is concerned that the proposed West Moreton system reference tariffs are unsustainable and economically unviable for Queensland Rail's coal customers on those systems.¹

New Hope later indicates that it is concerned about Queensland Rail's possible consideration of methods that would defer cost recovery into future periods (through loss capitalisation or volume adjusted tariffs):

The more obvious solution would be optimisation of the asset base to a point at which the tariffs would be economically viable, otherwise the West Moreton system is likely to become completely

¹ New Hope Group, Queensland Rail's 2020 Draft Access Undertaking: Initial Submission – Volume 1 Overview and Reference Tariffs, 17 October 2018 (New Hope submission), p. 5.

economically stranded (with QR presumably being required to keep the system open for passenger and grain services – but at very significant cost to the government). NHG's primary concern regarding the low tonnage scenario is that the QCA does not approve a pricing methodology which exacerbates the issue by increasing the costs of new entry – such that potential producers are dis-incentivised from bringing back new volume. In that regard, NHG is concerned that unlike other regulatory settings where loss capitalisation has been adopted, there is not a high degree of certainty of demand growing over time.²

1.2.2 Yancoal

Cameby Downs is currently producing approximately 2.2 mtpa of product coal. It has significant coal resources and the ability to expand production, if reference tariffs were set at a level that made the mine economically viable and attractive relative to other investment opportunities in Yancoal's portfolio of other coal mines.

However, Yancoal is concerned that the prices proposed by Queensland Rail would make Cameby Downs economically unviable at long term consensus coal prices.

Yancoal is therefore critically concerned with ensuring efficient and appropriate pricing and terms of access for the West Moreton and Metropolitan systems – that are both viable over the coal price cycle and incentivise further investment in Cameby Downs.

However, Yancoal is not opposed to Queensland Rail's proposed approach, given the substantial difference between the tonnages which appear to be involved, and the significant adverse implications for both Yancoal and Queensland Rail of an inappropriate tariff in the 'low tonnage' scenario.

At the date of its submission, Yancoal stated that it:

- a. has concerns with loss capitalisation being employed in a context where (unlike its application in other regulatory determinations) there is not necessarily a high likelihood of substantial demand growth through which revenue capitalised during a low tonnage period could ultimately be recovered;*
- b. considers that optimisation of the asset base is likely to be more appropriate;*
- c. but considers it is premature to rule out particular options or provide detailed submissions on appropriate pricing to apply in a low tonnage scenario when the advantages and disadvantages for Queensland Rail and users of various methodologies have not yet been fully explored; and*
- d. is hopeful that, with further time for consultation, there is some prospect of reaching agreement on at least some principles or issues relating to the appropriate pricing in the low tonnage scenario, or at a minimum being able to make more informed submissions about the appropriateness of some of the potential options.³*

As for New Hope, Yancoal also considers Queensland Rail's proposed changes to the allocations of the West Moreton regulatory asset base (and presumably fixed operation and maintenance costs) to be highly inappropriate.

² New Hope submission, p.10.

³ Yancoal, Initial Submission on QR 2020 Draft Access Undertaking, 17 October 2018 (Yancoal submission), p. 3.

1.3 QCA Act criteria

The QCA considers Queensland Rail's DAU2 and stakeholder submissions in accordance with the assessment criteria in s. 138(2) of the QCA Act.

This states that the QCA may approve a DAU only if it considers it appropriate having regard to various criteria. Below, we replicate the criteria that are, in our opinion, most relevant to the QCA's considerations and which we address in our report:

- (a) the object of Part 5 of the QCA Act, which is:
 - ... to promote the economically efficient operation of, use of and investment in, significant infrastructure by which services are provided, with the effect of promoting effective competition in upstream and downstream markets (s. 69E).
- (b) the legitimate business interests of the owner or operator of the service
- (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 in s. 168A of the QCA Act, which in relation to the price of access to a service are that the price should:
 - (i) 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...
 - (iv) ...provide incentives to reduce costs or otherwise improve productivity

1.4 This report and summary of opinions

Queensland Rail has asked Frontier Economics to provide its opinions on the appropriate regulatory response to a "low tonnage" scenario in light of future prospective higher tonnage scenarios eventuating. We have also provided a separate opinion on rate of return matters.

We provide this opinion and reasoning in the following section.

In summary, our opinion is that it would be economically efficient and otherwise consistent with the QCA's criteria for Queensland Rail to pursue pricing approaches that defer cost recovery, including the use of loss capitalisation. There is alignment in the incentives of Queensland Rail and access seekers in setting reasonable prices in the early years of the undertaking; however, any network optimisation or forgoing of revenues would effectively constitute a subsidy to miners. This conclusion holds even if it is not certain (or near certain) that the deferred costs will be recovered.

2 REGULATORY TREATMENT OF LOW VOLUME SCENARIOS

In DAU2, Queensland Rail has proposed to the QCA that it approve references tariffs at 9.1 mtpa but will consult further about how to manage tariffs at lower volumes, including at 2.1 mtpa. Queensland Rail estimates that at lower volumes, standard regulatory approaches to tariff setting (including that used by Queensland Rail in the past), would result in very material price increases for users.

2.1 The parties' commercial incentives are aligned

The lower tonnage scenarios, which reflect only volumes from Yancoal's Cameby Downs project, create a difficult regulatory challenge for Queensland Rail, users and the QCA. The level of demand volatility between the higher and lower tonnage scenarios is unusual in a regulatory context and has required Queensland Rail to postpone elements of DAU2 to ensure that full consultation occurs about the best way to manage any unintended consequences.

The first point to note about Queensland Rail's proposed tariffs and further consultation with Yancoal and New Hope is that the incentives of the parties with respect to prices are largely aligned. In particular, it is in neither party's interest to charge such high prices in low tonnage scenarios that volumes are reduced or withdrawn entirely.

Future certainty about the path of tariffs is also important to both parties:

- For Queensland Rail, it needs volume and tariff certainty to manage its cost program (such as capex and network maintenance) and financing.
- For access seekers, tariff certainty will assist making appropriate decisions regarding their current and future mines, including the allocation of capital between different mines (noting that both New Hope and Yancoal have other Australian coal mines).

Other things equal, we would therefore expect that commercial negotiation between Queensland Rail and users (Yancoal in the first instance) could produce a reasonable tariff. A reasonable tariff may, however, not allow Queensland Rail to fully recover the capital costs that are (arbitrarily) allocated to any particular year under a standard building block model.⁴

2.2 Loss capitalisation is a reasonable response to present circumstances

Both New Hope and Yancoal have submitted that they have concerns with loss capitalisation being employed in circumstances where "there is not necessarily a high likelihood of substantial demand

⁴ Standard building block models, including Queensland Rail's, use straight line depreciation to provide a return on capital. However, this approach to depreciation is arbitrary and may bear little relationship to the most efficient or economic path of depreciation charges – which may depend on the time profile of prices. See, for example, William J. Baumol, "Optimal Depreciation Policy: Pricing the Products of Durable Assets," *Bell Journal of Economics*, 1971, vol. 2(2), pages 638-656. Moreover, it may also be efficient to defer a return on capital, if there is a positive probability that these costs could later be recovered.

growth”⁵ or “there is not a high degree of certainty of demand growing over time”⁶. Instead, both argue that a solution that should be considered is “optimisation of the asset base”⁷ which is “likely to be more appropriate.”⁸

For reasons that we will explain, we do not agree that loss capitalisation would be inappropriate, and we also do not consider that optimisation of the asset base is a suitable or preferable regulatory response.

We do agree, however, that it would be ideal if the details of a pricing methodology could be agreed in consultation with users, and users’ preferences could be taken into account in determining an price path. This is more likely to result in cost recovery by Queensland Rail and in further investment by coal miners.

In our opinion, the objective of Queensland Rail should therefore be to agree a price path with users that maximises the possibility that it can recover the efficient costs of delivering services over the remaining life of assets (and life of new assets). This would be consistent with the QCA’s criteria for acceptance of the undertaking, which include (but are not limited to):

- generat(ing) 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
- the legitimate business interests of the owner or operator of the service.⁹

There is no reason why the application of loss capitalisation to the current circumstances would be inconsistent with these criteria. The reason that a loss capitalisation model may be appropriate is that the standard building block model (including the use of a RAB) is not sufficiently flexible to deal with situations where the regulated firm is subject to large inter-temporal cost and revenue imbalances. Loss capitalisation simply allows deferral of costs to future periods when demand may provide a further opportunity to recover those costs.

As the ACCC noted with respect to the use of a loss capitalisation model in the Hunter Valley:

The intent of loss capitalisation is to allow under-recovery of economic cost for a period and then recovery of the relevant shortfall at a later date. In appropriate circumstances, loss capitalisation may therefore operate to facilitate investment in new assets where there is limited initial demand by allow initial under-recovery of relevant costs in the expectation of ‘making up’ the shortfall when demand reaches an appropriate level.¹⁰

While the model is called a loss capitalisation model, it is important to understand that the ‘loss’ presumes a certain allocation of capital costs over time. That is, the loss calculation uses the capital costs that would ordinarily be allocated under a building block model to a particular time period. These are based on a return on capital (the RAB value times the WACC) plus a return of capital (depreciation). When straight line depreciation is adopted, capital costs start high and decline over time. However, even

⁵ Yancoal submission, p. 3.

⁶ New Hope submission, p. 10.

⁷ New Hope submission, p. 10.

⁸ Yancoal submission, p. 3.

⁹ Sections 138 and 168A of the QCA Act.

¹⁰ ACCC, *Position Paper in relation to the Australian Rail Track Corporation’s proposed Hunter Valley Rail Network Access Undertaking*, 21 December 2010, p. 81.

if depreciation is back-loaded, so that there is some smoothing of capital costs (say using an indexed RAB), capital costs may be unrecoverable in early periods. This ‘loss’ is the primary component of what is recovered in the loss capitalisation model.

In our opinion, loss capitalisation can be used even where there is not a certainty or near-certainty of substantial demand growth. Loss capitalisation only provides the opportunity to recover “losses” – it offers no guarantees. As an example, NBN Co is extremely unlikely to ever recover the value of its start-up losses that are accruing (and which have exceeded \$18 billion at last count).¹¹ This does not mean, however, that this should not have been approved *ex ante* by the ACCC as there were at least some scenarios in what that recovery was possible. Instead of a guarantee of cost recovery, loss capitalisation should be seen as a mechanism that allows Queensland Rail to maximise the efficiency of the use of its network over time by keeping prices closer to marginal costs in the short term, and continue investing to facilitate more volumes and network utilisation in the medium-longer term.

Our opinion is, therefore, that negotiations between Queensland Rail and access seekers should be directed at identifying answers or solutions to the following questions:

- When should losses be recovered? For example, over what period should losses be recovered, and should it be linked to an external trigger such as changes in the coal price?
- How should losses be recovered? For example, should there be constraints on how rapidly prices can increase?
- From which users should losses be recovered? Should all parties that use the network in the future pay for past capital investments?

2.3 An asset optimisation would not be appropriate at this time

Although the Queensland Rail DAU2 undertaking contains provisions which relate to reducing the value of assets, in our opinion these provisions should only be used in exceptional circumstances (if they are required at all). Their use at this time would not be appropriate and would position the current regulatory regime as excessively one-sided against service providers such as Queensland Rail.

2.3.1 Queensland Rail access undertaking provisions

The DAU2 undertaking contains provisions with respect to asset optimisation. These are contained in Schedule E 1.2(b), imposing limits on the ability of the QCA to reduce the value of assets in Queensland Rail’s RAB as follows:

¹¹ <https://www.nbnco.com.au/sell-nbn-services/special-access-undertaking-sau>

The QCA will not require the value of assets contained in the Regulatory Asset Base to be reduced unless:

- *the QCA made its decision to accept the capital expenditure in the Regulatory Asset Base on the basis of information provided by Queensland Rail that Queensland Rail knew, or should have known, was false or misleading at the time it provided the information;*
- *circumstances arise in the future where demand for Access has deteriorated to such an extent that regulated prices based on an unoptimised asset value would result in a further decline in demand for Access; or*
- *it becomes clear that there is a possibility of actual (not hypothetical) bypass.*

These provisions are consistent with those approved by the QCA in 2016.

Our opinion is that provisions relating to asset optimisation are neither necessary nor consistent with a regulatory regime that offers a fair bargain to an access provider. We now explain the reasons for this opinion.

2.3.2 Regulatory asset optimisation of the RAB is unnecessary

In our opinion, it is not very likely that the optimisation provisions would or should need to be used by the QCA in practice. Putting to one side misleading information provisions, if either of the latter two conditions hold, it will be profit-maximising (and so in Queensland Rail's commercial interest) to ignore the value of the asset base in commercial pricing decisions.

For example, suppose that it became clear that Inland Rail was likely to offer a mine an alternative path to port. In that circumstance, Queensland Rail would maximise its profits by charging a price that is between its forward-looking incremental costs of supplying access and just less than the price charged by the alternative supplier. This pricing negotiation would take no account of the asset base, and so there would be no need to reduce it arbitrarily. The last thing Queensland Rail would wish to encourage is entry of a competitor by charging high prices because this would leave both parties with high fixed cost and low variable cost network – a recipe for very low prices and significant losses.¹²

With negotiated prices, depreciation for regulatory purposes should simply be set on the basis of actual revenues less building block revenues (excluding depreciation). Whether the asset base would ultimately be recovered would then be a commercial matter, noting that the building block constraint would remain in any case.¹³

2.3.3 RAB optimisation would create a one-sided regulatory regime

In our view, a fundamental component of a BBM regime which employs a roll forward approach is that there should be no revaluation or optimisation of the asset base. The roll forward should instead simply

¹² Note that this is the essential argument behind the "private profitability" approach to criterion (b) in the Part IIIA National Access Regime – that inefficient duplication of assets would be avoided by private negotiations. See for example Rio Tinto's submission to the Productivity Commission Inquiry in the National Access Regime (2013): <https://www.pc.gov.au/inquiries/completed/access-regime/submissions/submissions-test/submission-counter/sub008-access-regime.pdf>

¹³ Asset revaluations may be preferred by the regulator and the regulated business in sectors where there is significant scope of competition or where there is rapid technological progress, such that it is important to enable the incumbent to operate commercially and to not to distort entry and exit by competing firms.

account for new expenditures and depreciation in the manner described in the Queensland Rail's undertaking. This is for two related reasons:

- optimisation is not consistent with the financial investment view of the asset base.¹⁴
- revaluation or optimisation creates uncertainty that is costly to the regulated firms and to consumers.

Optimisation is not consistent with financial capital maintenance

The financial capital maintenance (FCM) principle is important in the regulatory context. As defined by the QCA:

The financial capital maintenance (or NPV=0) principle refers to the requirement that the present value of expected regulated returns for an asset over its economic life should be equal to the initial asset value or purchase cost.¹⁵

The QCA also states that:

This (FCM) ensures that investors of a regulated firm are adequately compensated for their capital investment, hence efficient investment will be made in the future, and at the same time customers pay reasonable prices to access these essential services such as water and electricity.¹⁶

The alternative to FCM is an operating capital maintenance (OCM) approach. Under OCM the regulator's approach to determining the revenue requirement is designed to allow the firm to earn a fair return on the value of the capital that it needs to provide the appropriate level of services. In this case the RAB is viewed as a measure of operating capital. The practical difference between the two approaches lies in treatment of past investments as under OCM the value of existing assets in the RAB can be revalued to reflect changes in technology, input prices and asset obsolescence.

In our opinion, once the regulator has made a decision regarding whether the regulatory asset base represents *financial* investments in the firm (FCM) or the *physical* assets of the firm (OCM), regulatory decisions on 'rolling forward' the asset base such as indexation, redundant or stranded assets and return of capital should be consistent with this decision.¹⁷ Our understanding of the QCA's approach is that it follows the FCM approach (at least *ex ante*), in that it has noted that while an appropriate form of price smoothing can take on various forms (such as negative depreciation or loss capitalisation), it should always be subject to the FCM principle. For example, in 2005, the QCA noted that:

In assessing reference tariffs, the fundamental regulatory principle guiding the Authority's decisions is that the net present value of the future cash flows should equal the opening asset

¹⁴ In principle, using replacement costs of assets can be consistent with FCM, but is rarely applied in this fashion.

¹⁵ QCA Information Paper, Issues in the Application of Annuities, February 2014, summary.

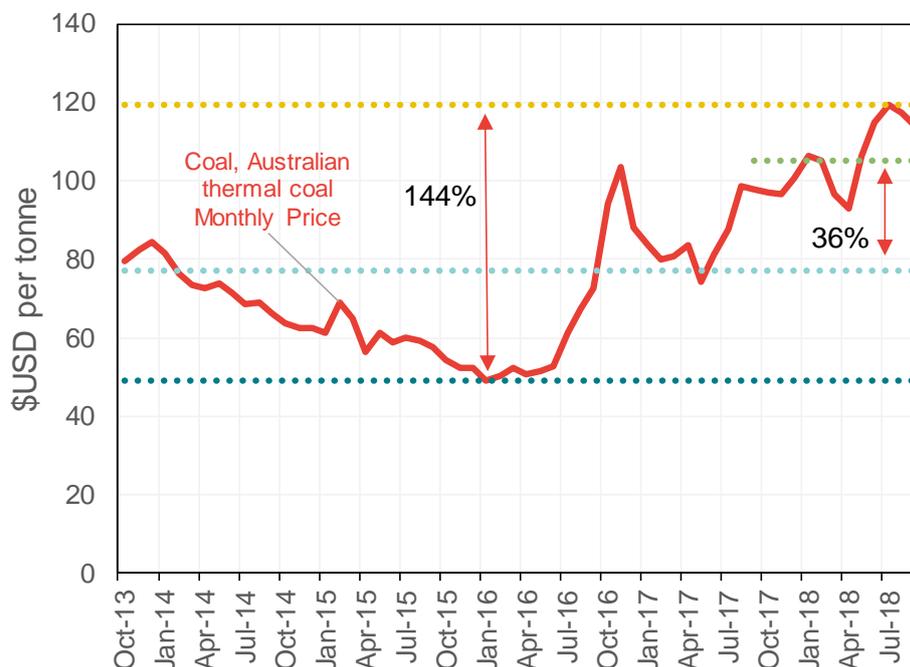
¹⁶ *ibid.*

¹⁷ IPART, *Rolling Forward The Regulatory Asset Bases Of The Electricity And Gas Industries Discussion Paper*, p. 10

which level they would be affordable. Further, it would seem a perverse outcome if RAB optimisation allowed miners to recover all of their costs while Queensland Rail bears all of the downside from declining volumes – particular in light of submissions that suggest Queensland Rail is protected from volume risk.

For reference, we note that the thermal coal price (with West Moreton mines being 100% thermal coal) has increased significantly in the last few years. **Figure 1** indicates that prices have doubled off recent lows, and the average over the last 12 months (to September 2018) is 36% higher (USD\$28) than the average over the last 5 years.

Figure 1: Newcastle coal FOB prices, thermal



Source: <https://www.indexmundi.com/commodities/?commodity=coal-australian&months=60>

Planning decisions by coal mines will obviously take more than spot prices into account. However, our opinion is that a miner's ability to pay would clearly be much higher than when previous tariffs were approved by the QCA (through the course of 2015-16). Any pricing negotiation and regulatory tariff setting should take this into account, noting that the provisions require the QCA to show that "...prices based on an unoptimised asset value would result in a further decline in demand for Access".

2.4.2 Higher prices are not a function of an excessive RAB

In our opinion, the current prices proposed for the West Moreton network are manifestly not a result of inflated asset values (past inefficiency) being carried into current periods. We base this opinion on:

- the QCA's decision in 2016 to exclude assets from the asset base for the West Moreton system
- the inability of Queensland Rail to recover the cash costs relating to the West Moreton system from the commencement of the building block model in 2013.

Past exclusion of assets

The QCA's decision in 2016 reduced Queensland Rail's proposed asset valuation (based on DORC) by almost 50%, reflecting the following adjustments:

- assigning no additional value to assets where the nature of the asset is such that it has been funded and will continue to be funded from maintenance expenditure (itself a cost taken into account separately in assessing the revenue to be recovered by Queensland Rail). These include items such as wooden sleepers, fences, ballast and wooden bridges;
- not giving tunnels, cuttings and embankments any additional value beyond that given to other assets and hence the network as a whole²³; and
- reducing allocations of costs to coal traffic based on available train paths.

While the QCA suggests that it did not 'optimise' assets in the 2016 decision, it is evident that the effect of optimisation, allocation to non-coal traffic, or a removal of assets is the same – a lower capital base and lower tariffs.

Negative cash flows

As indicated in [Table 1](#), Queensland Rail will record negative cash flows (revenues earned less opex and capex) of almost \$50 million for the period 2013-2018, indicating that Queensland Rail is not simply collecting the benefits of an inflated asset base. Over this period, capex has been more than double either accounting or regulatory depreciation charges resulting in a growing asset base.²⁴

²³ QCA Final Decision on DAU1, p. 195.

²⁴ QCA Final Decision on DAU1, Appendix A provides regulatory capex and depreciation estimates.

Table 1: Summary of Queensland Rail's West Moreton system financial performance

	2013	2014	2015	2016	2017	2018 [#]
Revenue (ex TSC)						
Access charges – coal	52 912	54 154	57 280	45 442	28 674	■
Access charges – other	2 808	2 342	1 479	1 632	2 068	■
Other	3 525	5 581	1 480	1 281	2 177	■
Total revenue	59 245	62 077	60 239	48 355	32 919	■
Cash expenses						
Maintenance	20 958	19 038	19 965	33 131	22 291	■
Incident/FM	3 332	1 120	33	221	620	■
Train Ops	3 219	3 539	3 025	3 658	4 030	■
Other	3 551	5 640	3 194	3 326	2 724	■
Capex	18 797	19 096	24 060	25 490	27 852	■
Total expenses	49 857	48 433	50 277	65 826	57 517	■
Cash flow	9 388	13 644	9 962	-17 471	-24 598	■

#: 2018 figures are draft and unaudited. All earlier years are from below rail financial statements that have been audited by the Queensland Audit Office.

Source: Queensland Rail, Below rail financial statements, various years

The implication is that any specific reduction in charges now that is not recovered in later periods (e.g. through deferral of depreciation or loss capitalisation) would effectively constitute a subsidy to miners consisting of funds only recently invested by Queensland Rail. In turn, this will result in higher payments from Queensland Government (and ultimately tax payers) to keep the lines in working order.

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Attachment 2: Frontier Economics' Expert Report – WACC

26 OCTOBER 2018

RESPONSE TO SUBMISSIONS ON THE REQUIRED RETURN FOR QUEENSLAND RAIL

REPORT PREPARED FOR QUEENSLAND RAIL

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CONTENTS

1	Executive summary	2
2	Equity beta and gearing	5
2.1	Overview	5
2.2	The use of the QCA's allowance for the CQCN as a reference point	6
2.3	The QCA's proposed beta allowance for Aurizon Network	6
2.4	Differences between the CQCN and WM-Metro coal services	8
3	Market risk premium	11
3.1	Overview	11
3.2	The QCA approach to setting the allowed MRP	11
3.3	The QCA's MRP allowance has not increased	12
3.4	NHG submission and the Wright approach	13
3.5	Yancoal submission and regulatory precedent	16

Tables

Table 1:	Comparison of CQCN and WM-Metro systems	9
Table 2:	Key features of CQCN and WM-Metro systems	10
Table 3:	UT5 Draft Decision MRP estimates	12

Figures

Figure 1:	Comparison of QCA MRP estimates	18
Figure 2:	Comparison of AER 2013 and 2018 estimates of MRP	19
Figure 3:	AER summary of recent regulatory MRP allowances	20

1 EXECUTIVE SUMMARY

In July 2018, Frontier Economics was retained by Queensland Rail (QR) to provide an estimate of the gearing and equity beta parameters for its network most notably for the purposes of determining an appropriate reference tariff for the West Moreton – Metropolitan (WM-Metro) coal network. Our July 2018 report¹ set out estimates of the gearing and beta parameters for QR's state-wide network operations.

In response to our July report and QR's proposed access undertaking, Yancoal Australian Limited (Yancoal) and New Hope Group (NHG) have made submissions to the QCA. This report contains responses to the Yancoal and NHG submissions that relate to the allowed return on equity. Specifically, both Yancoal and NHG have made submissions in relation to the set of comparator firms that is used to estimate gearing and beta, and in relation to the estimation of the market risk premium (MRP). Our primary responses on these two points is set out below.

Beta and gearing

Our previous report for QR produced a single beta estimate for the entirety of QR's regulated operations because that is the approach that has been previously adopted by the QCA. That is, the QCA's previous approach has interpreted "the service" in terms of the rail service that QR performs across the state.

Yancoal and NHG have both submitted that they use only a coal rail service in the West Moreton and Metropolitan (WM-Metro) systems and that the tariff should therefore relate only to the risk of that service. That is, to the extent that the risk of the WM-Metro coal service differs from that of the other services provided by QR, it would be appropriate to estimate different betas and apply different allowed returns for the different services – each according to its degree of risk.

For our previous report, and for this response, we have been instructed to estimate beta and gearing parameters that would be appropriate for QR as a single aggregated entity – as that is the approach that has previously been adopted by the QCA. Consequently, we have not, for the purposes of this report, made an assessment of the relative merits of separate asset betas on each Queensland Rail system.

Our July 2018 report sets out our preferred estimates for beta and gearing for QR as a single aggregated entity. We maintain our view that these estimates are appropriate for that purpose. We note that the Yancoal and NHG submissions do not raise issues about our estimates for the aggregated QR business, but rather propose that a different task should be performed – estimation of gearing and beta for the WM-Metro coal network only.

Yancoal and NHG have both submitted that, conditional on the appropriate task being to estimate beta for the WM-Metro coal network only, the beta allowance should be set equal to the QCA's beta allowance for Aurizon Network's Central Queensland Coal Network (CQCN). However, our July 2018 report sets out a number of differences between QR's WM-Metro coal service and Aurizon Network's CQCN. In particular, we note that the two networks operate under different forms of regulation (price cap for QR

¹ Frontier Economics, Estimates of asset beta and equity beta for Queensland Rail, July 2018.

and revenue cap for CQCEN) and that there are several other material differences as set out in Table 2 and Section 2.2 of our July 2018 report.²

That is, even when estimating beta for the WM-Metro coal network only, we remain of the view that:

- There are relevant and material differences between the regulation and other attributes of the WM-Metro network and the CQCEN. For this reason, it would be inappropriate to simply adopt the same beta that has been allowed for the CQCEN.
- Aurizon should not be used as the *only* comparator firm, it is only one of a number of relevant firms that should be in the set of comparators.
- In any event, the QCA's beta allowance for the CQCEN is not an appropriate estimate of the systematic risk of a coal rail network; it is an estimate of the systematic risk of an electricity/water utility. This is because the CQCEN beta allowance is determined solely with regard to data from electricity and water utilities.

For these reasons, our view is that the task of computing appropriate beta and gearing estimates for the WM-Metro coal rail network should be the subject of a separate process. Simply adopting the QCA's allowances for the CQCEN would be inappropriate because:

- The QCA's estimation process of relying exclusively on data from electricity and water firms is an inappropriate approach for estimating gearing and beta for a coal rail network; and
- In any event, there are material differences between the CQCEN and WM-Metro coal rail networks.

Market risk premium

Whereas QR has proposed to adopt the QCA's most recent MRP allowance of 7.0%, Yancoal and NHG have both submitted that a lower allowance would be more appropriate.

In our view, the available evidence supports an MRP allowance of at least 7.0%. The specific points addressed in this report are as follows:

- The QCA sets an MRP allowance relative to the prevailing 4-year risk-free rate, whereas the standard approach is to set an allowance relative to the prevailing 10-year risk-free rate. Since there is a difference of approximately 0.5% between the 4-year and 10-year risk-free rates, the QCA's allowance is only 6.5% when expressed in the usual way.
- NHG has proposed that the MRP should be estimated without regard to the 'Wright' approach. We explain below that this effectively implies that the MRP should be assumed to be constant across all market conditions, which would:
 - Be inconsistent with advice (and common sense) that the MRP is not constant over time and over different financial market conditions;
 - Be unsupported by the QCA's empirical analysis; and
 - Generate implausible outcomes, such as cost of equity **falling** during a financial crisis – as weight is shifted to approaches that produce constant MRP.
- Yancoal has submitted that a lower MRP is supported by the empirical evidence and a regulatory trend towards reducing MRP allowances. However, our view, is that there is no basis for concluding that the empirical evidence or regulatory precedent supports a reduction to the MRP allowance:
 - The empirical evidence, including the QCA's own evidence, supports an increased MRP allowance; and;

² Frontier Economics, July 2018, Estimates of asset beta and equity beta for Queensland Rail, pp. 11-14.

- Other regulators, particularly those seeking an estimate of the MRP that is commensurate with the prevailing conditions in the market, are generally not decreasing MRP allowances to 6%. The AER's proposal to do this in its Draft Guideline is inconsistent with the AER's own evidence and estimates of MRP.

2 EQUITY BETA AND GEARING

2.1 Overview

The standard approach to estimating the beta and gearing parameters is with reference to an appropriate set of comparator firms, which is selected with reference to the attributes of the business or assets in question. In our report of July 2018, we set out a list of five attributes that pertain to the QR network and which are relevant to the level of gearing that might be supported and to the level of systematic risk or beta. These attributes then guided our selection and weighting of comparator firms.

It is important to estimate beta and gearing using the same set of comparator firms because those two parameters are related. Specifically, the equity beta depends on the level of gearing – other things equal, a higher level of gearing leads to a higher equity beta. This is because, relatively more debt finance, which ranks ahead of equity, will increase the risk borne by residual equity holders.

The Yancoal and NHG submissions raise no objections to the broad approach of estimating gearing and beta with reference to a set of comparators, or with the empirical approach of estimating beta via regression analysis. Rather, the primary submissions on beta and gearing relate to the set of comparators that is adopted. Specifically, our July 2018 report produced a single beta estimate for the entirety of QR's regulated operations because that is the approach that has been previously adopted by the QCA.

Yancoal and NHG submit that they use only a coal rail service in the West Moreton and Metropolitan (WM-Metro) systems and that the tariff should therefore relate only to the risk of that service.

For our previous report, and for this response, we have been instructed to estimate beta and gearing parameters that would be appropriate for QR as a single aggregated entity – as that is the approach that has previously been adopted by the QCA. Consequently, we have not, for the purposes of this report, made an assessment of the relative merits of separate asset betas on each Queensland Rail system.

Our July 2018 report sets out our preferred estimates for beta and gearing for QR as a single aggregated entity. We maintain our view that these estimates are appropriate for that purpose. We note that the Yancoal and NHG submissions do not raise issues about our estimates for the aggregated QR business, but rather propose that a different task should be performed – estimation of gearing and beta for the WM-Metro coal network only.

Yancoal and NHG have both submitted that, conditional on the appropriate task being to estimate beta for the WM-Metro coal network only, the beta allowance should be set equal to the QCA's beta allowance for Aurizon Network's Central Queensland Coal Network (CQCN). Our view is that this would be inappropriate for two reasons:

- The QCA's estimation process of relying exclusively on data from electricity and water firms is an inappropriate approach for estimating gearing and beta for a coal rail network; and
- In any event, there are material differences between the CQCN and WM-Metro coal rail networks.

For these reasons, our view is that the task of computing appropriate beta and gearing estimates for the MW-Metro coal rail network should be the subject of a separate process. Simply adopting the QCA's allowances for the CQCN would be inappropriate.

2.2 The use of the QCA's allowance for the CQCN as a reference point

The Yancoal and NHG submissions both conclude that, conditional on the appropriate task being to estimate beta for the WM-Metro coal network only, the appropriate beta to be adopted for the WM-Metro coal rail service is the same as the beta the QCA allows for Aurizon's Central Queensland Coal Network.³

For example, Yancoal also notes that, in the QR UT1 Determination, QR accepted the QCA's beta allowance for Aurizon Network. Yancoal then submits that:

The AU1 asset beta of 0.45 was in fact proposed by QR itself (and therefore presumably considered appropriate by QR), due to it being adopted by the QCA for the closest comparator in Aurizon Network, and determined by the QCA to be appropriate for QR as recently as its Final Decision in respect of AU1 in June 2016...However, Yancoal submits that there has been no change in the systematic risks faced by QR since that time which would justify an increase in the asset beta.⁴

Our understanding is that the required task is to estimate the beta that best reflects the systematic risk of the relevant assets that are used to provide the regulated service. In our view, that task is performed by analysing stock return data from an appropriate set of comparator companies – the standard approach for estimating betas. Our understanding is that this approach is not constrained by concessions that QR may have made (for various reasons) in prior regulatory determinations. That is, the required task for QR is to provide the estimate of beta that best reflects the systematic risk of the assets that are used to provide the regulated service, not to establish that the level of systematic risk has changed since the prior regulatory determination. In this context, the reasons why QR might have accepted a particular equity beta allowance from the QCA in the previous determination are of no relevance to the task of obtaining the best possible estimate from the currently available data.

Moreover, benchmarking the beta for the WM-Metro coal service to the QCA's proposed beta allowance for Aurizon Network is problematic for two reasons:

1. It implicitly assumes that the QCA's proposed allowance for Aurizon Network represents a reasonable estimate for Aurizon Network. As set out below, we do not consider that the QCA's proposed beta allowance for Aurizon Network is reasonable.
2. Even if the QCA's proposed beta allowance for Aurizon Network is reasonable, there are a number of material differences between the CQCN and the WM-Metro coal networks, such that the systematic risks of the two networks are likely to differ materially, as set out in our previous report.

The following subsections of this report address each of these two issues.

2.3 The QCA's proposed beta allowance for Aurizon Network

In its UT5 Draft Decision, the QCA proposes to reduce the equity beta for the CQCN from 0.80 to 0.73, with a corresponding reduction in the asset beta from 0.45 to 0.42. In our view, there are several reasons

³ Yancoal Submission, p. 11; NHG Submission, p. 22.

⁴ Yancoal Submission, pp. 5-6.

why the proposed beta allowance is unlikely to provide the best possible estimate of the return that would be required by equity providers, as set out below.⁵ For this reason, we do not consider that it is appropriate to use the 0.73 figure as a starting point for the estimation of beta for the WM-Metro coal network, or indeed for any other purpose.

Inconsistent processing of the evidence

The QCA adopted an asset beta estimate of 0.45 (and an associated equity beta estimate of 0.8) for UT4, but in its Draft Decision for UT5 has proposed an asset beta estimate of 0.42 (and an associated equity beta estimate of 0.73). However, relative to the UT4 case, for UT5 the QCA's adviser's point estimate of the asset beta for Aurizon Network was identical and its proposed reasonable range was slightly higher. Notwithstanding that it was presented with essentially the same advice in relation to UT5, the QCA has decided to lower the asset beta estimate from 0.45 to 0.42. The Draft Decision does not set out the basis on which it has been determined that a reduction to the beta estimate is appropriate.

The fact that the same (or slightly higher) evidence has resulted in a lower beta allowance is inconsistent with the promotion of regulatory certainty, which the QCA has identified as a key principle. In adopting a beta allowance of 0.8, above the consultant's point estimate of 0.73, the QCA stated:

The QCA's assessment of beta for the 2016 Undertaking determined that the equity beta estimate be set at 0.8 but recognised that Incenta's recommended estimate of 0.73 was justifiable. In approving an equity beta of 0.8, among other considerations, the QCA acknowledged the need for regulatory certainty.⁶

In making the UT5 Draft Decision, it appears that the QCA has overlooked a key consideration it cited in its UT4 decision for selecting an asset beta estimate of 0.45, above the mean point estimate of 0.42—namely, that estimating betas with high precision is extremely difficult, which suggests that:

1. "caution be shown in making significant changes to previous estimates"; and
2. "selecting a point estimate as precise as 0.73 may represent an attempt to be over-precise."

The UT4 Final Decision stated that the "best" possible estimate of beta had been adopted, given the evidence available at the time. For the UT5 period, the QCA has proposed to adopt a lower beta estimate, notwithstanding that the available evidence is essentially unchanged (and, if anything, slightly higher) since its UT4 Final Decision. If the QCA's approach for the UT4 period was to adopt the best possible estimate of beta, and the empirical evidence on Aurizon's beta has not changed since, then it follows that by adopting a lower estimate of the beta for the UT5 period, the QCA has not adopted the best possible estimate of the beta for the UT5 period.

Put another way, if the asset beta allowance for the UT4 period was set to compensate Aurizon fairly for the opportunity cost of capital, and the evidence has not changed since, it follows that reducing the asset beta allowance for the UT5 period would result in Aurizon being undercompensated over that period.

⁵ Additional detail on these points can be found in Frontier Economics, March 2018, Comment on the UT5 draft decision on equity beta.

⁶ UT5 Draft Decision, p. 90.

Over-emphasis on the influence of regulation and market power on systematic risk

The QCA's overriding consideration when selecting comparator firms for the task of beta estimation appears to be the influence of regulation and market power on Aurizon's exposure to systematic risk. This is evident from the fact that the QCA has adopted a beta estimate for Aurizon derived exclusively using a sample of regulated energy and water businesses, and Incenta's reasons for recommending these firms as relevant comparators rely heavily on the extent to which potential comparators are either subject to cost-based regulation or enjoy significant market power.

This means little or no weight is given to other relevant factors (such as industry characteristics, customer concentration and exposure to certain types of customer) that affect beta and should therefore inform the selection of comparators.

All of the comparator groups considered by the QCA—regulated energy and water businesses, toll roads, pipelines and railroads—likely have some useful information to contribute to the task of estimating Aurizon's beta. Therefore, in our view, at least some weight should be afforded to all of that relevant evidence, rather than assigning effectively 100% weight to a single sub-sample.

The UT5 Draft Decision gives no weight to toll roads, pipelines or other railroads. If any weight was given to any of this evidence, the beta estimate would increase. Our view is that at least some weight should be given to some of this relevant evidence.

Failure to correct for low-beta bias

The UT5 Draft Decision does not address the well-recognised "low-beta bias" phenomenon. The low-beta bias problem refers to the tendency for the Sharpe-Lintner Capital Asset Pricing Model (SL-CAPM)—the model adopted by the QCA for the purposes of determining the cost of equity allowance—to systematically underestimate the required returns for stocks with an equity beta estimate less than 1.0.

The QCA's adviser, Incenta, has not considered the low-beta bias problem in its advice to the QCA, so Incenta's mean estimate of beta makes no correction or allowance for this problem.

In our view, the Draft Decision should account for the low-beta bias problem by selecting a point estimate for beta that is greater than the raw mean estimate of beta derived through empirical application of the SL-CAPM to returns data.

In our view, the evidence of low beta bias is compelling. It has been consistently reported over several decades in papers by leading scholars (including two Nobel laureates) in the very top journals. The evidence is consistent across many markets. The evidence is so well accepted that it is discussed in standard textbooks.

2.4 Differences between the CQC and WM-Metro coal services

Our July 2018 report sets out a number of differences between QR's WM-Metro coal service and Aurizon Network's CQC. In particular, we note that the two networks operate under different forms of regulation (price cap for QR and revenue cap for CQC) and that there are several other material differences as set out in Table 2 and Section 2.2 of our July 2018 report.⁷

⁷ Frontier Economics, July 2018, Estimates of asset beta and equity beta for Queensland Rail, pp. 11-14.

In addition to the information set out in our earlier report, further information on the differences between the CQCN and the WM-Metro coal rail networks is set out in the *Queensland Coal Transport Report* published in July 2018 by the Queensland Department of Transport and Main Roads.⁸ That report highlights material differences between the CQCN and WM-Metro in terms of scale and type of coal exported:

- In FY18, total Queensland coal exports were 222.4 million tonnes, of which 215.1 (96.7%) were transported on the CQCN and 7.3 million tonnes (3.3%) were transported on the WM-Metro networks.
- On the CQCN, 162.9 million tonnes (75.7%) of coal exports were high value metallurgical coal used in steel making while 52.2 million tonnes (24.3%) was lower value thermal coal, which is more at risk of replacement by alternative energy sources.
- On the WM-Metro networks 7.3 million tonnes (100%) was thermal coal.
- The average indicative price of metallurgical coal exported in FY18 was \$201 per tonne, whereas the average indicative price of thermal coal exports was \$104 per tonne.
- The indicative value of coal exports on the CQCN was \$38.2 billion compared with \$0.76 billion over the WM-Metro Systems.

Table 1 below shows the number of mines and ports served by the CQCN and WM-Metro rail systems.

Table 1: Comparison of CQCN and WM-Metro systems

RAIL SYSTEM	NUMBER OF OPERATING MINES	NUMBER OF RAILING DESTINATIONS
QR – West Moreton/Metro	2	1 (QBH – Port of Brisbane)
Aurizon – Newlands	3	1 (Abbot Point)
Aurizon – Goonyella	17	2 (Hay Pt and Dalrymple Bay)
Aurizon – Blackwater	11	2 (RGTanna and Wiggins Island, plus direct to power stations)
Aurizon – Moura	3	2 (RGTanna and Wiggins Island, plus direct to power stations)
Total Aurizon CQCN	34	5

Source: Aurizon – Coal Rail Corridor Fact Sheets and Queensland Rail Information, <https://www.aurizon.com.au/what-we-deliver/coal>.

A number of the key differences between the two coal systems are summarised in **Table 2** below.

⁸ Queensland Department of Transport and Main Roads, July 2018, Queensland Coal Transport Report, <https://www.tmr.qld.gov.au/business-industry/Transport-sectors/Coal-transport-infrastructure-development#role>.

Table 2: Key features of CQCN and WM-Metro systems

QR: WM-METRO	AURIZON: CQCN
Serves 2 mines	Serves 34 mines
Operates a single system	Operates 4 systems
[REDACTED]	Has a portfolio of long term contracts
Price cap	Revenue cap
Exclusively thermal coal	Largely high-value metallurgical coal used in steel making
Entire network can go down due to weather and major derailment events (e.g., 2011 flooding)	Unlikely for all four systems to go down at one time

Source: Queensland Coal Transport Report; Aurizon - Coal Rail Corridor Fact Sheets, Frontier Economics, Estimates of asset beta and equity beta for Queensland Rail, July 2018.

We remain of the view that:

- There are relevant and material differences between the regulation and other attributes of the WM-Metro network and the CQCN. For this reason, it would be inappropriate to simply adopt the same beta that has been allowed for the CQCN.
- Although Aurizon should not be used as the *only* comparator firm, it is a relevant firm that should be in the set of comparators.
- In any event, the QCA’s beta allowance for the CQCN is not an appropriate estimate of the systematic risk of a coal network; it is an estimate of the systematic risk of an electricity/water utility. This is because the CQCN beta allowance is determined solely with regard to data from electricity and water utilities.

For these reasons, our view is that the task of computing appropriate beta and gearing estimates for the MW-Metro coal rail network should be the subject of a separate process. Simply adopting the QCA’s allowances for the CQCN would be inappropriate.

3 MARKET RISK PREMIUM

3.1 Overview

QR has submitted that the QCA should maintain the 7.0% MRP allowance that it has adopted in its recent decisions, including the UT5 Draft Decision for Aurizon Network in November 2017.

Yancoal and NHG have both submitted that a lower MRP would better reflect the prevailing market conditions – on the basis that the MRP required by equity investors has eased in recent times.

In this section of the report, we demonstrate that:

- The QCA expresses its MRP allowance relative to the 4-year risk-free rate, whereas the standard approach is to use a 10-year risk-free rate. Consequently, adjustments must be made to ensure a like-with-like comparison between various MRP estimates and allowances.
- The QCA has **not** changed its MRP estimate – it simply now expresses the MRP relative to the 4-year risk-free rate instead of relative to the 10-year risk-free rate.
- NHG has proposed that the MRP should be estimated without regard to the ‘Wright’ approach. We explain below that this effectively implies that the MRP should be assumed to be constant across all market conditions, which would:
 - Be inconsistent with advice (and common sense) that the MRP is not constant over time and over different financial market conditions;
 - Be unsupported by the QCA’s empirical analysis; and
 - Generate implausible outcomes, such as cost of equity **falling** during a financial crisis – as weight is shifted to approaches that produce constant MRP.

Yancoal has submitted that a lower MRP is supported by the empirical evidence and a regulatory trend towards reducing MRP allowances. However, our view, is that there is no basis for concluding that the empirical evidence or regulatory precedent supports a reduction to the MRP allowance:

- The empirical evidence, including the QCA’s own evidence, supports an increased MRP allowance; and
- Other regulators, particularly those seeking an estimate of the MRP that is commensurate with the prevailing conditions in the market, are generally not decreasing MRP allowances to 6%. The AER’s proposal to do this in its Draft Guideline is inconsistent with the AER’s own evidence and estimates of MRP.

3.2 The QCA approach to setting the allowed MRP

The UT5 Draft Decision sets out the derivation of the allowed MRP of 7.0% as a weighted average of a set of estimates from different approaches, as summarised in **Table 3** below. This MRP of 7.0% is then applied as premium to the prevailing 4-year risk-free rate.

Table 3: UT5 Draft Decision MRP estimates

METHOD	POINT ESTIMATE	WEIGHT
Ibbotson	6.6%	25%
Siegel	5.9%	15%
Cornell	6.4%	25%
Surveys	7.0%	20%
Wright	9.5%	15%
Weighted average	7.0%	

Source: UT5 Draft Decision, p. 85.

3.3 The QCA's MRP allowance has not increased

In its Market Parameters Decision, and in all subsequent decisions prior to the UT5 Draft Decision, the QCA adopted a MRP of 6.5% relative to the prevailing 10-year risk-free rate. Thus, the QCA's estimate of the required return on the market portfolio can be obtained by adding 6.5% to the 10-year risk-free rate over the averaging period for the relevant decision.

Applying the Market Parameters approach at the time of the UT5 Draft Decision would produce an estimate of the required return on the market of 8.9% because the 10-year risk-free rate at that time was 2.4%. That is, the approach set out in the Market Parameters Decision, applied using risk-free rates at the time of the UT5 Draft Decision, would be consistent with investors requiring a return of 8.9% to invest in an asset of average risk.

In the UT5 Draft Decision, the QCA has reported its MRP relative to a short-term risk-free rate that matches the length of the relevant regulatory period, which the QCA has taken to be four years in the case of UT5.

In this regard, the UT5 Draft Decision states that a number of stakeholders have noted that the QCA's previous approach uses a 4-year risk-free rate in one place in the CAPM formula and a 10-year risk-free rate in the other:

In the UT5 context, as well as in other recent undertaking considerations, some stakeholders have raised the concern that the QCA uses a risk-free rate matching the term of the regulatory cycle in the first term in the cost of equity but a 10-year rate in estimating the MRP.⁹

This internal inconsistency has led the QCA to now adopt an MRP allowance relative to the 4-year risk-free rate, so that the same risk-free rate is used in both places in which it appears in the CAPM equation. The UT5 Draft Decision states that:

⁹ UT5 Draft Decision, p. 476.

We have undertaken further analysis of historical bond rates for the purpose of estimating a four-year risk free rate for the MRP.¹⁰

In its UT5 Draft Decision, the QCA has adopted a 4-year risk-free rate of 1.9% and a MRP (relative to that rate) of 7.0%. Thus, the estimate of the required return on the market that the QCA has adopted for its UT5 Draft Decision is 8.9%.

That is, the estimate of the required return on the market (i.e., the required return for a company of average risk) is precisely the same as it would have been under the QCA's previous approach:

- Under its previous approach, the QCA would have set the required return for the average firm to 8.9%, being 2.4% + 6.5%; and
- Under the UT5 approach, the QCA again sets the required return for the average firm to 8.9%, being 1.9% + 7.0%.

In summary, the approach adopted in the UT5 Draft Decision results in precisely the same estimate of the required return on equity for the average firm as would have been obtained from the QCA's previous approach. The UT5 Draft Decision does not increase the MRP estimate relative to the Market Parameters Decision. At the time of both decisions:

- The MRP relative to the 10-year risk-free rate is estimated to be 6.5%; and
- The MRP relative to the 4-year risk-free rate is 7.0%.

Thus, there has been no increase in the QCA's MRP in the UT5 Draft Decision. Rather, the QCA now simply reports the MRP relative to the 4-year risk-free rate to be internally consistent with the use of the 4-year risk-free rate elsewhere in its calculations of allowed returns.

3.4 NHG submission and the Wright approach

3.4.1 NHG submission

In relation to MRP, NHG has submitted that:

NHG recognises that estimation of market parameters such as the MRP requires the exercise of regulatory judgement. However we consider that, in weighing up the available evidence, the QCA has given too much weight to methodologies which have significant limitations and which lack empirical support. NHG considers that, in light of current evidence, a more appropriate estimate for the MRP would be 6.0 per cent (consistent with the recent AER draft rate of return guideline) or 6.5 per cent.

In particular, the QCA gives material weight to the 'Wright approach'. As the QCA recognises in the UT5 Draft Decision, this approach assumes that the risk-free rate and MRP are perfectly negatively correlated, or at least that the cost of equity is more stable over time than the MRP. However these assumptions are not supported by empirical evidence. The QCA's analysis suggests that there is

¹⁰ UT5 Draft Decision, p. 476.

greater stability in the MRP than the real return on equity over time – a conclusion which does not support greater reliance on the Wright approach.¹¹

This submission indicates that NHG's primary concern with the QCA's current approach to the MRP is the weight given to the 'Wright' estimate.

3.4.2 QCA consideration of the Wright approach

In relation to the Wright approach, the UT5 Draft Decision notes that the QCA's 'Ibbotson' and 'Wright' approaches:

...sit at either end of a theoretical spectrum:

The Ibbotson method assumes that the best estimate of the MRP is the average excess return and the required return on equity rises and falls one-for-one with changes in government bond yields.

The Wright approach assumes the best estimate of the real required return on equity is the average real return on equity, which means that the MRP changes over time due to variation in government bond yields and inflation expectations.¹²

Neither of these extremes provides an accurate characterisation of reality. The Ibbotson approach assumes that the MRP *never* increases when the risk-free rate falls, whereas the Wright approach assumes that the MRP *always* increases when the risk-free rate falls. The truth lies in between these two extremes, in which case it is appropriate to give some weight to both approaches.

3.4.3 QCA consultant recommends Wright approach

We note that Dr Lally, the consultant commissioned by the QCA, recommends that the Wright approach should receive some weight.¹³ He also recognises that the Ibbotson and Wright approaches are the end points of a spectrum. The first effectively assumes that the MRP is constant, so that the required return on the market varies one-for-one with the risk-free rate. The second assumes that the (real) expected return on the market is constant so that the MRP varies inversely one-for-one with the risk-free rate. He concludes that the evidence on which end of the spectrum should be preferred is "not decisive"¹⁴ and consequently recommends that both approaches should be given some weight.

¹¹ NHG Submission, p. 14.

¹² UT5 Draft Decision, p. 492.

¹³ Lally, M., 2013, Response to Submissions on the Risk-Free Rate and the MRP, report for the QCA, October.

¹⁴ Lally (2013), p. 6.

3.4.4 QCA empirical analysis does not conclude against the Wright approach

The NHG submission implies that the Wright approach should be given no weight, with primary reliance placed on the Ibbotson approach. The basis for this submission is said to be an empirical analysis performed by the QCA which concluded in favour of the Ibbotson approach. However, the UT5 Draft Decision notes that the QCA has now performed standard significance tests and concluded that the stability of the MRP (Ibbotson) and real market return (Wright) are insignificantly different. That is, the available data is unable to discriminate between the Ibbotson and Wright approaches, using standard empirical approaches. The QCA concludes that the analysis of the two approaches is “not determinative”¹⁵ and notes that Dr Lally has advised that it is “not decisive.”¹⁶

Thus, NHG’s reference to the QCA’s empirical analysis is incorrect. The QCA’s analysis does not conclude against the Wright approach; it concludes that, when properly analysed, the available data is unable to discriminate between the Ibbotson and Wright approaches.

3.4.5 Wright approach receives only minor weight in the QCA’s analysis

The UT5 Draft Decision indicates that the Wright approach has received only 15% weight towards the final MRP allowance.¹⁷ By contrast, the Ibbotson/Siegel¹⁸ approach receives a weight of 40%.

If the weight afforded to the Wright approach were eliminated entirely from the QCA’s calculation, the resulting MRP allowance would remain materially above the 6.0% MRP allowance proposed by NHG.

3.4.6 A constant MRP allowance is implausible

The NHG submission appears to favour the approach to setting the allowed MRP that has been adopted in the AER’s recent Draft Guideline. That approach involves placing 100% weight on the Ibbotson approach, which produces an effectively constant MRP over time. That is, the same MRP is estimated during bull markets and economic expansions as during global financial crises.

This ‘constant MRP’ approach goes against the advice that the AER has received from its own consultants:

*Evidence suggests the MRP may vary over time. In their advice to the AER, Professor Lally and Professor Mackenzie and Associate Professor Partington have expressed the view that the MRP likely varies over time.*¹⁹

The QCA has also consistently concluded that:

¹⁵ UT5 Draft Decision, p. 493.

¹⁶ UT5 Draft Decision, p. 493.

¹⁷ UT5 Draft Decision, p. 83.

¹⁸ The Siegel approach is a derivative of the Ibbotson approach. It is also based on historical excess returns data and the assumption of a constant market risk premium.

¹⁹ AER, 2013, Rate of Return Guideline: Explanatory Statement, p. 91.

The likelihood that the premium is time-varying is generally well accepted²⁰

and that:

...the market risk premium varies over time.²¹

In its recent UT5 Draft Decision, the QCA confirmed that:

...it is likely that the MRP varies over time. This point is relevant given the observably low risk-free rate and the plausible (negative) correlation between the risk-free rate and the MRP.²²

Not only would setting a constant MRP be inconsistent with the regulatory consultants' view that the MRP varies over time as financial market conditions change, but it also produces implausible outcomes. During the peak of the global financial crisis, government bond yields fell rapidly as investors sold out of risky assets and invested in government bonds as a safe haven asset with high liquidity. The approach of adding a constant MRP to the lower government bond yield implies that the cost of equity capital **fell** during the peak of the GFC – which is clearly implausible.

3.4.7 Conclusion in relation to NHG submission

In our view, there is no basis for reducing the weight that the QCA has applied to the Wright approach when determining its MRP allowance. Reducing the weight on the Wright approach would:

- Be inconsistent with advice (and common sense) that the MRP is not constant over time and over different financial market conditions;
- Be unsupported by the QCA's empirical analysis; and
- Generate implausible outcomes, such as cost of equity **falling** during a financial crisis – as weight is shifted to approaches that produce constant MRP.

3.5 Yancoal submission and regulatory precedent

3.5.1 Yancoal submission

In relation to MRP, Yancoal has submitted that:

²⁰ QCA, 2014, Market Parameters Decision, p. 57.

²¹ QCA, 2014, Market Parameters Decision, p. 81.

²² UT5 Draft Decision, p. 82.

Yancoal submits that in light of the regulatory trend towards a lower MRP, and the fact that the MRP can (by its very nature) change over time as economic conditions change, it would be appropriate for the QCA to reconsider the appropriate estimate for the MRP.²³

3.5.2 The QCA's estimates indicate an increase in the MRP

As set out above, we agree with Yancoal that the MRP varies over time with changes in financial market conditions and that it should be estimated according to the prevailing market conditions at the relevant time.

In this regard, the QCA uses a range of approaches to estimate the MRP, as set out in **Table 3** above. In its UT5 Draft Decision, the QCA noted that:

...estimates from four of the five methods have increased, in some cases materially, since the DBCT final decision—our most recent assessment of the MRP, which applied an MRP of 6.5 per cent²⁴

and that:

...a component of the survey estimate (that is, the Fernandez et al. 2017 survey result) has materially increased, from 6.0 per cent to 7.6 per cent, since our previous assessment.²⁵

The UT5 Draft Decision also explains that an increase in the MRP is plausible in the prevailing market conditions:

As the QCA estimates the MRP for the regulatory term, it could be anticipated that short-term market fluctuations during the regulatory cycle result in the true MRP being either higher or lower than the MRP estimated at the previous regulatory reset.

Further, it is likely that the MRP varies over time. This point is relevant given the observably low risk-free rate and the plausible (negative) correlation between the risk-free rate and the MRP.²⁶

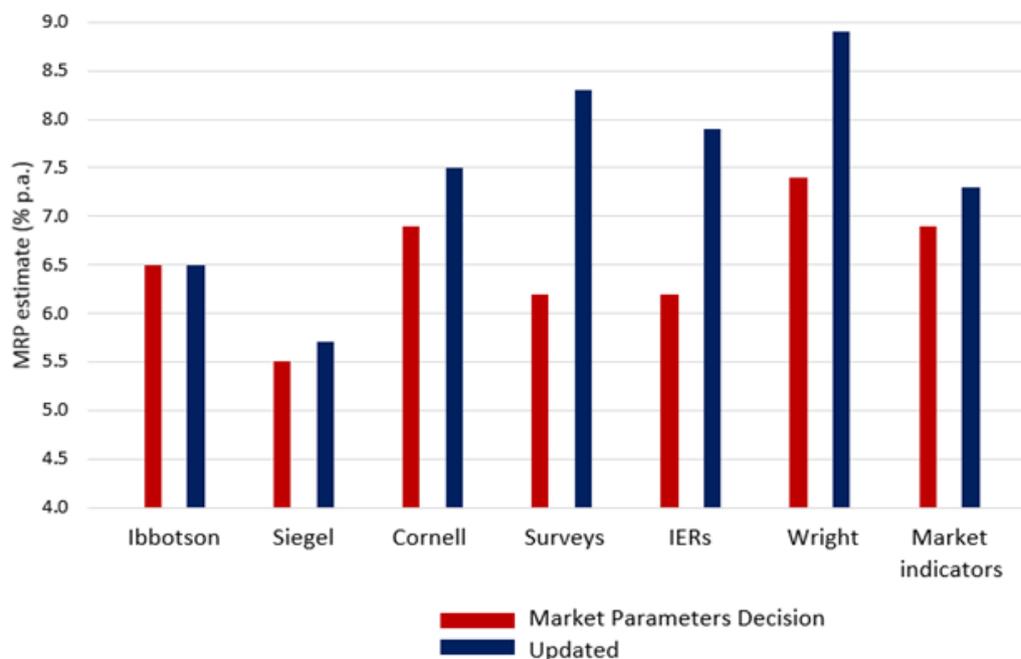
We have made a similar point in a previous submission to the QCA, as summarised in **Figure 1** below.

²³ Yancoal Submission, p. 44.

²⁴ UT5 Draft Decision, p. 84.

²⁵ UT5 Draft Decision, p. 84.

²⁶ UT5 Draft Decision, p. 81.

Figure 1: Comparison of QCA MRP estimates

Source: QCA 2014 Market Parameters Decision, Frontier Economics, An updated estimate of the market risk premium, September 2017, Figure 5, p. 38.

Thus, the proposition that the prevailing market conditions warrant a **reduction** in the MRP allowance is in consistent with the empirical evidence before the QCA.

3.5.3 There is no regulatory trend towards a lower MRP

Yancoal note that the ACCC and AER have recently applied an MRP of 6.0% as evidence of the “regulatory trend towards a lower MRP.” However, there are a number of reasons to support the conclusion that there is no regulatory trend towards a lower MRP allowance.

First, evidence from the ACCC provides no indication at all of any trend and is not relevant to the assessment of the MRP that is commensurate with the prevailing conditions in financial markets. This is because the ACCC applies the same MRP allowance in all of its decisions. During bull markets and economic expansions, the ACCC uses an MRP of 6%. During the peak of the GFC and the European debt crisis the ACCC used an MRP of 6%. Indeed, the ACCC has recently noted that it always uses 6%.²⁷

The ACCC also draws a distinction between its decisions and those that are made under other legislation. Specifically, the ACCC notes that it does not operate under the National Gas and Electricity Law and Rules, which require the estimate to be commensurate with the prevailing conditions in the market.²⁸

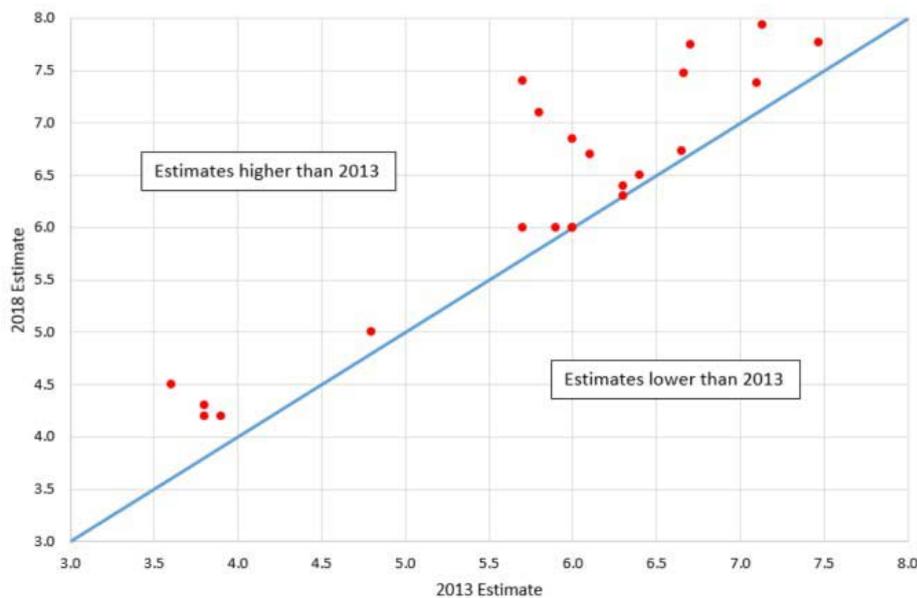
²⁷ ACCC, Glencore – Port of Newcastle Final Determination, p. 151.

²⁸ ACCC, Glencore – Port of Newcastle Final Determination, p. 153.

The ACCC then notes that its approach is to set the MRP based on a long-term mean of historical premiums and such an estimate does not change to reflect the prevailing market conditions.

The AER's proposal to allow a MRP of 6% in its Draft Rate of Return Guideline is also inconsistent with its empirical evidence and with the approach of other regulators. For example, in a recent submission to the AER, Energy Networks Australia notes that the AER's own estimates of the MRP have uniformly increased since its previous Guideline in 2013, as summarised in **Figure 2** below.

Figure 2: Comparison of AER 2013 and 2018 estimates of MRP

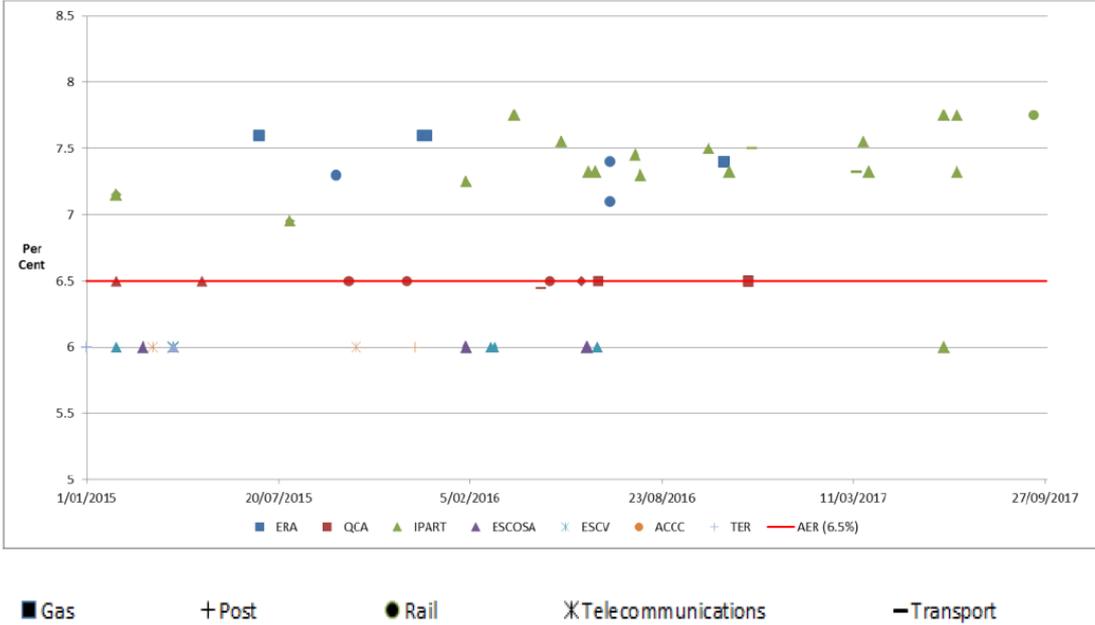


Source: Energy Networks Australia, *Response to Draft Guideline*, 25 September 2018, https://www.aer.gov.au/system/files/20180925_ENA%20Response%20-%20Draft%20AER%20Rate%20of%20Return%20Guideline.pdf.

The AER has also recently published a comparison of its MRP allowance and that of other regulators, reproduced in **Figure 3** below. Indeed, the only recent decision to adopt a 6% MRP allowance is from IPART, where legislation requires that figure to be used for a particular purpose. Where IPART is not so constrained by legislation, it has most recently adopted an MRP of 7.15%.²⁹

²⁹ <https://www.ipart.nsw.gov.au/files/sharedassets/website/shared-files/information-management-policy-biannual-market-update-%E2%80%93-sea/fact-sheet-wacc-biannual-update-august-2018.pdf>.

Figure 3: AER summary of recent regulatory MRP allowances



Source: AER APA Final Decision, November 2017, Figure 3-16.

3.5.4 Conclusion in relation to Yancoal submission

In our view, there is no basis for concluding that the empirical evidence or regulatory precedent supports a reduction to the MRP allowance:

- The empirical evidence, including the QCA’s own evidence, supports an increased MRP allowance; and;
- Other regulators, particularly those seeking an estimate of the MRP that is commensurate with the prevailing conditions in the market, are generally not decreasing MRP allowances to 6%. The AER’s proposal to do this in its Draft Guideline is inconsistent with the AER’s own evidence and estimates of MRP.

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