QUEENSLAND resources COUNCIL

Public Version

QRC submission – CQCN

QCA Declaration Review

Staff Issues Paper

30 May 2018

QUEENSLAND resources COUNCIL

Resourcing Queensland's future

30 May 2018

Mr Charles Millsteed
Chief Executive Officer
Queensland Competition Authority
Level 27, 145 Ann Street
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(submitted via QCA online submission form)

Dear Mr Millsteed

The Queensland Resources Council (QRC) provides this submission on behalf of our Rail Working Group members to the Queensland Competition Authority (QCA) regarding its staff issues paper on the re-declaration of declared services in Queensland.

Declaration of the use of the Central Queensland Coal Network has resulted in fair access to (and the efficient operation of) what is the critical piece of economic infrastructure for the coal industry. This has sustained investment in Queensland coal mines, led to significant employment opportunities and substantially boosted Queensland's overall economic performance. The Central Queensland Coal Network is of course a monopoly. There is no economic alternative to transport coal from a mine to an export port or a domestic point of sale (such as a power station).

As our submission makes clear, the QRC submits that use of the Central Queensland Coal Network satisfies the access criteria set out in the Queensland Competition Authority Act 1997 (Qld). On that basis, the QRC submits that the QCA should recommend that the currently declared service be re-declared for a minimum of 15 years.

Thank you for the opportunity to provide a submission. If you have any questions about this submission, please contact Andrew Barger at QRC on 3316 2502 or andrewb@qrc.org.au.

Yours sincerely

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1 Overview

The Queensland Resources Council (**QRC**) welcomes the opportunity to provide a submission in response to the Queensland Competition Authority's (**QCA**) staff issues paper (**Issues Paper**).This submission relates to the review of the declaration of the service for the use of a coal system for providing transportation by rail (**Service**).

As demonstrated in this submission, the access criteria are clearly satisfied and the Service should be re-declared for a further 15 years (or longer). In brief:

- the Central Queensland Coal Network (**CQCN** or **Facility**) is a natural monopoly, which is capable of meeting total foreseeable demand in the market for the use of the below-rail infrastructure that makes up the CQCN (**Below-Rail Market**) at least cost (for any declaration period, but in particular for 15 years):
  - total foreseeable demand in the Below-Rail Market (as calculated in the independent expert report prepared by RBB Economics ((**RBB Expert Report**) – refer to Attachment 1) is forecast to marginally exceed the existing capacity of the CQCN, but expansion of the CQCN is reasonably possible and, compared to developing a new railway, an expanded CQCN would be able to meet total foreseeable demand at least cost (as shown in the independent expert report prepared by Calibre ((**Calibre Expert Report**) – Attachment 2); and
  - given the long-term decision making horizons in the market for coal haulage services on narrow gauge rail lines in Queensland (**Above-Rail Market**) (among other dependent markets), a 15 year (or longer) declaration period is appropriate;
- compared to a future without declaration, re-declaration would promote a material increase in competition in the Above-Rail Market (as well as a number of other markets, although the main focus of this submission is the Above-Rail Market). In particular:
  - the supply of above-rail services on the CQCN and the supply of below-rail services on the CQCN occur in separate markets; and
  - the Above-Rail Market would be less competitive absent re-declaration due to Aurizon's ability and incentive to use its market power in the Below-Rail Market to favour its vertically integrated above-rail business;
- the CQCN is significant infrastructure to Queensland, which spans more than 2,700km of track and facilitates the Queensland coal industry's $16 billion contribution to Queensland's economy and the employment of almost 19,000 people; and
- re-declaration of the Service would promote the public interest by sustaining investment in Queensland and ensuring that Queensland businesses remain globally competitive.

The remainder of this submission provides information which demonstrates that the access criteria are satisfied and the Service should be re-declared. For completeness, the QRC also provides responses to each of the issues identified in the Issues Paper (refer to Schedule 1).

2 Background

As explained further in section 6 below, the CQCN is a very important facility and the re-declaration process has significant implications for the Queensland economy. As a result, the QRC welcomes the opportunity to make this submission and would welcome the opportunity to discuss this submission with the QCA secretariat.

The QRC is the peak representative organisation of the Queensland minerals and energy sector. The QRC's membership encompasses minerals and energy exploration, production and processing companies and associated service companies. The QRC works on behalf of members to ensure that Queensland's resources are developed profitably and competitively, and in a socially and environmentally sustainable way.

All operating Queensland coal producers are members of the QRC. A number of coal mining companies in the development and operating phase are also members of the QRC.

This submission has been prepared in close consultation with QRC members. Generally speaking, for reasons of confidentiality, the members who have provided data or information to support this submission are not identified. The QRC can facilitate meetings with the individual members who have provided information, as well as provide some mine-specific data to the QCA. While the impacts of declaration differ between coal mining companies in terms of extent and severity, they would all be seriously affected if the Service were not re-declared. In that sense, there are common themes across members and those themes are the focus of this submission.

3 Re-declaration process considerations

The QCA has proposed a four week 'submissions on submissions period'.[1] Given the significant potential impact of the re-declarations on the Queensland economy, the QRC expects that there is likely to be a large volume of arguments and evidence provided in response to the Issues Paper. Stakeholders will likely wish to consider and potentially respond to submissions from all three processes (i.e. CQCN, Queensland Rail and the Dalrymple Bay Coal Terminal) given that they will all raise similar issues.

Furthermore, the QRC submits that the QCA will be required to explore new and complex legal issues when interpreting the meaning of the new criterion, given the recent changes to the access criteria. In fact, the QCA will be the first regulator to apply the new access criteria. In addition, this will be the first detailed consideration of the application of the access criteria within the context of a re-declaration (rather than a declaration), adding an additional degree of complexity to the process.

Therefore, the QRC suggests that the QCA should strongly consider allowing parties more time to respond to public submissions. Indeed, the QRC considers that it would be appropriate to extend the period for reply submissions. This small extension is unlikely to affect the deadline for the final recommendation given the long lead time. Indeed, allowing this additional time now may actually help to speed up the process in the longer term by more clearly drawing out at an early stage the key issues that are being considered by stakeholders.

[1] Queensland Competition Authority, 'Notice of Review and Notice of Investigation – Declaration Review (Aurizon Network)' (4 April 2018) (**Notice of Review**), 2.

4 Criterion (b) – Natural Monopoly

The operation of criterion (b) under the National Access Regime has been the subject of considerable debate in recent years.[2] Criterion (b) has been applied in various forms, including under tests of 'natural monopoly', 'net social benefit' and 'private profitability'.[3]

The Queensland government recently amended criterion (b) in the *Queensland Competition Authority Act 1997* (Qld) (**QCA Act**) to make it consistent with the most recent changes made to Part IIIA of the *Competition and Consumer Act 2010* (Cth) (**CCA**), ensuring it will be applied in the future as a 'natural monopoly test',[4] (albeit a modified version of the previous natural monopoly test).[5]

The current criterion requires consideration of whether:

> *'the facility for the service could meet the total foreseeable demand in the market:*
>
> *(i) over the period for which the service would be declared; and*
>
> (ii) *at the least cost compared to any 2 or more facilities (which could include the facility for the service)'*[6]

The QCA Act further provides that:

- if the facility for the service is currently at capacity, and it is reasonably possible to expand that capacity, the QCA and the Minister may have regard to the facility as if it had that expanded capacity; and
- without limiting criterion (b), 'least' cost includes all costs associated with having multiple users of the facility for the service, including costs that would be incurred if the service were declared.[7]

The QRC considers that the approach adopted by Michael O'Bryan QC in his legal opinion (**Michael O'Bryan QC Legal Opinion**) (refer to Attachment 3) is the most appropriate framework in which to assess the application of criterion (b) (although we do not consider this framework to be materially different to the framework proposed by the QCA in the Issues Paper).[8] Accordingly, to assist the QCA, the below analysis follows the QCA's approach, namely identifying:

- the relevant Service;
- the relevant Facility;
- the market in which the Service is provided, including customers and potential substitutes;
- the period for which the Service should be declared;
- total foreseeable demand in the market (over that period);

[2] Competition and Consumer Act 2010 (Cth) s 44CA(b) (**CCA**); Competition Policy Review Panel, *Competition Policy Review: Final Report* (2015) (**Harper Report**), 420-440; Productivity Commission, National Access Regime, Inquiry Report No 66 (2013) (**Productivity Commission Report**), 145-182.

[3] See Productivity Commission Report, 151-152.

[4] *Queensland Competition Authority Amendment Bill 2018* (Qld) (**QCA Amendment Bill**); Explanatory Notes, Queensland Competition Authority Amendment Bill 2018 (**QCA Amendment EN**), 1.

[5] See Michael O'Bryan QC Legal Opinion, [57], [63] - [66].

[6] QCA Act, s 76(2)(b).

[7] QCA Act, s 76(3)-(4).

[8] See Michael O'Bryan QC Legal Opinion, [44].

- whether, and at what cost, the Facility for the Service (expanded if necessary) could meet total foreseeable demand; and
- the cost of any two or more facilities (whether new or existing) to meet foreseeable demand and comparing that to the cost of the Facility.

The National Competition Council (**NCC**) interprets this criterion as being concerned with the waste of Australian society's resources associated with the duplication of facilities that exhibit natural monopoly characteristics.[9] While the access regime under Part 5 of the QCA Act is a separate regime to the National Access Regime, the Queensland government made clear that the most recent amendments were '*intended to reflect the revised criteria being introduced at the national level*'.[10] As a result, NCC guidance and other material relevant to the assessment of the criteria in Part IIIA of the CCA should be given due consideration by the QCA in undertaking its assessment.

4.1 Relevant Service and Facility

As noted in the Issues Paper, one of the 3 services declared under the QCA Act is the use of a coal system for providing transportation by rail.[11]

The relevant Facility is the CQCN. It comprises 2,718 km of multi-user track network in central Queensland and includes four component systems, being Newlands, Goonyella, Blackwater and Moura, and relevant extensions to those systems (refer to Figure 1 below).[12]

[9] National Competition Council, 'Declaration of services, A guide to declaration under Part IIIA of the Competition and Consumer Act 2010 (Cth)' (April 2018) (**Declaration Guide**), [4].

[10] QCA Amendment EN, 2.

[11] QCA Act, s 250(1)(a).

[12] Aurizon, 'Blackwater System Information Pack – Issue 7.0' (March 2017); Aurizon, 'Goonyella System Information Pack – Issue 7.0' (March 2017); Aurizon, 'Moura System Information Pack – Issue 7.0' (March 2017); Aurizon, 'Newlands System Information Pack – Issue 7.0' (March 2017).

Figure 1: Map of the CQCN

Source: Queensland Competition Authority.[13]

4.1.1 Capacity of the Facility

The capacity of the Facility is currently 275MTpa.

Refer to the independent expert report prepared by Calibre (Attachment 2) for further details.

4.1.2 Expansion possibilities

As the NCC has observed, railways usually exhibit natural monopoly properties.[14]

[13] Queensland Competition Authority, Aurizon Network – detailed map (Queensland Competition Authority) http://www.qca.org.au/Rail/Queensland-Rail/Aurizon-Network-detail.

A natural monopoly is said to exist if one facility can produce the required outputs to meet demand at a lower cost than two or more facilities.[15] The key characteristics of a natural monopoly relate to the nature of costs and investments.[16] Facilities that exhibit natural monopoly characteristics involve large and lumpy investment costs and significant economies of scale and/or scope.[17] It is generally accepted that a natural monopoly is more likely to exist where capital costs are large relative to variable costs, implying high average costs compared with marginal costs.[18] Railways have regularly been considered to be natural monopoly assets.[19]

The costs of building an additional railway will generally exceed the cost of expansion. This is because:

- a number of major construction costs will be avoided or reduced under an expansion, including bridge construction and associated costs, earthworks and signalling infrastructure related costs;[20] and
- physical expansion, when combined with operational factors, can deliver exponential (rather than linear) capacity increases (e.g. building passing loops on an existing system is more productive than building an independent system of an equivalent scale).[21]

As explained in the independent expert report prepared by Calibre (refer to Attachment 2), there are a number of available options to expand the CQCN:

- Track Upgrades:
  - remove poor embankment (i.e. existing rail, sleepers, ballast and capping layer) causing uneven track conditions, at a cost comparable to building new track;
  - remove rail defects causing un-reliable conditions and operational constraints, by grinding and undertaking other maintenance; and
  - renew sleepers to improve track condition, which can be combined with embankment and rail defect removal to reduce costs.
- Additional track infrastructure:
  - build passing loops at strategic locations, which may accommodate more trains and help prioritise loaded train movements;
  - duplicate or triplicate single lines, which may avoid on-coming trains waiting for the other to pass;
  - build hold roads for trains queueing to load, unload or enter another network section; and

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[14] National Competition Council, 'Draft Recommendation Applications for declaration of four services comprising the Central Queensland Coal Network under s 44F(1) of the Trade Practices Act 1974 (Cth)' (14 September 2010) (**PN Draft Recommendation**), [6.17].

[15] PN Draft Recommendation, [6.4].

[16] PN Draft Recommendation, [6.5].

[17] PN Draft Recommendation, [6.5].

[18] PN Draft Recommendation, [6.5].

[19] PN Draft Recommendation, [6.17].

[20] Pacific National, 'Application under Part IIIA of the Trade Practices Act 1974 for a Declaration Recommendation for the Services provided by Queensland Rail's Queensland Coal Rail Network' (Submission to National Competition Council, 18 May 2010) (**PN Application**), [7.15]; PN Draft Recommendation, [6.12].

[21] PN Draft Recommendation, [6.12]; PN Application, [7.15].

- implement minor changes to existing constraints, to improve grade easing, curve easing and additional cant.

- Train cost configuration:
  - slightly increase axle load and wagon payload (without a new fleet);
  - build additional consists in each system, where the number of trains is the constraint; and
  - build additional locomotives, which can increase performance of the train and potentially reduce cycle time.
- Operational improvements:
  - reduce headway to allow trains to run closer;
  - implement power system upgrades (i.e. additional power feeds and associated infrastructure), which would reduce spacing;
  - incrementally improve loading and unloading capacity;
  - decrease time spent in yards; and
  - reduce train crew mid-trip delays.

Refer to the independent expert report prepared by Calibre (Attachment 2) for further details.

4.2 Market for the Service

Section 71 of the QCA Act provides that:

> *'(1) A **market** is a market in Australia or a foreign country.*
>
> *(2) If **market** is used in relation to goods or services, it includes a market for—*
>
> > *(a) the goods or services; and*
> >
> > *(b) other goods or services that are able to be substituted for, or are otherwise competitive with, the goods or services mentioned in paragraph (a).'*

Therefore, the market for the purposes of criterion (b) is the market for the Service (for which declaration is being considered) as well as other services that are substitutable for, or otherwise in competition with, such services. This is almost identical to section 4E of the CCA.[22]

The Issues Paper states that the definition in section 71 is consistent with the principles of defining a market in *Re Queensland Co-operative Milling Association* 481 (**QCMA**).[23] Its approach was endorsed by the High Court in *Queensland Wire Industries Pty Ltd v Broken Hill Pty Co Ltd*.[24] It has also been applied in CCA access cases defining the 'market', albeit for the purpose of criterion (a).[25]

There are two points to note from QCMA (at page 517):

[22] s 4E of the CCA does not refer to a market in a foreign country.

[23] *Re Queensland Co-operative Milling Association* (1976) 8 ALR 481, 517.

[24] (1989) 167 CLR 177, 187-188.

[25] *Re Fortescue Metals Group Limited* [2010] ACompT 2, [1015].

1. A market is a 'field of rivalry' consisting of 'actual and potential transactions between buyers and sellers amongst whom there can be strong substitution, at least in the long run, if given a sufficient price incentive'; and
2. Substitution is defined as occurring 'between one product and another, and between one source of supply and another, in response to changing prices'. It is commented on in more detail as follows:

> '*Let us suppose that the price of one supplier goes up. Then on the demand side buyers may switch their patronage from this firm's product to another, or from this geographic source of supply to another. As well, on the supply side, sellers can adjust their production plans, substituting one product for another in their output mix, or substituting one geographic source of supply for another. Whether such substitution is feasible or likely depends ultimately on customer attitudes, technology, distance, and cost and price incentives.*
>
> *It is the possibilities of such substitution which sets the limits upon a firm's ability to 'give less and charge more*'.[26]

There are no viable substitutes for the Service – there are no alternative below-rail facilities available and road haulage is not a viable option. Road haulage is not viable in terms of the price and the community would not accept the number of trucks that would be required to haul coal.

Accordingly (and in line with the previous approach adopted by the NCC), the relevant market is the market for the use of the below-rail infrastructure that makes up the CQCN (the Below-Rail Market).[27]

4.3 Declaration period

The QRC considers that the Service should be re-declared for a minimum of 15 years. However, given the importance of the Service and the cost of the re-declaration process, the QRC submits that a longer declaration period would also be appropriate. The QRC notes that services have typically been declared for periods of 10-20 years. For instance, services were declared for:

- 10 years in relation to the Tasmanian Railway;[28]
- 15 years in relation to the Port of Newcastle;[29] and
- 20 years in relation to the Goldsworthy Railway.[30]

In determining the appropriate declaration period of 15 years rather than a shorter period, the QRC has assessed and balanced the following considerations:

- a longer declaration period would provide sufficient certainty for businesses and investment decisions in the long run, benefitting service providers, access seekers and other relevant affected parties;[31]

[26] QCMA, 517.

[27] PN Draft Recommendation, [5.12].

[28] National Competition Council, 'Application for declaration of a service provided by the Tasmanian Railway Network – Final recommendation' (14 August 2007) (**Tasmanian Railways Declaration**), [10.7].

[29] Application by Glencore Coal Pty Ltd (No2) [2016] ACompT 7.

[30] National Competition Council, 'Application for declaration of a service provided by the Goldsworthy Railway network under section 44F(1) of the Trade Practices Act – Final recommendation' (28 August 2008), [1.16].

[31] PN Draft Recommendation, [11.3].

- a longer declaration period would permit realisation of the expected benefits from access and enable declaration rights to influence competition patterns in the relevant markets;[32]
- a longer declaration period increases the time that the public will receive the benefits resulting from the declaration (as per section 7 below);
- it is unlikely that significant technological developments will occur in the Below-Rail Market over a longer declaration period (i.e. any expected developments, such as increased electrification, are likely to occur in the first 10 years);[33] and
- it is unlikely that significant legislative change will occur in the future, given the considerable attention given to the access criteria through the recent Productivity Commission and Harper Review processes (and noting that in any event the access criteria do not change regularly, having not changed previously since 2010).

Furthermore, to the extent that significant changes occur in the future (e.g. technological development alters the Below-Rail Market), the risk that the access criteria might no longer be satisfied under a longer declaration period is mitigated by the fact that the owner of the facility (Aurizon Network) could bring a revocation application.[34] Relevantly, the QRC notes that the CCA does not have an equivalent provision - the NCC is entitled to recommend revocation, but there is no procedure for a service operator to require the NCC to consider the declaration status.[35] Accordingly, a longer declaration period under the QCA Act holds less risk for the owner of the facility, and is therefore potentially more appropriate, than under the National Access Regime.

4.4 Total foreseeable demand

'Total foreseeable demand' in criterion (b) should be interpreted to be an estimate of the total reasonably foreseeable demand at a point in time when the market demand is expected to be highest (excluding outliers) during the declaration period.

This approach is supported by the language of section 76(2)(b) of the QCA Act, relevant case law and commentary on criterion (b). In particular, the Explanatory Memorandum to the *Competition and Consumer Amendment (Competition Policy Review) Bill 2017* (Cth) (**CCA Amendment Bill EM**) provides that:

> *'In assessing whether a facility could meet total foreseeable market demand at least cost, this calls for a consideration of whether what could be expected to be maximum demand could be supported by the facility.*[36]
>
> *Because the test uses the concept of foreseeability it is not limited to looking at maximum demand based on current uses of the service. Other future uses may be relevant to the consideration if they are foreseeable*.'[37]

In *Re Fortescue Metals Group Ltd*, the Australian Competition Tribunal (**Tribunal**) relied upon the production figures in the NCC's report and the incumbents' comments on that

[32] PN Draft Recommendation, [11.3].

[33] PN Draft Recommendation, [11.4].

[34] QCA Act, s 88.

[35] CCA, s 44J(1).

[36] CCA Amendment Bill EM, [12.24].

[37] CCA Amendment Bill EM, [12.26].

report to assess the volume of the demand.[38] If a junior miner was considering a range of target production levels the Tribunal used the highest figure.[39] The Tribunal held:

> *'Reasonably foreseeable demand consists of the incumbent's expected demand plus reasonably foreseeable third party demand. The material produced by the parties did not provide sufficient information about the activities of mining companies to assess demand. Accordingly, the tribunal requested the NCC to prepare a report updating the information. For the report, the NCC was asked to consider only information made publicly available by or on behalf of the junior miner (and for public companies, only information published through the ASX). Based on the report and comments made by RTIO and BHPB, the tribunal was able to assess the demand for each service and applied a number of broad rules to 'filter out' tenements regarded as not being treated as an appropriate source of demand'.*[40]

The QRC agrees with the approach taken by the Tribunal. That is, it is appropriate to filter out inappropriate sources of demand. The QRC also submits that the QCA should take a pragmatic approach to considering demand (i.e. any obvious outlier periods of demand /spikes should be filtered out where they do not reflect the overall demand pattern).

Based on Table 2 of the RBB Expert Report (Attachment 1), the highest level of total foreseeable demand in the Below-Rail Market over the proposed 15 year declaration period is 298.3MTpa.

Total Foreseeable Demand (MTpa)							
2020	2021	2022	2023	2024	2025	2026	2027
248.6	**257.4**	**258.7**	**259.3**	**260.8**	**268.5**	**256.1**	**257.2**
2028	2029	2030	2031	2032	2033	2034	2034
271.1	**276.0**	**271.4**	**278.1**	**279.2**	**292.9**	**298.3**	**281.0**

4.5 Capacity and cost

Given capacity and demand requirements, the Facility is unlikely to be able to meet total foreseeable demand in the market over the declaration period without moderate expansion. Based on section 5 of the Calibre Expert Report (refer to Attachment 2), the QRC submits that a further 90MTpa of capacity is likely to be required.

A 90MTpa expansion of the CQCN would cost approximately $695m (plus an additional $100m per year if required during the Surat Basin Railway ramp-up stage)[41] and would include:

[38] *Re Fortescue Metals Group Ltd* [2010] ACompT 2, [870].

[39] *Re Fortescue Metals Group Ltd* [2010] ACompT 2, [870].

[40] *Re Fortescue Metals Group Ltd* [2010] ACompT 2, [856].

[41] Calibre Expert Report, section 4.4.

- a decrease in headway on the Goonyella system and development of a fourth loop at DBCT – expansion of this kind would cost approximately $145m;[42]
- construction of a fourth balloon loop at RG Tanna and a second balloon loop at the Wiggins Island Coal Export Terminal – expansion of this kind would cost approximately $90m;[43] and
- construction of a third balloon loop at the Wiggins Island Coal Export Terminal and construction of the Moura Link and Moura main line passing loops – expansion of this kind would cost approximately $460m and would be supplemented (if required) by formation strengthening, further passing loops and duplication (at a cost of $100m per year).[44]

4.6 Cost comparison

Given there are no alternative facilities in the market, the only relevant alternative facilities are those that could be developed in the future. According to the Calibre Expert Report (refer to Attachment 2), developing a new facility as an alternative to the CQCN would cost approximately $20bn.[45] Furthermore, the QRC submits that it would not be possible to develop a 90MTpa facility (i.e. a facility that simply meets excess demand requirements) at least cost compared to an expansion of the CQCN. Given the high cost of developing rail infrastructure ($7m per kilometre of track),[46] the QRC submits that there are no alternative facilities that could meet excess demand at a lower cost than the Facility.

As a result, it is clear that expanding the CQCN to meet this demand through a single Facility will cost less than developing a new Facility to meet this demand through two or more facilities.

4.7 Conclusion

For the reasons outlined above, the Facility is a natural monopoly which, with reasonably possible expansion, can meet total foreseeable demand in the Below-Rail Market at least cost over any declaration period (but in particular over the period from 2020 – 2035). Accordingly, criterion (b) is clearly satisfied and the Service should be declared.

[42] Calibre Expert Report, section 5.3.1.

[43] Calibre Expert Report, section 5.3.2.

[44] Calibre Expert Report, section 5.3.3.

[45] Calibre Expert Report, section 5.4.

[46] Calibre Expert Report, section 5.4.

5 Criterion (a) – Promotion of Competition

The operation of criterion (a) under the National Access Regime has been the subject of considerable debate in recent years.[47] Since its introduction as part of the law reforms following the release of the Hilmer Report,[48] there have been a number of amendments made to the criterion and judicial consideration of those changes.[49] The Queensland government has recently amended criterion (a) in the QCA Act to make it consistent with the most recent changes made to Part IIIA of the CCA.

The current criterion requires consideration of whether:

> *'access (or increased access) to the service, on reasonable terms and conditions, as a result of a declaration of the service would promote a material increase in competition in at least 1 market (whether or not in Australia), other than the market for the service'*[50]

The QRC considers that the approach proposed in the Issues Paper is the appropriate framework in which to assess the application of criterion (a). That is, the process involves:[51]

- identification of the dependent (i.e. upstream or downstream) markets;
- consideration of whether those markets are separate from the market for the Service to which access is sought; and
- assessing whether access (or increased access) resulting from the declaration would promote a material increase in competition in any of the dependent markets.

This is consistent with the approach taken by the NCC in its most recent guidance on Part IIIA of the CCA.[52] As noted in section 4 above, NCC guidance and other material relevant to the assessment of the criteria in Part IIIA of the CCA should be given due consideration by the QCA as part of its assessment.

5.1 Identification of dependent markets

The first step of the QCA's assessment of criterion (a) is to identify the relevant dependent upstream or downstream markets for the Service.[53]

The wording of criterion (a) refers to the promotion of competition '*in at least 1 market (whether or not in Australia)*'.[54] It is clear from the object of Part 5 of the QCA Act that the intention is to consider '*effective competition in upstream and downstream markets*'.[55] In order for declaration to affect competition in upstream or downstream markets, competition in these markets must be dependent on the availability of the Service (refer to Figure 2 below).

[47] CCA s 44CA(a); Harper Report, 317-18; Productivity Commission Report, 172-3.

[48] Independent Committee of Inquiry, *National Competition Policy* (1993) (**Hilmer Report**).

[49] Harper Report, 317-18; Productivity Commission Report, 170-1.

[50] QCA Act, s 76(2)(a).

[51] Issues Paper, 19.

[52] Declaration Guide, [3.3].

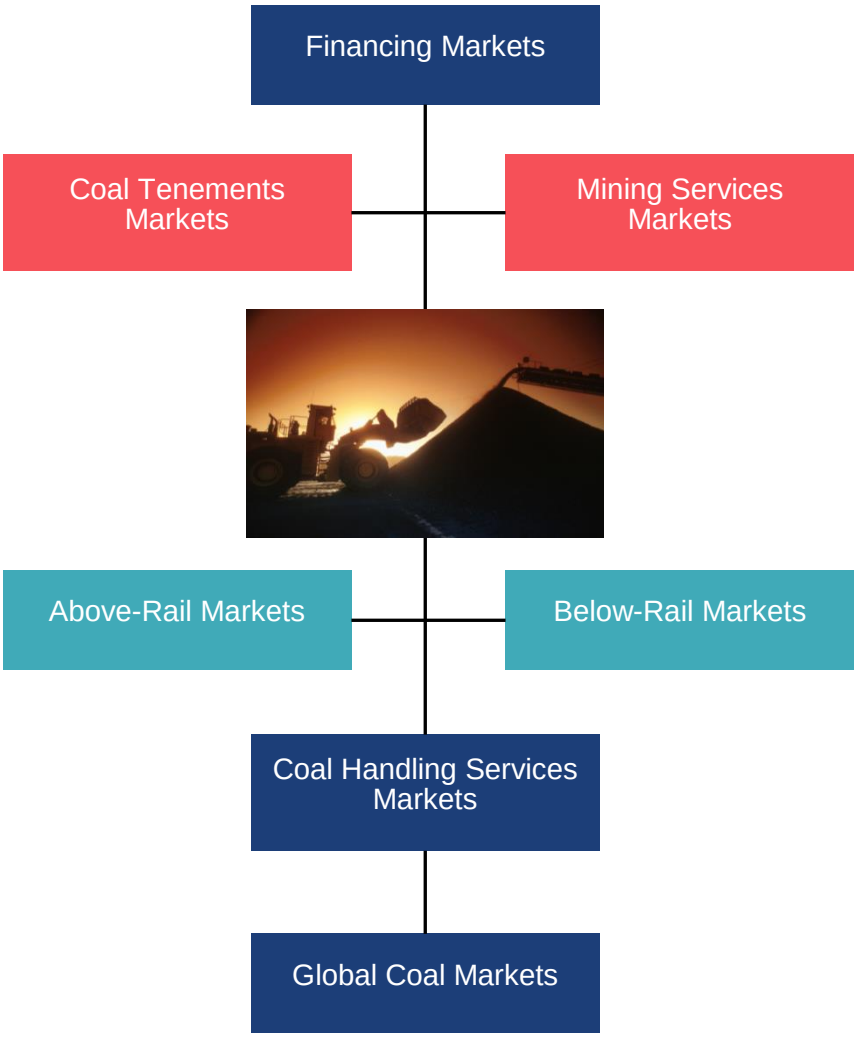
[53] Issues Paper, 19.

[54] QCA Act, s 76(2)(a).

[55] QCA Act, s 69E.

Figure 2: Generic coal supply chain

Commonly identified markets in a coal supply chain include:



A market is commonly accepted as being an:

> '*area of close competition between firms …*
>
> *Within the bounds of a market there is substitution — substitution between one product and another, and between one source of supply and another, in response to changing prices. So a market is the field of actual and potential transactions between buyers and sellers amongst whom there can be strong substitution, at least in the long run, if given a sufficient price incentive*.'[56]

The key consideration is to identify one or more markets where competition appears likely to be materially affected by an improvement in the terms and conditions of access to the Service.[57]

There are a number of upstream and downstream markets relevant to the QCA's assessment of criterion (a). The key market considered in this submission is the Above-Rail Market. However, other relevant markets which have been recognised as dependent

[56] QCMA, 517.

[57] Declaration Guide, [3.12].

markets include coal exploration tenements, the supply of coal handling services, the global supply of coking coal / thermal coal and a variety of specialist mining services (refer to Schedule 1).

The NCC has previously reached the view that the Above-Rail Market is a dependent market.[58]

5.2 The Above-Rail Market is separate

Markets for rail haulage services have long been accepted as separate from markets for the use of below-rail infrastructure, including by the NCC, the Tribunal and the Federal Court.[59] It is clear that the Above-Rail Market is a dependent market which is functionally separate to the market in which the Service is provided.

In relation to the CQCN, the NCC has previously reached the view that the Above-Rail Market is a separate market. In reaching this view, it noted that the provision of rail haulage services by Pacific National using below-rail infrastructure operated by Aurizon indicated that below-rail and above-rail services need not be undertaken by one entity. The NCC also noted that distinct assets are required to provide on the one hand rail haulage services (including locomotives and rolling stock) and on the other hand the Service (which uses assets such as track, bridges, sidings, passing loops and signalling, communication and control systems).[60]

The presence of separate above-rail coal haulage providers operating on the CQCN demonstrates the existence of an Above-Rail Market. In addition to Aurizon Operations Ltd, Pacific National and BMA Rail also operate rail haulage services on the CQCN (although BMA Rail only provides haulage services to its related entity BHP Mitsubishi Alliance (**BMA**) and there is no evidence to suggest it would provide above-rail services to third parties).

The presence of separate above and below-rail providers is consistent with the position in a number of other regions in Australia. The most relevant example is the Hunter Valley in NSW, where the below-rail network is operated by the Australian Rail Track Corporation and there are 4 separate above-rail operators (Aurizon Operations, Pacific National, Southern Shorthaul Railroad and Genesee & Wyoming).[61]

Michael O'Bryan QC has prepared a legal opinion which includes a detailed consideration of the principles of market definition in respect of criterion (a).[62] Having considered the relevant precedents, Michael O'Bryan QC concludes that:

> *'evidence that a vertically integrated firm supplies to third parties those goods or services that it supplies to itself by means of its vertical integration is strong evidence of the existence of separate functional markets'*.[63]

Michael O'Bryan QC then considers the relevant facts in respect of the CQCN and the Service and concludes that above and below-rail services on the CQCN are supplied in separate markets:

[58] PN Draft Recommendation, [5.10].

[59] *Rail Access Corporation v NSW Minerals Council* (1998) 87 FCR 517, 10; *Re Sydney International Airport* (2000) 156 FLR 10, [97]; Tasmanian Railways Declaration, [5.23]; *Re Fortescue Metals Group Limited* [2010] ACompT 2, [1138].

[60] PN Draft Recommendation, [5.12].

[61] Australian Rail Track Corporation, '2016-2025 Hunter Valley Corridor Capacity Strategy' (September 2016), 10.

[62] Michael O'Bryan QC Legal Opinion, [28] – [35].

[63] Michael O'Bryan QC Legal Opinion, [35].

'The fact that Aurizon Network and Aurizon Operations are part of the same corporate group suggests that there may be some efficiencies to be achieved from vertical integration of the CQCN Service with rail haulage services. However, the fact that Aurizon Network supplies the CQCN Service for use by Pacific National and BMA Rail, who together haul a material proportion of the total coal volume carried over the CQCN, strongly suggests that above and below rail haulage services can profitably be supplied on a vertically separated basis, and hence that the efficiencies from vertical integration are not such as to dictate that integration.'[64]

The other markets discussed in Schedule 1 have also been recognised as functionally separate markets in a number of previous decisions by the Tribunal, Full Federal Court and NCC.[65]

5.3 Material promotion of competition

5.3.1 Appropriate assessment of 'promotion'

The final step in making an assessment under criterion (a) is to determine the extent to which access, or increased access, on reasonable terms and conditions as a result of declaration (or in the current scenario, re-declaration) would materially promote competition in at least one dependent market (compared to a counterfactual without such access).[66]

The QRC considers that, consistent with the Issues Paper, the relevant consideration is not whether there is an increase in competition, but whether there will be an enhancement of the competitive environment and greater competitive opportunities in the dependent market.[67] In short, the question is whether declaration would create the conditions or an environment where there is a non-trivial enhancement of the conditions or environment for improving competition.[68]

Undertaking an analysis of the extent to which competition is promoted in a dependent market is not a simple, formulaic exercise.[69] According to the Tribunal in *Duke Eastern Gas Pipeline Pty Ltd*, such an analysis involves consideration of the relevant industry and market structures surrounding the dependent market, followed by a judgment on the effects of the promotion of competition.[70] As part of such an analysis, consideration should also be given to the potential ability and/or incentive of the operator of the Service to adversely affect competition in that dependent market absent such a declaration.

5.3.2 Competition in the Above-Rail Market

Aurizon currently enjoys a leading position in the Above-Rail Market, accounting for more than two thirds of coal hauled in Queensland.[71] This position is only likely to increase in a

[64] Michael O'Bryan QC Legal Opinion, [37].

[65] PN Draft Recommendation, [5.11]; *Re Fortescue Metals Group Ltd* [2010] ACompT 2 [1072]-[1132]; *Pilbara Infrastructure Pty Ltd v Australian Competition Tribunal* (2011) 193 FCR 57 [119]-[120], *Port of Newcastle Operations Pty Ltd v Australian Competition Tribunal* [2017] FCAFC 124, [20].

[66] Issues Paper, 19.

[67] *Virgin Blue Airlines Pty Limited* [2005] ACompT 5, [155].

[68] *Sydney International Airport* [2000] ACompT 1, [106] – [107].

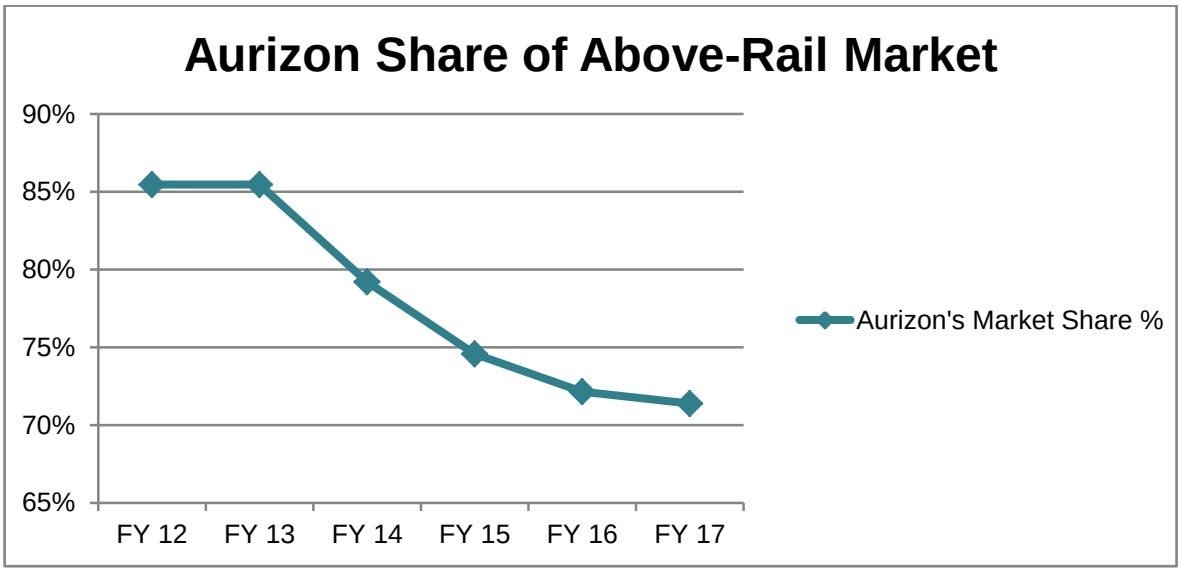
[69] *Duke Eastern Gas Pipeline Pty Ltd* [2001] ACompT 2, [116].

[70] *Duke Eastern Gas Pipeline Pty Ltd* [2001] ACompT 2, [116].

[71] Calculated using figures from pages 15 and 17 in Aurizon, 'Annual Report 16-17' (August 2017) <http://www.aurizon.com.au/~/media/aurizon/files/investors/documents%20and%20webcasts/2017/full%20year%20results/annual%20report%202017.pdf>.

scenario where the Service is not re-declared and it can favour its related above-rail business (refer to section 5.3.3 below for further details).

Pacific National has provided a degree of competition since its entry into the Above-Rail Market. As can be seen below, Aurizon's total share of the Above-Rail Market has slowly, but noticeably, reduced following the entry of Pacific National. Furthermore, given the entry of Pacific National occurred in FY09, Aurizon had a 100% share of the Above-Rail Market only a few years prior to the start of the graph (however we have been unable to identify relevant market share information in the intervening years).



Source: Aurizon Holdings Ltd Annual Reports

The QRC considers that competition which has emerged in the Above-Rail Market brings with it associated benefits to access seekers. Aurizon itself has recently noted that 'a competitive haulage market is putting some pressure on contract prices'.[72] Pacific National has also recently commented in the UT5 process that its presence in the Above-Rail Market is having an impact in increasing productivity gains / operating improvements such as the introduction of electronically controlled pneumatic (ECP) braking, increased locomotive power and safe operation of over-length trains.[73]

Pacific National's entry (and the associated competition which has resulted from this) was primarily made possible by two factors:

- the regulatory environment which has resulted from the declaration of the Service (including the approved access undertaking and access agreements), which provided the necessary environment for competition to grow; and
- by significant haulage contracts with Rio Tinto Coal Australia and Xstrata Coal.[74] Such sponsorship was made possible, at least in part, by the increase regulatory certainty from declaration of the Service.

[72] Aurizon, '1HFY2018 Results' (12 February 2018) (emphasis added) <http://www.aurizon.com.au/~/media/aurizon/files/investors/documents%20and%20webcasts/2018/interim%20results/hyr%202018%20investor%20presentation.pdf>

[73] Queensland Competition Authority, 'Draft decision – Aurizon Network's 2017 draft access undertaking' (March 2018) (**DAU 5**), 8.

[74] Rail Express, 'PN commences QLD coal haulage operations' (13 May 2009) <https://www.railexpress.com.au/pn-commences-qld-coal-haulage-operations/>.

However, despite the presence of Pacific National offering haulage services to third parties, as can be seen above there is still considerable room for improvement in the competitive environment. As a result, re-declaration would promote competition, compared to a world without declaration.

In particular, a high level of investment is required to support entry into or expansion in the Above-Rail Market, including in rolling stock, locomotives and relevant accreditation (and as a result a high level of certainty about gaining reasonable access is required in order to make that investment). Relevant issues for potential entrants considering making this investment include:

- the asset life of typical rolling stock is approximately 25 years. In contrast, the weighted average length for a rail haulage contract is approximately 10 years.[75] In circumstances where an above-rail haulage provider is looking to invest in rolling stock and associated equipment, it requires certainty that it will be able to deploy the rolling stock required to service a particular haulage contract on another contract following the existing/prospective contract expiring, in order to justify the investment required;[76]
- the CQCN is narrow gauge track. As a result, rolling stock from other networks like the Hunter Valley Rail Network cannot be used without modification.[77] The investment made in the CQCN is therefore effectively stranded as there is not a realistic possibility that equipment / assets could be transferred to another jurisdiction;
- rolling stock is also specifically designed for the haulage of coal and would need to be modified at considerable cost to be used to haul other commodities;[78] and
- new entry ordinarily requires one or more significant initial haulage contracts to justify the level of investment required (e.g. Rio Tinto / Xstrata in relation to Pacific National). Sponsoring such new entry would be less likely where the Service is not declared, as a new entrant would be concerned about how Aurizon would respond given its vertically integrated above-rail operations.

The inherent risks to entry / expansion can be overcome, or at least minimised, via declaration. Where the Service is re-declared, providers will have increased certainty as well as greater confidence and involvement in the regulatory process for establishing the key commercial terms including rights of access and pricing. The current regulatory framework (including standard access agreements) has been in place largely since declaration and the QCA's methodology and approach is well understood and applied consistently.

Risk is a key consideration when deciding to invest in the coal supply chain in Queensland. Declaration reduces risk by providing certainty for existing players and potential entrants that, during the period of declaration, the Above-Rail Market conditions will remain suitable to support major investments decisions, and that access provided will be on regulated terms reviewed and approved by the QCA. This, in turn, creates the environment that promotes competition.[79]

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[75] Aurizon, '1HFY2018 Results' (12 February 2018) <http://www.aurizon.com.au/~/media/aurizon/files/investors/documents%20and%20webcasts/2018/interim%20results/hyr%202018%20investor%20presentation.pdf>.

[76] PN Application, [6.10].

[77] Australian Competition and Consumer Commission, 'Statement of Issues on Aurizon and Pacific National's proposals to acquirer Grail' (Press release, 6 October 2016), [56].

[78] Australian Competition and Consumer Commission, 'Statement of Issues on Aurizon and Pacific National's proposals to acquirer Grail' (Press release, 6 October 2016), [56].

[79] Tasmanian Railways Declaration, [5.44].

If the Service is not re-declared, it would be significantly more difficult for a potential new entrant to commence operations in the Above-Rail Market or for an existing provider to expand. It may, for example, be forced to use Aurizon for its above-rail haulage or accept less favourable terms (refer to section 5.3.3 below).

5.3.3 Aurizon has the ability and incentive to exert market power

Aurizon had a 100% share in the Above-Rail Market prior to declaration and maintains a leading position in the Above-Rail Market, which is related to its monopoly in the Below-Rail Market. As the Tribunal has previously noted, where a service provider:

> *has market power and the ability to use it in a way that adversely affects competition in a dependent market, and if the service provider has a history of so acting, declaration involving increased access to the service (in the sense of access on different terms and conditions with the ability to negotiate and, if necessary, have independent arbitration of those terms and conditions), would be likely to improve the environment for competition in the dependent market.*[80]

Absent the Service being declared, Aurizon would have both the ability and incentive to exploit its monopoly in the Below-Rail Market to adversely affect competition in the Above-Rail Market. This could ultimately result in the removal of all competition and a return to a wholly vertically integrated monopoly service.

This is particularly the case because third parties will not have any countervailing bargaining power when negotiating with Aurizon if the Service is not declared. As explained under criterion (b) above, railways such as the CQCN have regularly been considered natural monopolies. There are no credible alternatives to rail transport and no competing below-rail facilities. Similarly, given the prohibitive costs involved, access seekers are not practically able to sponsor new entry into the Below-Rail Market. As such, there is no credible threat of bypass and Aurizon would have the ability and incentive to take advantage of its position in dealing with potential competitors of its related above-rail business.

(a) Aurizon's ability to exert market power

Declaration imposes necessary restrictions on Aurizon's activities in a number of ways.

Declaration and the subsequent regulatory framework has resulted in the imposition of a number of vital behaviour requirements and structural separations on Aurizon. Having the necessary protections in place in the Below-Rail Market has allowed access seekers certainty in the terms and conditions under which access to the Service will be granted. This certainty has, over an extended period of time, created an environment where new entry and expansion of existing capacity can more readily be made. This environment would be weakened or removed entirely if the Service were not re-declared.

The QCA Act imposes a number of obligations on Aurizon as the provider of declared services including: negotiation in good faith,[81] making all reasonable efforts to satisfy access seekers' reasonable requirements,[82] setting out the proposed terms of access on request[83] and not engaging in conduct for the purpose of preventing or hindering access under such an access agreement (including relevantly, not offering a related body corporate more favorable terms of access than it offers a competitor).[84] These are all important protections which users of above-rail rely on to effectively access and use the

[80] *Virgin Blue Airlines Pty Limited* [2005] ACompT 5, [156].

[81] QCA Act, s 100.

[82] QCA Act, s 101.

[83] QCA Act, s 103.

[84] QCA Act, s 104.

Service. Absent declaration, Aurizon would no longer be subject to any of these important controls on its behaviour.

The current access undertaking (**UT4**) similarly imposes obligations on Aurizon in respect of key operational matters including: ring-fencing in relation to confidential information, management and accounting practices,[85] setting a clear procedure for negotiation of access,[86] pricing (including limits on pricing variations),[87] and capacity allocation and management.[88] These are all important protections which users rely on. Absent such protections, it would be increasingly difficult to negotiate and obtain access on reasonable terms from a vertically integrated entity like Aurizon. The uncertainty caused and Aurizon's incentive to engage in destructive behaviour would harm competition in the Above-Rail Market.

(a) Aurizon's incentive to exert market power

A key rationale for access regulation is the prevention of a vertically integrated entity using its control over access to an essential bottleneck facility.[89] Aurizon is a vertically integrated, profit maximizing entity. It is motivated by the need to drive value for its shareholders. It has also clearly stated in numerous public statements that its goal is to become a fully integrated logistics company. Media reports also indicate that Aurizon has at least explored purchasing a coal terminal, a move which would further increase its vertically integrated operations.[90]

Aurizon would therefore have a clear incentive to prevent or restrict competition. The NCC conducted an analysis of an integrated above and below-rail operator in respect of the Tasmanian Railways Declaration and concluded that the monopoly below-rail provider would be expected to be incentivised to prevent the emergence of a new rail haulage competitor or the expansion of an existing competitor competing for above-rail customers' business or potential new business.[91]

The recent experience in respect of maintenance on the CQCN provides a clear indication of Aurizon's likely behaviour were the Service not re-declared. Aurizon's recent move to a fixed maintenance regime, which hinders access and by its own estimates, is likely to see the loss of up to 20MTpa in capacity across the CQCN.[92] This significant and completely avoidable loss of capacity will have significant flow on effects in dependent markets for the Service and ultimately reduce coal production and exports in Queensland.

Similarly, Aurizon has previously used its strong bargaining position to its advantage when negotiating the GAPE project. The negotiations were so protracted that access

[85] Aurizon, 'Aurizon Network's 2016 Access Undertaking (UT4)' (Company Undertaking, 11 October 2016) (**UT4**), Part 3.

[86] UT4, Part 4.

[87] UT4, Part 6.

[88] UT4, Part 7.

[89] Hilmer Report, [225]; QCA Amendment EN, 3-4; *Re Duke Eastern Gas Pipeline Pty Ltd* [2001] ACompT 2, [51]-[52]; *Sydney Airport Corporation Ltd v Australian Competition Tribunal* (2006) 155 FCR 124, [37].

[90] Sarah Thompson, Anthony Macdonald and Joyce Moullakis, 'Aurizon, Macquarie spearhead $4 billion WICET restructure proposal' Australian Financial Review (online), 13 November 2017 <http://www.afr.com/street-talk/aurizon-macquarie-spearhead-4-billion-wicet-restructure-proposal-20171111-gzjhww>; Tegan Annett, 'Success of rail giant's $4bn deal would create monopoly' The Gladstone Observer (online), 14 November 2017 <https://www.gladstoneobserver.com.au/news/success-of-rail-giants-4bn-deal-would-create-monop/3264493/>.

[91] Tasmanian Railways Declaration, [5.38].

[92] Aurizon, 'Aurizon Network provides update on CQCN capacity impacts', 13 March 2018 <https://www.aurizon.com.au/news/news/aurizon-network-provides-update-on-cqcn-capacity-impacts>.

seekers were left with no choice but to accept Aurizon Network earning higher than regulated returns or face significant project delays.[93]

These examples demonstrate that even when subject to declaration, Aurizon has shown that it has the incentive to make damaging unilateral decisions of this nature. The likelihood of further damaging conduct would only be increased were the Service not re-declared.

While Aurizon may continue to offer some form of access to the CQCN to some access seekers absent declaration this does not mean that it would offer commercial terms consistent with those currently offered under declaration. Aurizon's incentive, as a vertically integrated operator free from constraints, would be to behave so as to favour its related above-rail business over competitors such as Pacific National, maximising its profits while simultaneously damaging competition in the Above-Rail Market.

Aurizon could use its power to discriminate in a number of ways, including by:

- pricing inefficiently, at a level which will maximise its profit rather than maximising the through-put on the CQCN. By adopting this approach, Aurizon could extract monopoly profits from the Service while maintaining prices at levels below the marginal cost at which coal producers would no longer extract their resources;
- discriminating on price and other conditions by offering materially worse conditions for access where an access seeker does not use its vertically integrated above-rail provider;
- bundling above and below-rail into a single service and only offering access if the bundled service is accepted;
- discriminating in respect of its related above-rail business in relation to system rules such as the system operating parameters and the Master Train Plan; or
- using the additional profits obtained from its then undeclared and unregulated below-rail business to subsidise its above-rail business.

As access agreements approach expiry, and when future access seekers look to obtain capacity on the system, these competing above-rail providers will find it increasingly difficult to compete without the protection offered by declaration. Terms offered by a vertically integrated supplier, who is no longer obliged to deal with access seekers in a fair and consistent manner, are likely to be significantly less reasonable. The ultimate result is likely to be the return to a vertically integrated monopoly for both the provision of above-rail and below-rail. It is essential that sufficient protections are put in place against a vertically integrated provider, with a strong ability and incentive to behave in a manner that will destroy competition in the Above-Rail Market.

5.4 Conclusion

As explained above, it is clear that re-declaration of the Service is likely to promote a material increase in competition in dependent markets, such as the Above-Rail Market (among others). As a result, criterion (a) is clearly satisfied and the Service should be declared.

[93] Queensland Resources Council, 'QRC main submission – Aurizon Network's draft 2013 Undertaking (UT4) (submission to Queensland Competition Authority, 10 October 2013) 21.

6 Criterion (c) – State Significance

Criterion (c) requires consideration of whether:

> *'the facility for the service is significant, having regard to its size or its importance to the Queensland economy'*[94]

These are matters of judgment. The size of the facility requires an assessment of factors such as the physical capacity and the throughput of goods and services using the facility.[95]

6.1 Size of the facility

The CQCN is Australia's largest export coal rail network. It is made up of 2,718 km of heavy haul rail infrastructure connected to domestic coal users and the export terminals at Abbot Point, Dalrymple Bay, Hay Point and the Port of Gladstone.[96]

The CQCN connects over 50 mines and transported 225.9 million tonnes of coal in 2015-16.[97]

6.2 Importance to the Queensland economy

The CQCN is a vital component of, and contributor to, the Queensland economy. The CQCN directly stimulates the Queensland economy by facilitating coal industry employment, spending, government payments and community contributions.

During 2016-17, accessing the CQCN enabled the Queensland coal industry to:[98]

- directly contribute $16,649 million to the Queensland economy;
- directly contribute to the employment of 18,927 people on a full time basis, resulting in $2,450 million in salaries being paid;
- provide $7.1 million in local government payments and $3,392 million in state government payments;
- purchase $10,716 million worth of goods and services which directly supported 7997 Queensland businesses; and
- contribute $7.1 million to 387 community organisations around Queensland.

In addition to the above, the spill over benefits of the CQCN are substantial. The CQCN (through the Queensland coal industry) indirectly contributed to the full time employment of 162,917 employees and added $19,786 million worth of value to the Queensland economy.[99]

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[94] QCA Act, s 76(2)(c).

[95] Declaration Guide, [5.5].

[96] Aurizon, 'Blackwater System Information Pack – Issue 7.0' (Press release, March 2017); Aurizon, 'Goonyella System Information Pack – Issue 7.0' (Press release, March 2017); Aurizon, 'Moura System Information Pack – Issue 7.0' (Press release, March 2017); Aurizon, 'Newlands System Information Pack – Issue 7.0' (Press release, March 2017).

[97] Aurizon, *Network* (2018) <http://www.aurizon.com.au/what-we-deliver/network#central-queensland-coal-network--cqcn->; Aurizon, 'FY2016 Results' (Investor Presentation, 2016), 51 <https://www.aurizon.com.au/~/media/aurizon/files/investors/documents%20and%20webcasts/2016/full%20year%20results/fyr%202016%20investor%20presentation.pdf>.

[98] Refer to Schedule 2 – QRC Data

[99] Refer to Schedule 2.

Further details are set out in Schedule 2.

6.3 Conclusion

The CQCN is significant to Queensland and, as a result, criterion (c) is clearly satisfied and the Service should be declared.

7 Criterion (d) – Public Interest

Criterion (d) has also been recently amended. The revised criterion requires consideration of whether:

> *'access (or increased access) to the service, on reasonable terms and conditions, as a result of declaration of the service would promote the public interest'*[100]

The QCA Act further provides that regard must be had to (relevantly):

- the effect that declaring the service would have on investment in—
  - facilities;
  - markets that depend on access to the service;
- the administrative and compliance costs that would be incurred by the provider of the service if the service were declared; and
- any other matter the authority or Minister considers relevant.[101]

Criterion (d) is the final step in the declaration process. When the decision maker is satisfied that criterion (a) through (c) are satisfied it must then consider any other matters that are relevant to the public interest.[102] The decision maker must consider whether declaration (or relevantly here re-declaration) would promote the public interest, meaning declaration is likely to generate overall gains to the community.[103]

7.1 Effect on Investment

(a) The CQCN

It is possible that declaration may create some disincentives for Aurizon to invest. However, the QRC considers that these disincentives are minor (and the regulated environment in fact provides opportunities for Aurizon, particularly in terms of attracting capital from investors with long term investment mandates such as pension funds and other infrastructure investors).

(b) Above-Rail Market

Re-declaration is likely to promote investment in the Above-Rail Market, particularly when compared to the counterfactual of no declaration. The continuation of current competitive dynamics (and potentially the threat of new or expanded entry) will encourage more efficient costs and increases in productivity promoting investment and well as economic efficiency.[104] Investment to provide above-rail services would also create jobs for the Queensland economy.

(c) Coal industry and dependent markets

Declaration would lead to increased investment in the coal industry and the related upstream and downstream markets. The declaration, particularly the Aurizon access undertaking, provide a number of key protections (e.g. standard terms, efficient pricing, ring-fencing etc.) that generate certainty for investors in dependent markets. The certainty

[100] QCA Act, s 76(2)(d).

[101] QCA Act, s76(5).

[102] CCA Amendment Bill EM, [12.40].

[103] CCA Amendment Bill EM, [12.37].

[104] Declaration Guide, [6.20].

that would be provided by declaring the Service would provide a strong incentive to invest in Queensland's coal industry. There is far less incentive to invest in a coal mine when (even assuming that access is provided) the price of transporting coal is uncertain and potentially volatile. Re-declaration means that there would be a clear and well understood system under which coal producers could obtain suitable access to the Service, meaning that all customers who value the Service more than its cost of supply will be supplied.[105]

7.2 Compliance and administrative costs

Presently, UT4 governs Aurizon's relationship and obligations in relation to access seekers. The QRC acknowledges that the QCA process imposes compliance and administrative costs, particularly on Aurizon. If the Service is re-declared, Aurizon will continue to be required to submit access undertakings.

However, these costs are also somewhat mitigated for the following reasons:

- Aurizon Network and its customers will not have to individually negotiate all of the terms of access because the undertaking will govern many aspects of Aurizon's relationship/obligations with users or access seekers (i.e. there is some efficiency gained by having a single set of terms). This means that the costs of negotiating individual access and settling disputes is likely to be minimised;[106]
- the QCA is required to approve the undertaking and is directly involved in many other aspects governing the relationship with Aurizon, which provides certainty to potential users; and
- UT4 provides Aurizon an allowance for reasonable compliance costs (i.e. it is in fact industry which covers these costs).

7.3 Economic and regional development

Re-declaration of the Service would provide a strong incentive to invest in new mines or keep open mines that might otherwise be closed in and around the Bowen Basin coal region (absent declaration). This will directly contribute to employment opportunities and investment into the region.

7.4 Efficiency

Given the Facility is a natural monopoly asset, operating the Facility on open access terms will increase overall supply chain efficiency and allow resources to be dedicated to other areas (rather than being used to unnecessarily duplicate existing resources).

7.5 Competitiveness

Re-declaration of the Service would maintain the competitiveness of Queensland mines.

The CQCN provides the vital link that enables Queensland mines in the Bowen Basin to transport their coal for export. Re-declaration would sustain increased efficiency to coal mines operating in the global market. Re-declaration would provide existing and prospective Australian coal mines with the opportunity to export to the global market with the benefit of reasonable and certain costs of transport to ports.

[105] Declaration Guide, [6.20].

[106] Declaration Guide, [6.13].

7.6 State benefits

Declaration will increase investment certainty and provide a greater incentive for investment in coal production. This will promote increased output, which (through increased royalty payments) will enhance the State's ability to provide public and community services.

7.7 Conclusion

As a result, it is clear that re-declaration of the Service would promote the public interest. Accordingly, criterion (d) is clearly satisfied and the Service should be declared.

Schedule 1 – Response to QCA Issues

QRC Ref	QCA Ref	QCA Staff Issue	QRC Submission
1	(b) - (1)	Do you agree with staff's proposed interpretation of criterion (b)? If not, what do you consider is an appropriate approach to interpreting criterion (b)?	The QRC considers that the approach adopted by Michael O'Bryan QC in his legal opinion (refer to Attachment 3) is the most appropriate framework in which to assess the application of criterion (b) to a Service (although we do not consider this framework to be materially different to the framework the QCA has proposed).[107]
2	(b) - (2)	Subject to the above question, what information and analysis in respect of the matters (a) to (g) in section 3.5 above are relevant to assessing whether this criterion is satisfied for each declared service?	The QRC submits that all the factors listed in section 3.5 of the Staff Issues Paper ((a) to (g)) are relevant in assessing whether section 76(2)(b) of the QCA Act has been satisfied, but that they should be considered under the approach adopted by Michael O'Bryan QC in his legal opinion (refer to Attachment 3).[108]
3	(b) - (3)	Have there been changes in the market conditions and structure since the service was declared that are relevant to assessing criterion (b)? If so, identify the changes and the relevance of those changes to criterion (b) (with reference to the proposed assessment methodology). Where possible, please	Section 76(2)(b) of the QCA Act is forward looking. Supporting material refers to criterion (b) as a test involving foresight and an analysis of what is foreseeable.[109] The legislation is framed in a manner that requires the assessment of market conditions over the proposed declaration period. It is the future state, rather than previous changes, that should be determinative. The QRC notes that since the service was declared there has been consideration of alternative below-rail projects (e.g. Adani's investigations of the Carmichael Rail[110] and North Galillee Basin Rail Project,[111]

[107] See Michael O'Bryan QC Legal Opinion, [40] - [65].

[108] See Michael O'Bryan QC Legal Opinion, [44].

[109] QCA Amendment EN, [12.26]; Declaration Guide, 37.

[110] See Department of State Development, Manufacturing, Infrastructure and Planning, 'Carmichael Coal Mine and Rail Project (8 May 2018) <https://www.statedevelopment.qld.gov.au/assessments-and-approvals/carmichael-coal-mine-and-rail-project.html>.

[111] See Department of State Development, Manufacturing, Infrastructure and Planning, 'North Galilee Basin Rail Project' (6 December 2017) <https://www.statedevelopment.qld.gov.au/assessments-and-approvals/north-galilee-basin-rail-project.html>.

QRC Ref	QCA Ref	QCA Staff Issue	QRC Submission
		provide evidence and data to support your position.	and Hancock/GVK's investigations of the Alpha Rail Project),[112] but that none of these have actually proceeded.
4	(b) - (4)	Each declared service is defined in section 250 of the QCA Act. Are there any additional factors relevant in identifying the service?	The QRC submits that there are no additional factors relevant in identifying the service.
5	(b) - (5)	What is the relevant facility?	'Service' under the QCA Act is defined as: *… a service provided… by means of a facility and includes, for example... the use of a facility (including, for example, a road or railway line)…*[113] Accordingly, as *use of a* coal system for providing transportation by rail and *use of a* facility are services, a coal system for providing transportation by rail is the relevant facility – that is, the CQCN. A railway under the *Transport Infrastructure Act 1994* (Qld) (**TIA**) means a guided system, or proposed guided system, designed for the movement of rolling stock that is capable of transporting passengers or freight, or both, on a railway track.[114] This definition expressly includes rail transport infrastructure and expressly excludes rolling stock. For the purposes of the TIA, rolling stock is therefore viewed as functionally separate to 'below-rail' infrastructure. The service (and therefore the Facility) also includes extensions to the coal system after 30 July 2010, owned or leased by Aurizon Network that do not directly connect the coal system to a coal basin to which the coal system was not directly connected on 30 July 2010.
6	(b) - (6)	What is the current capacity of the relevant facility?	The capacity of the Facility is currently 275MTpa. Refer to the Calibre Expert Report (Attachment 2) for further details.

[112] See Department of State Development, Manufacturing, Infrastructure and Planning, 'Alpha Coal Project' (6 December 2017) <https://www.statedevelopment.qld.gov.au/assessments-and-approvals/alpha-coal-project.html>.

[113] QCA Act, s 72(1).

[114] *Transport Infrastructure Act 1994* (Qld)

QRC Ref	QCA Ref	QCA Staff Issue	QRC Submission
7	(b) - (7)	Is it reasonably possible to expand the capacity at the facility? If so, to what extent, at what cost and in what timeframe?	The phrase 'reasonably possible' was introduced into the QCA Act on 29 March 2018 via *the Queensland Competition Authority Amendment Act 2018* (Qld) and in the CCA on 6 November 2017 via the *Competition and Consumer Amendment (Competition Policy Review) Act 2017* (Cth). The CCA Amendment Bill EM adds little to assist in the interpretation of the phrase 'reasonably possible': '*Paragraph 44CA(2)(a) contemplates that a facility, which is at capacity, can be declared if it is reasonably possible for it to be extended or expanded. However, it is not necessary for the Council and the Minister to have regard to a facility at capacity as if it had expanded capacity, if it is not reasonably possible for that facility to be expanded or extended'.* In the absence of clear case law, reports or extrinsic material, the notion of 'reasonably possible' should be interpreted in accordance with general principles of statutory interpretation and in the context of relevant interpretations given to that phrase at common law. 'Reasonably' is a form of 'reasonable', which in a simple form can be understood as 'not excessive'.[115] The concept of reasonableness is regularly applied in a legal context, with a common test for reasonable foreseeability involving consideration of 'expense, difficulty and inconvenience'.[116] 'Possible' can be understood as 'capable of happening'.[117] As a result, 'reasonably possible' means that something is capable of happening without excessive difficulty or inconvenience. This is a lower bar than 'reasonably likely' or 'reasonably practicable' (which require some degree of likelihood). The QRC engaged Calibre to provide an independent expert report to help answer this question (refer to Attachment 2). As explained in that report, an expansion of the CQCN to meet total foreseeable demand would cost approximately $695m.
8	(b) - (8)	What is the market in which the declared service is provided?	The relevant market is the market for the use of the below-rail infrastructure that makes up the CQCN (the Below-Rail Market). Refer to section 4.2 above.
9	(b) - (9)	Are costs ancillary to accessing the declared	The QRC submits that at a conceptual level, costs ancillary to accessing the declared service are

[115] Macquarie Dictionary, 'reasonable'.

[116] *Wyong Shire Council v Shirt* (1980) 146 CLR 40, 47.

[117] Macquarie Dictionary, 'possible'.

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		service relevant in determining whether there is/will be actual or potential substitution between the services of competing facilities (i.e. whether the services are in the same market)? For example, to access the coal handling facility at a terminal, miners need access to above and below-rail services. If so, what are these ancillary costs and their magnitude? Please provide information for services provided by competing facilities where relevant.	relevant in determining whether there is/will be actual or potential substitution between the services of competing facilities. Further detail on this issue is set out in the Michael O'Bryan QC Legal Opinion (refer to Attachment 3).[118]
10	(b) - (10)	Identity of customers for each service. What factors should be considered in identifying customers/likely potential customers for each service, for example, contractual arrangements and physical location of a customer's facility?	In Queensland, access agreements with Aurizon Network are typically entered into directly by miners with above-rail coal haulage demand requirements. A majority of third party (i.e. not a party related to Aurizon) access agreements are held by miners. The rights under those contracts are then allocated to an above-rail coal haulage provider (i.e. the miners have the right to run trains on the CQCN, but in a practical sense an above-rail coal haulage provider is engaged to run those trains on the miner's behalf).[119] However, coal haulage providers can (and do) directly enter into a contract for use of the CQCN.[120]
11	(b) - (11)	To what extent do other facilities provide a substitutable service, including in terms of product mix, location, costs, availability and ease of access by access seekers? Please provide supporting quantitative and qualitative data and evidence.	Given the transportation distances involved, there is no alternative mode of transport which is a substitute for the Service.[121] In particular, there are no alternative below-rail facilities available and road haulage is not a viable substitute to above-rail haulage. Road haulage is not viable in terms of the price and the number of trucks that would be required to haul coal would not be acceptable to the community. There are no current or planned rail track alternatives which are available to provide the Service.

[118] See Michael O'Bryan QC Legal Opinion, [78] - [84].

[119] UT4, Part 2 [2.4].

[120] See e.g. QR Network Pty Ltd and Pacific National Pty Ltd, 'Access Agreement Coal' (Access Agreement, 5 October 2009) <https://www.aurizon.com.au/~/media/aurizon/files/what%20we%20do/network/network%20downloads/access%20agreements/pacific%20national_coal%20access%20agreement.pdf>; UT4, Part 12 (definition of 'Access Holder') states that the undertaking does not limit who can be an Access Holder.

[121] PN Application, [7.10].

QRC Ref	QCA Ref	QCA Staff Issue	QRC Submission
12	(b) - (12)	Is the 'small but significant and non-transitory increase in price' (SSNIP) test, or at least the conceptual framework on which it is based relevant to the QCA's assessment of the relevant market? If so, how would it be applied?	The QRC considers that the conceptual framework underpinning the 'small but significant non-transitory increase in prices' (**SSNIP**) test is relevant to the QCA's assessment of the relevant market. The SSNIP test operates by assuming a particular product or area is a hypothetical monopoly and testing whether a SSNIP could be profitably imposed.[122] If the SSNIP is unprofitable due to lost sales, substitution is occurring to other products/areas.[123] These products/areas are then included in the hypothetical monopoly and the process is repeated until the SSNIP is profitable.[124] The QRC does not consider there to be any alternative facilities that are close competitors to the Facility. As such, in the event that a SSNIP was applied to the Facility, the QRC does not expect there would be a sufficient reaction on either the demand or supply side to render the SSNIP unprofitable. There are no other coal haulage railways within the relevant geographic region of Queensland and road transportation is prohibitively expensive.
13	(b) - (13)	If some customers were to use an alternative facility due to reasons other than price or incentive (for example the facility providing the declared service was not available), is the alternative facility a sufficiently close substitute to be in the same market as the declared service facility?	In the event that the Facility were to become temporarily unavailable, the most likely outcome would be for customers to rely on stockpiling until the Service comes back online. Indeed, this is what happened in the aftermath of Cyclone Debbie last year. It is possible that, in exceptional circumstances, some customers might temporarily seek to use road transportation. Given the lack of appropriate terminal infrastructure to support road haulage and the safety/regulatory implications of doing so (e.g. the sheer number of trucks attempting to access terminals at once), the QRC submits that a transfer of material coal volumes to road haulage is unlikely to occur. In any event, the QRC submits that road haulage is not a viable alternative and certainly not a genuine economic substitute. The QRC submits that assessing customer behaviour in such circumstances would lead to an exaggerated demand side response, resulting in an overly inclusive, and therefore inaccurate, market definition.
14	(b) - (14)	What constraints and barriers, if any, exist which would limit/prevent substitution possibilities	The QRC submits that there are no competing services relevant to the QCA's assessment. However, if a competing service were to be developed in the Below-Rail Market, the key constraints and barriers would

[122] *ACCC v Metcash Trading Limited* [2011] FCAFC 151, [247] (Yates J, with whom Finn J agreed).

[123] *ACCC v Metcash Trading Limited* [2011] FCAFC 151, [247] (Yates J, with whom Finn J agreed).

[124] *ACCC v Metcash Trading Limited* [2011] FCAFC 151, [247] (Yates J, with whom Finn J agreed); see also Baker, "Market definition: An Analytical Overview" (2007) 75 *Antitrust Law Journal* 129, 145.

QRC Ref	QCA Ref	QCA Staff Issue	QRC Submission
		between the declared service and services provided by other facilities?	be: • the high fixed costs of developing connecting infrastructure; • the unavailability of essential ancillary services (e.g. coal road haulage) required to link an alternative facility to the network; and • long-term access agreements with Aurizon Network.
15	(b) - (15)	What are actual and/or potential competing services in the market that may be substitutable for the declared service? In particular, (a) To what extent is a hypothetical facility or yet-to-be constructed facility relevant to the QCA's assessment? (b) For the below-rail services provided by Aurizon Network and Queensland Rail, will the Carmichael Coal and Rail project and the Inland Rail Project provide services in the same market(s)? Also, what is the relevance of other proposed rail projects to the QCA's assessment? (c) For the coal handling service provided at DBCT, are there other facilities providing services in the same market? In considering this question, please comment on to what extent users can access the coal handling services provided at other terminals, including Abbott Point and Hay Point, and whether they operate in the same market as the declared DBCT service. Stakeholders are requested to have regard to the legal opinion in Appendix A in responding to this question.	The QRC submits that there are no substitutable services. In particular, the Carmichael Rail project is too uncertain and, even if it were to proceed, it is likely to be located too far away from the CQCN to be considered a viable substitute. While criterion (b) allows an assessment of hypothetical facilities when assessing 'least cost', hypothetical facilities like this are not relevant to market definition. As a general principle, long term contracts (such as access contracts) limit substitution potential. However, given there are no competing services in the market (and there is unlikely to be, even in a world without declaration), access contracts have limited practical relevance to the QCA's assessment. Further detail on this issue is set out in the Michael O'Bryan QC Legal Opinion (refer to Attachment 3).[125]

[125] See Michael O'Bryan QC Legal Opinion, [67] - [77].

QRC Ref	QCA Ref	QCA Staff Issue	QRC Submission
		(d) What is the relevance, if any, of existing access contracts which may limit/prevent an access seeker's use of a competitor's service offering?	
16	(b) - (16)	What matters should the QCA have regard to in determining the appropriate period of any declaration?	In determining the appropriate declaration period, the QRC proposes the following be taken into account: • any expected significant technological developments in the Below-Rail Market; • any expected significant legislative change will occur in the future; • the burden placed on parties by regular re-considerations of access/declaration; • the ability to bring a revocation application under the QCA Act; and • the declaration period of similar assets. Refer to section 4.3 above for further information.
17	(b) - (17)	What is the appropriate period for declaration for each service and why?	The QRC proposes that the Service is re-declared for a minimum of 15 years, but given the significant nature of the assets and the cost of the re-declaration period, the QRC submits that a longer declaration period would not be inappropriate. The QRC notes that similar assets have typically had 10-20 year declaration periods. Refer to section 4.3 above for further information.
18	(b) - (18)	What is total foreseeable demand in the market over the relevant period? Relevant information may include that related to access agreements, market conditions, binding and non-binding expressions of interest in capacity and from facility masterplans.	The total foreseeable demand in the Below-Rail Market is 298.3MTpa.
19	(b) - (19)	What are the costs of service provision for the facility in question as well as competing facilities?	As discussed above, the QRC submits that there are no competing facilities.
20	(b) - (20)	Does the facility for the service or competing facilities have excess capacity?	Over the declaration period, the Facility is unlikely to have excess capacity without moderate expansion.

QRC Ref	QCA Ref	QCA Staff Issue	QRC Submission
21	(b) - (21)	What are the unit costs of service provision under any expansion at the facility for the service? Are prevailing tariffs an appropriate indicator of cost?	The QRC agrees with the QCA that a qualitative analysis may be undertaken to analyse relevant costs. Given the natural monopoly features of the Facility will result in expansion being cheaper than developing a new Facility, the QRC submits that such an assessment is appropriate to the re-declaration assessment. If the QCA intends to undertake a quantitative analysis, expansion costs are contained in the Calibre Expert Report (refer to Attachment 2).
22	(b) - (22)	Are expansions at competing facilities (if there are any) relevant for assessing whether total foreseeable demand is met by a combination of facilities? Staff note, section 76(3) of the QCA Act is explicit about having regard to expansion at the facility for the service and is silent about considering expansion at competing facilities. Stakeholders are encouraged to provide submissions, including legal opinions if necessary, if they consider expansion at competing facilities are relevant.	As discussed above, the QRC submits that there are no competing facilities.
23	(b) - (23)	How should the concept of 'satisfying foreseeable demand at least cost' be understood?	It was the intention of the Queensland Parliament to replace the 'private profitability' test that had been adopted by the High Court *Pilbara Infrastructure Pty Ltd v Australian Competition Tribunal* (2012) 246 CLR 379, following an equivalent amendment to the CCA – i.e. ensuring 'the changes that are proposed are consistent with those made to the declaration criteria at the national level in October 2017'.[126] This is reflected in the second reading speech for the amending legislation, which states: *The central change to the access criteria is clarification of the interpretation of the 'uneconomic to duplicate' criterion. The bill confirms that a natural monopoly test is to be applied for this criterion so as to prevent inefficient and needless duplication of costly infrastructure in Queensland. This is consistent with the original intent of the law.*[127]

[126] QCA Amendment EN, 2.

[127] Queensland, *Parliamentary Debates*, Legislative Assembly, 21 March 2018, 622 (Hon. JA Trad).

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			The Parliamentary materials for the changes made to the CCA make it clear that the amendments were intended to refocus criterion (b) so that it is a test of natural monopoly and not private profitability. In applying this new natural monopoly test, the QRC submits that '*total foreseeable* demand' in criterion (b) should be interpreted to be an estimate of the total reasonably foreseeable demand at a point in time when the market demand is expected to be highest (excluding outliers) in the declaration period. 'Least cost' should include those factors identified by the QCA in the Issues Paper.
24	(b) - (24)	Is the concept of differential pricing for expansions relevant to the QCA's assessment of 'at least cost'? If so, why and how?	The QRC submits that differential pricing is not relevant to the QCA's assessment under criterion (b). The statutory language in criterion (b) refers to 'at least cost'. How access is priced is not relevant to the interpretation of this phrase. The QRC notes that pricing may reflect the costs incurred in providing a service, but considers that the QCA's assessment should focus on the actual costs incurred in providing access to a service rather than pricing that may (or may not) be derived from them.
25	(b) - (25)	If an expansion of the facility is necessary to satisfy foreseeable demand, how is 'least cost' assessed? For example, if the incremental costs of service provision at the facility for the service, following an expansion, are higher than at an alternative facility, but the average costs of service provision are lower, is the test of satisfying foreseeable demand at least cost satisfied? Please have regard to, and provide comment on, the example in Appendix B.	The QRC considers that criterion (b) requires the QCA to consider the average costs of providing the service from an expanded facility and not the incremental costs of any expansion required to meet total foreseeable demand. This is reflected in section 76(3) of the QCA Act, which states that: *…if the facility for the service is currently at capacity, and it is reasonably possible to expand that capacity, the authority and the Minister may have regard to the facility as if it had that expanded capacity.* That is, the QCA should consider the costs of providing the service by the entire facility as expanded. It is a hypothetical assessment that requires the QCA to average the costs of providing the service (including the costs of any expansion required) across all demand rather than only focusing on the costs of expansion required to satisfy demand. The QRC therefore agrees with the use of average costs as set out in the analysis in Appendix B of the Staff Issues Paper.
26	(b) - (26)	What costs should be taken into account in determining the cost of satisfying foreseeable demand in a particular scenario? For example: (a) What costs (if any) associated with having multiple users at the facility should be considered? (b) Would the QCA be required to consider only the	The QRC agrees with the QCA approach to costs under criterion (b).

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		cost of using the facilities, or would it be required to also consider other costs necessarily incurred in accessing the service (e.g. additional transportation costs)? Staff's view is that ancillary costs are not relevant to assessing the concept of 'at least cost'. But those costs are relevant to determining whether services are in the same market. Staff invite submissions, including through legal opinions if necessary, to the extent that stakeholders have a contrary view.	
27	(a) - (1)	Do you agree with staff's proposed interpretation of criterion (a)? If not, what do you consider is an appropriate approach to interpreting criterion (a)?	The QRC broadly agrees with the QCA's proposed interpretation of criterion (a).
28	(a) - (2)	Subject to the above question, what information and analysis in respect of the matters (a) to (c) in s. 4.3 above is relevant to assessing whether this criterion is satisfied for each declared service? In this context, staff are particularly interested in the following information.	The QRC submits that all the factors listed in section 4.3(a) to (c) of the Staff Issues Paper are relevant in assessing whether section 76(2)(b) of the QCA Act has been satisfied. The QRC agrees with the approach taken by the QCA subject to the specific comments set out in this submission.
29	(a) - (3)	What is the relevant market for the service described in section 250 of the QCA?	The relevant market is the Below-Rail Market (that is, the market for the use of the below-rail infrastructure that makes up the CQCN). Refer to row 8 of this table and section 4.2 above for further details.
30	(a) - (4)	What are the relevant dependent markets? In answering this, please explain: (a) The rationale for defining the relevant market for the service in the manner defined. (b) How the dependent markets are separate from the relevant market for the service.	**Relevant dependant markets** The QRC submits that there are a number of other relevant dependent markets in respect of the Service including the markets for: • Above-Rail: as discussed at sections 5.1 and 5.2 above; • coal exploration tenements: this is a market in which parties compete to sell and acquire the right to permits allowing them to determine the quality and quantity of coal in an specified area. The NCC

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previously considered that this is a relevant upstream market for the Service[128] and this has been accepted as a dependent market in other coal regions and other resources in Australia;[129]

- the supply of coal handling services;[130]
- export of coking coal / thermal coal globally;[131] and
- a variety of specialist mining services including geological and drilling services, construction, operation and maintenance.[132]

Defining the relevant dependant markets

A market is commonly accepted as being an:

> '*area of close competition between firms …*
>
> *Within the bounds of a market there is substitution — substitution between one product and another, and between one source of supply and another, in response to changing prices. So a market is the field of actual and potential transactions between buyers and sellers amongst whom there can be strong substitution, at least in the long run, if given a sufficient price incentive*.'[133]

The key consideration is to identify one or more markets where competition appears likely to be materially affected by an improvement in terms and conditions of access to the Service.[134]

Refer to section 5.1 above for further details.

Separation of dependent markets from the Service

[128] PN Draft Recommendation, [5.11].

[129] *Port of Newcastle Operations Pty Ltd v Australian Competition Tribunal* [2017] FCAFC 124, [20]; *Re Fortescue Metals Group Ltd* [2010] ACompT 2, [1117].

[130] ACCC, 'Statement of Issues - Brookfield consortium – proposed acquisition of Asciano Limited', 15 October 2015, [77]

[131] PN Draft Recommendation, [5.11].

[132] *Port of Newcastle Operations Pty Ltd v Australian Competition Tribunal* [2017] FCAFC 124, [20].

[133] QCMA, 517.

[134] Declaration Guide, [3.12].

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			The relevant consideration in assessing whether dependent markets are separate is the extent to which such markets are functionally separate. The starting point for identifying the functional dimension of a market is to consider the strength of any complementarity between activities at two or more levels of the supply chain.[135] Refer to section 5.2 above for further details.
31	(a) - (5)	What are the existing access arrangements for the services described in section 250? Are there arrangements which would ensure access or increased access, on reasonable terms, other than as a result of declaration? Factors may include the extent to which existing access agreements provide access or increased access. Key factors that may be relevant could include: (a) Existing contract durations and renewal profiles, pricing mechanisms within contracts and whether they are linked to QCA-established prices as a result of declaration. (b) The extent to which there is current or foreseeable demand for the service and which is not the subject of existing contracts. (c) Contractual obligations to provide access or increased access (for example, under an access agreement).	The QRC considers that existing access arrangements are relevant to the extent they need to be considered as part of the factual analysis of the level of access which would exist absent declaration.
32	(a) - (6)	To what extent are the identified dependent markets competitive?	The QRC considers that competition has emerged in the Above-Rail Market but that there is still considerable room for competition to be improved. Refer to section 5.3.2 above for further details.

[135] Michael O'Bryan QC Legal Opinion, [36].

QRC Ref	QCA Ref	QCA Staff Issue	QRC Submission
33	(a) - (7)	What is the proportion of the total product price that is reflected by the existing access price? For instance, for the declared services of Aurizon Network and DBCT, this may represent the existing access price for the below-rail or coal handling facility as the proportion of the free on board costs of export coal. (The proportion of the total product price that is reflected by the existing access price may be indicative of the likely effect of declaration or lack thereof in dependent markets).	The QRC considers that existing access charges are an important component of the total price of coal. The QRC estimate that infrastructure costs (which include rail haulage costs) ordinarily account for between 10% and 20% of the free onboard price of coal.[136] These costs can have a material impact both on decisions to invest in a new mine or to expand marginal production.
34	(a) - (8)	What are current and future anticipated market conditions in dependent markets?	The QRC considers that the current and future competitiveness of the dependent markets identified will depend to an extent on the demand for coal and the competitiveness of the central Queensland coal industry more generally. Aurizon itself has previously noted in this regard that several factors point towards on-going demand for coal from the region: "*there will be an on-going long-term demand for the output of the Central Queensland coal market due to the quality of coal reserves, cost competitiveness, proximity to end markets and access to reliable world class infrastructure*".[137] The QRC agrees with this assessment but notes that several of these critical factors to ensure long term competitiveness are directly linked to the provision of the Service and are likely to be materially worse were the Service to not be re-declared.
35	(a) - (9)	What empirical evidence or benchmarking data is available that can demonstrate whether declaration would result in a material increase in competition in dependent markets? This may include evidence of sensitivity of upstream and downstream markets to	The QRC is not currently aware of any empirical evidence or benchmarking data that is of particular use to the QCA's assessment.

[136] Internal anonymised estimates provide by certain QRC members.

[137] Aurizon, 'Aurizon Network Submission 2017 Draft Access Undertaking' (30 November 2016), section 1.3.2 (emphasis added) <http://www.aurizon.com.au/what-we-deliver/network/network-downloads>.

QRC Ref	QCA Ref	QCA Staff Issue	QRC Submission
		price changes by the regulated service provider.	
36	(a) - (10)	What would be the impacts on dependent markets if the service was not declared?	The QRC submits that dependent markets would be adversely impacted to a material degree if the service was not declared. The impact on the Above-Rail Market is considered in sections 5.3.2 and 5.3.3 above.
37	(a) - (11)	To what extent does a regulated service provider have an ability or incentive to exert market power so as to affect competition in a dependent market (e.g. by restricting access or unreasonably increasing the access price)?	The QRC submits that absent the Service being declared, Aurizon would have both the ability and incentive to exploit its monopoly in the Below-Rail Market to adversely affect competition in the Above-Rail Market. This could ultimately result in the removal of all competition and a return to a vertically integrated monopoly service. Refer to section 5.3.3 above for further details.
38	(a) - (12)	What level of vertical integration is there between the market for the declared service and any dependent markets presently, and what level of integration is anticipated going forward? What would be the effect of vertical integration on competition in dependent markets with/without declaration?	Aurizon is the monopoly supplier in the Below-Rail Market and the leading player in the Above-Rail Market, (responsible for more than two thirds of total coal haulage). The QRC does not anticipate this level of vertical integration to decline in the future. The QRC submits that, absent declaration, such vertical integration would have an adverse effect on competition in the identified dependent markets. The QRC understands that a number of its members have experienced difficulty in their dealings with Aurizon Network which would only escalate were the service not to be declared. In particular, the QRC understands that certain QRC Members have experienced difficulty when seeking short term access agreements to accommodate increased tonnages, with Aurizon advising that a standard 6 month security would be required as per the undertaking, despite increased access only being sought for a shorter term. Aurizon ultimately compromised by requesting security for the relevant term.
39	(c) - (1)	Do you agree with the matters that staff consider could be relevant to assessing criterion (c)? If not, what do you consider is an appropriate approach to interpreting criterion (c)?	The QRC agrees with the QCA's proposed interpretation of criterion (c), subject to the specific comments set out in this submission.
40	(c) - (2)	Subject to the above question, are the declared	The QRC considers that the Facility is of state significance. The facility is the largest of its kind in

QRC Ref	QCA Ref	QCA Staff Issue	QRC Submission
		facilities of state significance?	Australia and is a vital component of the Queensland mining industry and the Queensland economy. Refer to section 6 above for further details.
41	(c) - (3)	Where possible, data should be provided to support any assertions.	Refer to data provided in Schedule 2.
42	(d) - (1)	Do you agree with the matters that staff consider could be relevant to assessing criterion (d)? If not, what do you consider is an appropriate approach to interpreting criterion (d)?	The QRC agrees with the QCA's proposed interpretation of criterion (d), subject to the specific comments set out in this submission.
43	(d) - (2)	Does declaration provide benefits for access seekers and holders (including in terms of investment certainty and reduced administration/compliance costs)? Please provide evidence and data on these matters to support your views.	The QRC submits that declaration of the service would be of considerable benefit to users. The certainty of a fixed declaration period will provide an incentive to invest in the Queensland mining industry. Declaration results in more transparent and predictable rail haulage tariffs as the contracting of tonnages would follow a predetermined process. Refer to section 7 above for further details.
44	(d) - (3)	Does declaration impose costs on the access provider (including in terms of investment uncertainty and administrative/compliance costs)? Does declaration create a disincentive to invest? If so, how does that occur, given that access or increased access as a result of declaration must be on reasonable terms? Please provide evidence and data on these matters to support your views.	It is possible that declaration may create some disincentives for Aurizon to invest. However, the QRC considers that these disincentives are minor (and the regulated environment in fact provides opportunities for Aurizon, particularly in terms of attracting capital from investors with long term investment mandates such as pension funds and other infrastructure investors). The QRC submits that declaration removes investment uncertainty and reduces transaction costs. The Service was designed as a multi-user facility and continues to operate on that basis. Declaration and the access regime and key terms have already been determined. This provides a reliable and well understood framework under which access is managed, lowering compliance inefficiencies and increased costs from ad hoc individual negotiations with access seekers. Refer to section 7.2 above for further details.
45	(d) - (4)	If the second and third points above hold true, how should the QCA weigh these balancing	The QRC considers that the QCA should seek generally to identify any matter that could mean access (or increased access) might result in a benefit or cost and then assess whether the likelihood and

QRC Ref	QCA Ref	QCA Staff Issue	QRC Submission
		considerations? What factors will be relevant to forming a view on this matter?	consequences of that matter mean that access would promote the public interest. QRC submits that the concept of 'promote' in this context means advances, furthers, develops or progresses the public interest in a way which generates overall gains to the community.
46	(d) - (5)	Criterion (d) enables to the QCA to have regard to 'any other matter the authority … considers relevant'. What specific matters are relevant in this respect?	The QRC submits that the QCA should only take into consideration matters that are concrete and well-defined. The QRC considers that the QCA should not attempt to weigh broad issues such as social welfare and equity or the interests of consumers as these are inherently vague, subjective, and difficult to quantify. The QRC further submits that the QCA should only take into consideration matters not otherwise caught by criteria (a)-(c) of section 76(2)(d) to avoid either double-counting or making criteria (a)-(c) redundant in whole or in part. The types of matters that might be captured include matters of safety, national security, national sovereignty and environmental harm. Refer to section 7 above for further details.

Schedule 2 – QRC Data

Significance of CQCN broken out by:

- direct stimulus (first-round output benefits);
- additional output (second-round output benefits); and
- total impact.[138]

	Brisbane	Central West	Fitzroy	Mackay	North West	Northern	Wide Bay-Burnett	Undefined	TOTAL CQCN
Direct Employment (FTE)	3,556.2	20.4	6,020.6	7,704.2	24.8	442.9	1,158.1	0.0	**18,927.4**
Associated salaries ($m)	521.3	2.0	743.6	1,000.4	0.5	50.3	132.5	0.0	**2,450.6**
Purchases of goods and services - OPEX ($m)	6,343.7	0.1	1,343.8	2,223.5	5.1	32.5	79.5	0.0	**10,028.1**
Purchases of goods and services - CAPEX ($m)	394.7	0.0	99.7	180.5	0.3	7.9	5.9	0.0	**688.9**
Community contributions ($m)	2.6	0.0	2.0	2.4	0.0	0.0	0.0	0.0	**7.1**
Local govt payments ($m)	3.8	0.5	31.1	46.8	0.0	0.0	0.0	0.0	**82.2**
State govt payments ($m)	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3,392.3	**3,392.3**
Total direct expenditure ($m)	7,266.1	2.6	2,220.1	3,453.6	5.9	90.7	217.9	3,392.3	**16,649.2**
No. of businesses directly supported	3,156	3	2,000	2,284	87	326	142	0	**7,997**
No. of community orgs directly supported	40	0	122	219	0	3	2	0	**387**
Indirect Employment (FTE)	78,981.7	16.5	19,934.7	37,264.6	57.8	877.0	1,871.5	23,913.7	**162,917.5**
Value added (second round)	9,456.6	1.7	2,414.9	3,732.8	5.4	89.7	222.7	3,862.5	**19,786.2**
Total Employment (FTE)	82,537.9	37.0	25,955.3	44,968.8	82.6	1,320.0	3,029.6	23,913.7	**181,844.9**
Total value added ($m)	16,722.7	4.2	4,635.0	7,186.3	11.3	180.4	440.6	7,254.8	**36,435.4**

[138] See QRC 'Economic contribution survey data 2016-17', https://www.qrc.org.au/contributiontoqueensland/contributiondata/.

Attachment 1 – RBB Expert Report

RBB Economics

Estimating demand for the Central Queensland Coal Network

A report for the Queensland Competition Authority

RBB Economics, 30 May 2018

Contents

1 Introduction and executive summary

1 I have been retained by Herbert Smith Freehills to act as an independent expert in relation to the consideration of regulatory matters relating to the Central Queensland Coal Network (**CQCN**) which is owned by Aurizon Network Pty Ltd (**Aurizon Network**).

1.1 Overview of my experience

2 I am a Partner with RBB Economics, based in Melbourne. I joined RBB Economics in July 2009 and specialise in the application of economics to competition and regulatory issues across a range of industries including telecommunications, retailing, agriculture, manufacturing, logistics, and financial services. In that time I have advised on many of the most contentious mergers before the ACCC since RBB Economics was established in Australia in 2009 and have presented expert evidence before the Australian Competition Tribunal.

3 Prior to joining RBB, I worked for Telstra where I helped determine prices both in regulated wholesale markets as well as in competitive retail markets. I also worked as an economic consultant in the UK for eight years where I developed and led the communications practice at Europe Economics and began my career at the Productivity Commission (formerly the Industry Commission) in their Canberra and Melbourne offices where I was awarded the Commission's first Overseas Development Award.

4 While at RBB Economics, I have recently advised Brookfield Rail (now Arc Infrastructure) on the economic considerations on pricing a rail access service and appeared as an expert witness during an arbitration between Brookfield Rail and CBH. I also advised Genesee & Wyoming (Australia) during an inquiry by the Essential Services Commission in South Australia into whether the revenues charged for (below-rail) access to its Adelaide to Darwin railway were excessive and advised Asciano on the appropriate methodology that the regulator in NSW should use to set access prices for rail services provided by Patrick at Port Botany.

5 I hold a Bachelor of Economics (Honours) and a Masters of Law (Juris Doctor) from Monash University. I have included in Annex A of this report a copy of my curriculum vitae.

6 I have selected colleagues to assist me in undertaking the analysis that I present in this report. I have reviewed their work and the underlying financial information to the extent I considered necessary to form my opinions. I take full responsibility for all of the comments made in this report.

1.2 Executive Summary

7 The question that I have been asked to address is set out in the engagement letter, which I have included in Annex B of this report. That question is:

"What is total foreseeable demand in the market over the relevant period? Relevant information may include that related to access agreements, market conditions, binding and non-binding expressions of interest in capacity and from facility masterplans.

8 For the purpose of preparing this report, I have defined the market as the demand for the use of one or multiple rail corridor system(s) of the CQCN[1] and the relevant period as 15 years. I have thus estimated total foreseeable demand from year 2020 to 2035 (inclusive).

9 In order to estimate the total foreseeable demand for the network, I have measured the production from coal mines located in and around the CQCN which use that network to deliver their coal to customers or to connect to export terminals at the Port of Abbot Point (the Abbot Point Coal Terminal (**APCT**)), the Port of Hay Point (the Dalrymple Bay Coal Terminal (**DBCT**) and the Hay Point Services Coal Terminal (**HPCT**)) and the Port of Gladstone (the R.G. Tanna Coal Terminal (**RGTCT**), the Barney Point Coal Terminal (**BPCT**) and the Wiggins Island Coal Export Terminal (**WICET**)).

10 I have measured production because the production of coal is the key determinant of demand for services over the CQCN. In other words, there is a direct relationship between the coal mined in the region and demand for coal haulage services over the CQCN.

11 The way that I have measured production has been to ask each of the QRC members that use the CQCN for their estimates of coal production for each year of the relevant period. I have also collected and received information from Wood Mackenzie, a third-party research and consultancy business specialising in global energy, chemicals, metals and mining industries – to complement the responses from the QRC members.

12 In order to test whether the announced and prospective mines provided to me by the QRC members and Wood Mackenzie will enter as announced or maintain production, I have collected two further pieces of information:

- Total cash costs of operating each mine; and
- Benchmark prices of different qualities (or types) of coal.

13 If the prices are higher than the costs for the relevant type of coal, then I assume that the mine will either enter as announced or continue to produce coal. If the prices are lower than the costs, then there is a risk that the mine may not enter as announced or may reduce its production and move to "care and maintenance". I have made adjustments to the main results presented in this report for scenarios where the prices are lower than the costs, and present these adjusted results in the section where I undertake sensitivity analysis.

14 The main results of my analysis are presented in Table 1 below. The baseline results include cross-system usage.[2] Results without cross-system usage are also included for completeness.

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[1] The relevant rail corridor systems include the Blackwater, Goonyella, GAPE, Moura and Newlands systems.

[2] Cross-system usage are railings that make uses of multiple systems. For example, if mine A has a total production of 10 million tonnes and hauls 5 million tonnes via the Goonyella system to coal terminals at Hay Point and 5 million tonnes via a combination of the Goonyella, the GAPE and the Newlands system to coal terminals at Abbot Point, then the railings including cross-system usage will be 5 + 3 * 5 = 20 million tonnes, whereas railings without cross-system usage will equal to its total production volume of 10 million tonnes.

Table 1: Foreseeable demand for the CQCN between 2020 to 2035 (million tonnes)

Year	Including cross-system usage	Without cross-system usage
2020	270.2	248.6
2021	279.0	257.4
2022	280.3	258.7
2023	280.9	259.3
2024	282.4	260.8
2025	290.1	268.5
2026	277.7	256.1
2027	278.8	257.2
2028	292.7	271.1
2029	297.0	276.0
2030	289.7	271.4
2031	296.4	278.1
2032	302.5	279.2
2033	319.2	292.9
2034	324.6	298.3
2035	307.3	281.0

Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

15 The remainder of this report is structured as follows:

- Section 2 presents information about the CQCN including the miners using the network, and the type of coal produced by those miners in the CQCN.
- Section 3 discusses the methodology that I have used to estimate the total foreseeable demand for the CQCN.
- Section 4 presents the results of the modelling that I have undertaken and my estimate of the foreseeable demand in the market over the relevant period.
- Section 5 presents the results of the sensitivity analysis that I have undertaken in order to test the robustness of the results to assumptions that I have made.

16 I have been provided with a copy of and have read Practice Note CM7: Expert witnesses in proceedings in the Federal Court of Australia issued on 4 June 2013 (**"Expert Guidelines"**). I confirm that I have read, understood and agree to be bound by the Expert Guidelines.

17 I confirm that I have made all the inquiries that I believe are desirable and appropriate and that no matters of significance that I regard as relevant have, to my knowledge, been withheld from this report.

30 May 2018

Signature of George Siolis
Partner, RBB Economics

Date

2 Overview of the Central Queensland Coal Network

18 This section provides an overview of the CQCN, and considers the following:

- The rail systems that make up the CQCN; and
- The type of coal produced by miners in the CQCN.

2.1 The coal rail systems in the CQCN

19 The CQCN is Australia's largest export coal rail network. It is a 2,819 kilometre multi-user track network, comprised of four major coal systems – Blackwater, Goonyella, Moura and Newlands – and one connecting system – Goonyella Abbot Point Expansion (**GAPE**). The CQCN connects more than 50 mines to 5 major export ports as well as many domestic customers. It is a pivotal component to Queensland's coal industry.[3] A map of the CQCN is provided in Annex E.

2.2 Type of coal produced in the CQCN

20 Coal is the world's fuel of choice for electricity generation and steelmaking. It accounts for approximately 41 per cent of global electricity generation due to its reliability and affordability.[4] It provides domestic and industrial heat, and powers most equipment used in homes, offices, hospitals and machinery in factories.[5] It also plays a vital role in the world' steel production, a product that helps to deliver the goods and services in a wide range of industries including healthcare, telecommunications, agricultural practices, transport networks, etc. Around 70 per cent of the world's steel production uses coal.

21 Coal is mined using two methods: surface or "open cut" mining, and underground mining. The choice of mining method largely depends on the geology of the coal deposit. In comparison to surface mining, underground mining currently accounts for a large share of the world's coal production. However, surface mining is more common for several of the world's major coal-producing countries, including Australia.[6]

22 Based on its properties (such as carbon content, calorific value and moisture content), most traded coal can be classified as metallurgical or thermal coal. Metallurgical coal is suitable for coke-making – an important ingredient in the production of iron and steel, whereas thermal coal is used for the purpose of generating electricity.[7] Below I provide detailed explanation for these two type of coals.

2.2.1 Metallurgical coal

23 Metallurgical coal (or "met" coal) varies according to their properties, such as ash content and CSN. These properties ultimately determine the "hot" and "cold" strength of the coal, which

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3 Aurizon's Network description. See http://www.aurizon.com.au/what-we-deliver/network
4 International Energy Agency, 'World Economic Outlook 2013', 13 November 2013, p. 175.
5 World Coal Association (**WCA**), 'Basic Coal Facts', p. 2.
6 WCA, 'Basic Coal Facts', p. 1.
7 Geoscience Australia, 'Coal Fact Sheet'. See http://www.australianminesatlas.gov.au/education/fact_sheets/coal.html

affect how efficiently the coal works in the blast furnace and its resistance to abrasion on impact. There can be some overlap between different types of coal, but based on these properties, met coal can be further classified into HCC, SCC (also known as SSCC) and pulverised coal injection (PCI) coal.

24 HCC is the strongest and most valuable coal. HCC can be further segmented into premium HCC (including premium low volatility (PLV) and premium mid volatility (PMV) HCC) and semi hard coking coal (SHCC). PLV and PMV are sometimes referred to as "premium" or "high quality" HCC and represent the strongest and most valuable coals within the HCC category.

25 Met coal is traded globally to match sources of production (such as Australia and Canada) with the main sources of demand (such as China and India). China is the world's largest producer of met coal but most of its coal is used domestically rather than being exported. Seaborne met coal is produced worldwide and transported to where it is needed by sea. The lowest cost seaborne HCC suppliers are in Russia and Australia. The mid-level suppliers are in Russia, Canada and Australia. More expensive HCC can also be sourced from Mozambique and South Africa.

26 The main customers of met coal are in Asia. China has historically been a large consumer of met coal and India is expected to grow rapidly (albeit from a lower base). Chinese steel mills predominantly consume domestically produced met coal, but also import seaborne (and some land-borne) coal.

2.2.2 Thermal coal

27 Thermal coal, also known as steam or steaming coal, is used to generate electricity. It is grounded into a fine powder that burns quickly at high heats, which is then used in power plant to heat water in boilers that run steam turbines in order to generate electricity.[8]

[8] The Balance, 'All Types of Coal Are Not Created Equal', 20 May 2018. See https://www.thebalance.com/all-types-of-coal-are-not-created-equal-1182543

3 Methodology for estimating foreseeable demand

28 This section sets out the methodology that I have followed to estimate foreseeable demand for the CQCN for the relevant period. It is structured as follows:

- Section 3.1 explains the approach that I have adopted in order to estimate production from mines located in or near the CQCN and which will require railings over the CQCN.
- Section 3.2 describes how I have used the interplay between the supply of coal and the demand for coal to test whether the mines that I identified in Section 3.1 will either continue to operate or will enter as announced.

3.1 Estimating production from mines in the CQCN

29 Demand for the CQCN will depend on the amount of coal produced or mined by firms operating in or around the CQCN (which I refer to below as "relevant mines") and which use one or more of the coal systems in the CQCN.

30 This means that, for the relevant period, I need to determine:

- How much existing mines will produce for each year during the relevant period;
- Whether any new mines are planned to enter (or re-enter) into production during the relevant period.

31 The way that I have done this is as follows.

32 First, I have asked each member of the Queensland Resources Council (QRC) for data on current and prospective production from the relevant mines. I also sought from these miners information about mine life, type of coal produced, details of usage of the CQCN (by system) and any information about industry supply curves that each miner might have collected or compiled.

33 Second, I have collected information from Wood Mackenzie – a third-party research and consultancy business specialized in global energy, chemicals, metals and mining industries – to complement their responses. The data I received included:

- Production volume;
- Total cash costs; and
- Price forecasts (by type of coal).

34 I have made the following three adjustments to the data that I received from Wood Mackenzie:

- I have removed mines from the Wood Mackenzie data that do not or would be unlikely to use the CQCN. Those mines are Alpha, Carmichael, Carmichael Underground, China Stone, Degulla, Kevins Corner and South Galilee. I have made this adjustment on the basis of desk research that I or staff operating my supervision have undertaken. That

desk research has led me to conclude that those mines, if developed, are unlikely to use the CQCN, particularly given Aurizon's announcements which I have attached as Annex D.

- The Wood Mackenzie data allocates production to the coal export terminals that connect with the CQCN, but not to the coal rail systems within the CQCN. I need to understand which system is being used because the same coal may travel over multiple networks. My estimate for demand, therefore, necessarily "double counts" some production if that production travels over multiple rail systems. In order to do that, I made the following two adjustments:
  - First, I determined which part(s) of the CQCN the relevant mine would use to get its coal to the port or terminal nominated for that mine in the Wood Mackenzie data.
  - Second, where the information I received directly from the miners nominated a different port of terminal than that nominated by Wood Mackenzie, I replaced the Wood Mackenzie assumption with that provided to me by the miner.

35 I have also evaluated the report provided by Resource Management International (**RMI**) to the Queensland Competition Authority on the assessment of coal volume forecasts for Aurizon Network's 2017 Draft Access Undertaking (**UT5 DAU**). In particular, I have supplemented the data in the RMI report with information collected from Wood Mackenzie on mines that RMI considers to be coming back into production from care and maintenance or expansions. I have considered these mines to be relevant for the current and upcoming usage of the CQCN and have thus included the estimated production details of these mines into the analysis.

36 Further, in terms of prospective mines, I have also included two out of the three "greenfield projects" that RMI considered will be in production in the future. I have also included a number of other future mines that RMI did not include in their report.

37 This approach enables me to identify the current and future production from each miner located in or around the CQCN and which will use at least one of the coal rail systems in the CQCN. The next step is to assess whether that production will either continue or will enter as announced. I discuss how I do this in the next section.

3.2 Validating current and future production estimates

38 The production volumes that I estimate using the methodology set out above in Section 3.1 provides a theoretical maximum. Changes in the demand for coal over the relevant period may affect the price of coal, which may in turn mean that some future mines may not enter the market as announced and some mines currently in production may reduce production or move to "care and maintenance".

3.2.1 Economics of coal pricing

39 Ideally, the way that I would determine which existing or future mines may close down or not enter is by building a global industry supply curve and measuring the global demand for coal.

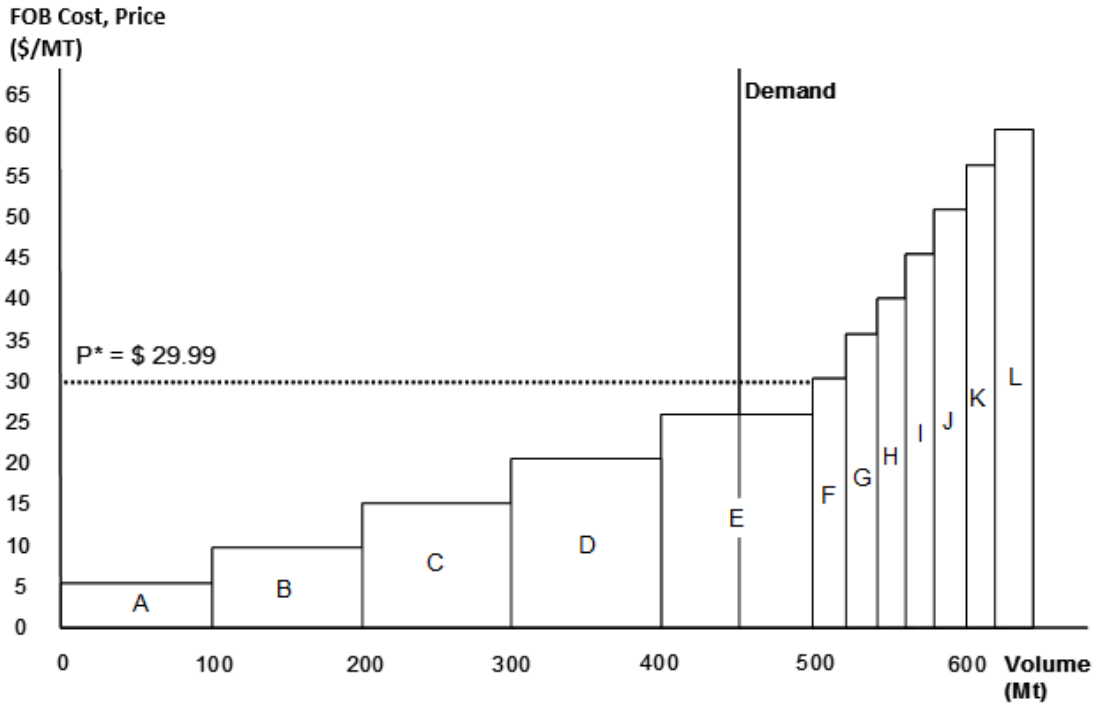
I would do that for each type of coal as the supply and demand considerations will differ across the different types of coal.

40 The intersection of supply and demand would determine the price of coal and, consequently, which mines would and would not be viable at that price. This approach is illustrated by the simplified hypothetical example shown below.

3.2.1.1 Hypothetical coal industry

41 In this hypothetical example, I assume that there are 12 coal mines which are independently owned and identified by the letters A to L. These coal mines have increasing unit free on board (**FOB**) costs, for example mine A has a unit cost of $5 per metric ton (Mt) whilst mine B has FOB costs of $10 per Mt. I also assume that FOB costs accurately represent the marginal costs of production. The five low cost suppliers, mines A - E, each have the capacity to produce an annual volume of 100Mt. The remaining seven suppliers each have an annual capacity of only 20Mt. The mines are shown in cost order, with the lowest cost supplier, mine A, to the left of the supply curve and the highest cost supplier, mine L, to the right of the supply curve. This is shown in Figure 1 below.

Figure 1: Hypothetical Coal Industry



42 In the hypothetical example above, the total demand for coal is set at 450Mt per annum. For simplicity, I assume that demand is inelastic and will therefore remain unchanged at 450Mt. At this level of demand, mines A to E would supply the coal market. The price which balances the market, i.e. sets demand equal to supply, is determined by the FOB costs of mines E and F. The FOB cost of mine E is $25 per MT. The market price must therefore be greater than

$25 per MT to induce mine E to supply coal to the market. If the price is below this level, mine E will not supply coal and demand will exceed supply. The FOB cost of mine F, the supplier with the next highest cost, is $30 per MT. The market price must therefore be below $30 per MT, otherwise mine F will produce coal and the market will be characterised by oversupply. The market clearing price is greater than $25 per MT but less than $30 per MT. Accordingly the market price is $29.99 per MT.

3.2.2 Validating production estimates using available information

43 If I had the data to construct a global supply curve and measure the global demand, then I would be able to determine the market price. This market price would then enable me to work out which mines in the CQCN would be viable or not.

44 For example, those mines whose costs were above the market price (for a sustained period) may be unviable and may not contribute to the foreseeable demand for the CQCN in the relevant period. Conversely, if the global price was above the costs of a mine – that is if the mine was an effective or "infra-marginal" mine, then I would expect production of the mine to continue if it is an existing mine, or to enter as announced if it was a future mine.

45 I do not have the information to enable to do that, but I do have data that enables me to undertake a sensitivity analysis that tests how current and future production might change in response to changes in the price of coal. The information I have includes:

- Benchmark pricing for different grades of coal, which enables me to impute the global demand for coal.
- Total cash costs for mines currently and/or will be operating in – and using – the CQCN.

46 If the benchmark prices are higher than the total cash costs of these mines, then I can assume that the mines will continue producing or enter as announced. Conversely, if the benchmark prices are lower than the cash costs, then I can assume that the mine may cease production or decide not to enter as announced.

47 I present the findings of this analysis as part of the sensitivity tests that I present in Section 5 of this report.

4 Main results and assumptions

48 This section presents the results of my analysis. I refer to the results presented in this section as my “baseline” results. These baseline results are my estimate of the total foreseeable demand for the CQCN over the revenant period,

49 In Section 5 of this report I undertake sensitivity testing to determine the impact of changes to the baseline results when I alter some of the assumptions that I have made to arrive at the baseline results.

4.1 Baseline results

50 Table 2 below shows the baseline results of the total foreseeable demand for the CQCN over the relevant period. The baseline results include cross-system usage, which are railings that make use of multiple systems. For example, if mine A has a total production of 10 million tonnes and hauls 5 million tonnes via the Goonyella system to coal terminals at Hay Point and 5 million tonnes via a combination of the Goonyella, the GAPE and the Newlands system to coal terminals at Abbot Point, then the railings including cross-system usage will be 5 + 3 * 5 = 20 million tonnes, whereas railings without cross-system usage will equal to its total production volume of 10 million tonnes. Results without cross-system usage are also included for completeness.

Table 2: Foreseeable demand for the CQCN over 2020 to 2035 (millions tonnes)

Year	Including cross-system usage	Without cross-system usage
2020	270.2	248.6
2021	279.0	257.4
2022	280.3	258.7
2023	280.9	259.3
2024	282.4	260.8
2025	290.1	268.5
2026	277.7	256.1
2027	278.8	257.2
2028	292.7	271.1
2029	297.0	276.0
2030	289.7	271.4
2031	296.4	278.1
2032	302.5	279.2
2033	319.2	292.9
2034	324.6	298.3
2035	307.3	281.0

Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

51 As shown from Table 2 above, RBB's forecast for total railings of the CQCN in 2020 will be 270.2 million tonnes. By 2034, total railings are forecasted to increase by 20.1% and peak at 324.6 million tonnes. The volume will then fall by 5.3% and reach 307.3 million tonnes in 2035.

52 The approach that I used to derive these baseline estimates was outlined in Section 3 of this report, but can be summarised as follows.

53 First, I collected data from Wood Mackenzie on the production by all mines in Queensland. These data showed production of four different types of coal – thermal coal, PCI met coal, HCC met coal and SCC met coal.

54 Second I made a number of adjustments to the data from Wood Makenzie. These adjustments were:

- I removed those mines from the Wood Makenzie dataset that did/will not use the CQCN;
- Where the data from Wood Makenzie were inconsistent with data provided to me by miners in response to my information request, I replaced the Wood Makenzie data with the data provided to me by the miners. By way of an example, in the event where Wood

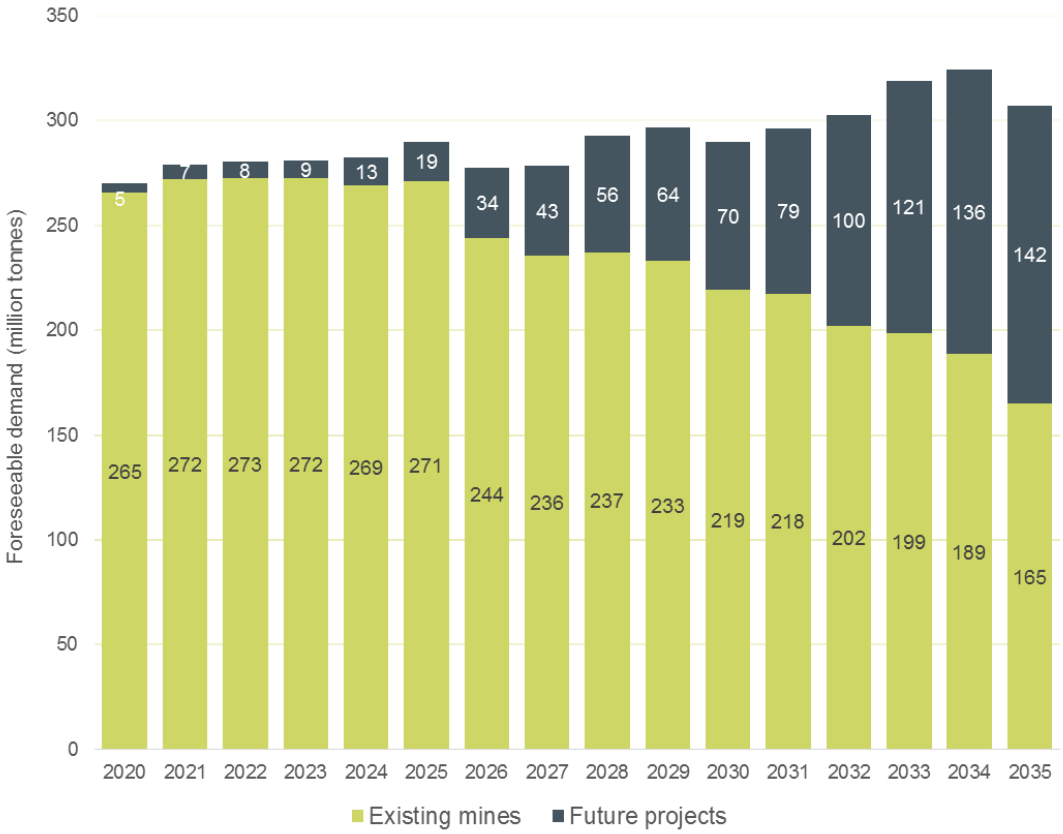
Mackenzie estimated a total production volume of 10 million tonnes for Mine A in 2020 and Mine A's owners' own estimate for Mine A was 13 million tonnes, I have used the estimate provided by Mine A's owner instead of the data provided by Wood Mackenzie.

- I have allocated production to the coal system using information from Wood Makenzie and information provided to me by the parties. Where this information was inconsistent, I relied on information provided to me by the miners or information through desktop research that I or staff under my supervision collected and analysed.
- I have also assumed that all of the production for mines that use the CQCN will require transportation services from one or more rail corridor systems listed in Section 2 of this report. In other words, I assume that all of the production from these mines will be saleable seaborne coal and thus will be exported via one or more coal terminals that are connected to the CQCN systems. This is likely to overstate the estimate of foreseeable demand on the CQCN as not all of a mine's production would be saleable, and that not all of its saleable production would be exported and thus require railings via these systems. As a result, this assumption is likely to have led to a forecasted demand that overestimates the total railings for the CQCN and for its systems.
- For mines that use multiple railing routes, I have distributed the production evenly across each of these systems. For example, if mine A uses the Goonyella, GAPE and Newlands system to haul coal to APCT, as well as the Blackwater system to haul coal to RGTCT, then under this assumption, half of mine A's saleable production will be allocated to each of Goonyella, GAPE and Newlands (as all three systems will be used for hauling coals from the mine to APCT), with the other half allocated to the Blackwater system.

4.2 Comparing current and future production

55 The results consist of information from both existing and future mines. Figure 2 below provides a breakdown of the forecasted railing demand presented in Table 2 into those contributed by existing mines and by future mines.

Figure 2: Foreseeable demand for the CQCN split between existing and future mines (million tonnes)



Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

56 As shown from Figure 2 above, forecasted railing contributed by prospective mines in 2020 is approximately 5 million tonnes, accounting for approximately 1.7% of the total forecasted railings in that year. This volume will continue to increase over the relevant period and reach approximately 142 million tonnes by 2035, accounting for approximately 46.3% of the total forecasted railing.

5 Sensitivity analysis

57 In this section, I present the results of three sensitivity test that I have performed to test my main findings shown in Section 4 above. These sensitivity tests are:

- Testing whether the theoretical production estimates can be supported by prices in the relevant market;
- Only using data from Wood Mackenzie rather than information provided to me by parties; and
- Including mines that I have determined will not use the CQCN into the analysis.

5.1 Do prices support the theoretical production estimates?

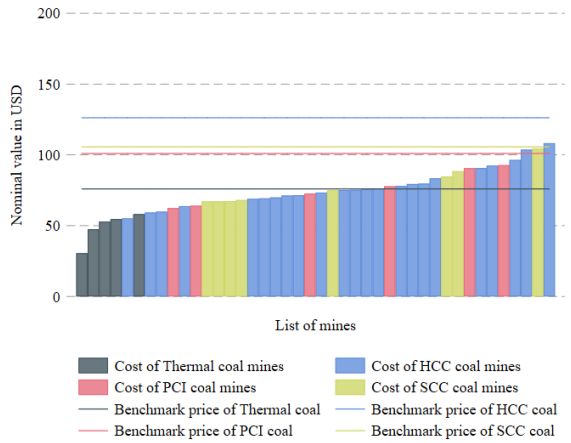
58 This section tests whether the cash costs of a mine would be lower than the benchmark price for the highest quality (or type) of coal it is able to produce. If that is the case, then I would expect the mine to either continue producing or to enter as announced. Conversely, if the cash costs of the mine is greater than the benchmark price, then it may reduce or cease production, or not enter as announced.

59 In practice, however, because of the costs of entry and exit (or of ramping production up and down), a mine may continue to produce (or enter as announced) even if prices fell below costs for short period of time. The analysis presented below, therefore, is presented as a high level way of testing whether the production estimates I identified in Section 4 of this report are likely to actually lead to demand for the CQCN.

60 The charts below – Figure 3 to Figure 18 – compare the costs of different qualities of coal with the benchmark prices for that coal from 2020 to 2035. The mines on the left hand side of the chart are the lower cost (more efficient) mines while the mines towards the right hand side of the chart are the higher cost (less efficient) mines. The benchmark FOB prices for each type of coal are shown as the horizontal lines.

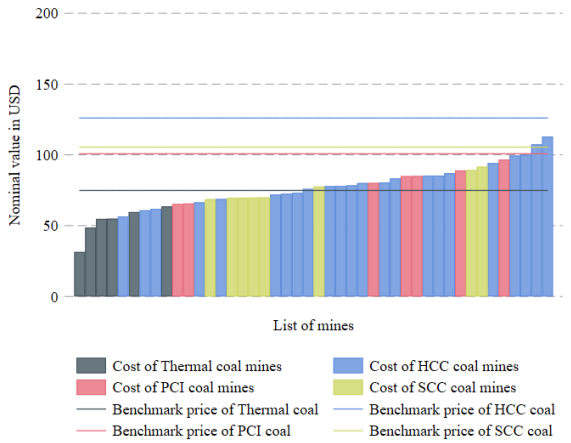
61 The vertical bars in the charts below represent the list of coal mines that will be using the CQCN, and are presented in different colours based on the highest quality of coal they produce, with the corresponding benchmark price for that type of coal shown in the same colour.

Figure 3: Cost curve for year 2020



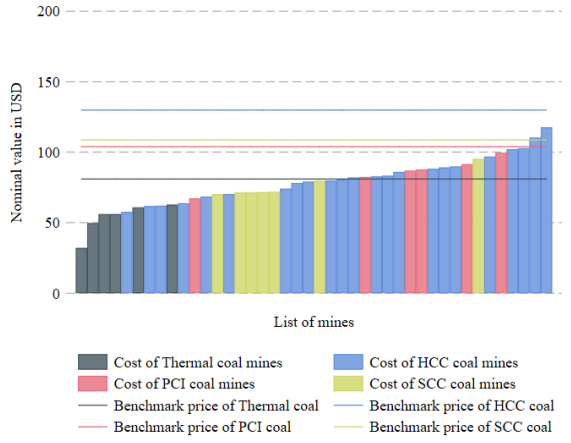
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 4: Cost curve for year 2021



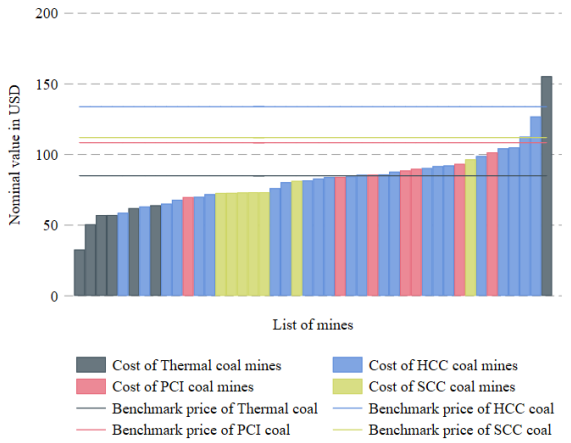
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 5: Cost curve for year 2022



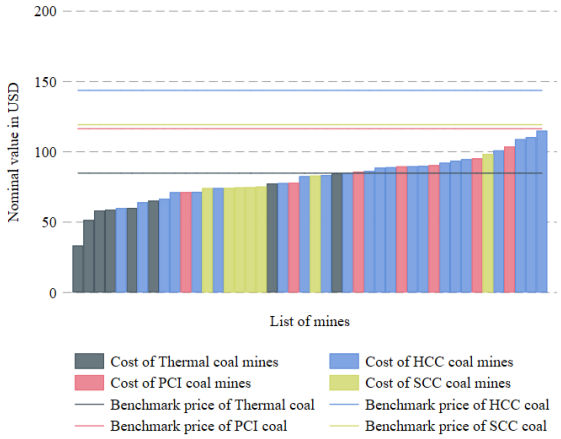
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 6: Cost curve for year 2023



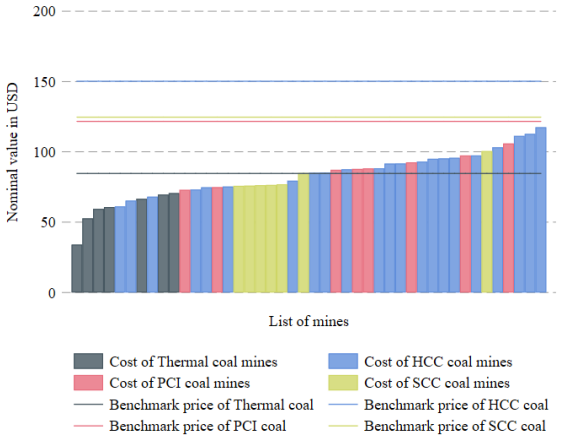
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 7: Cost curve for year 2024



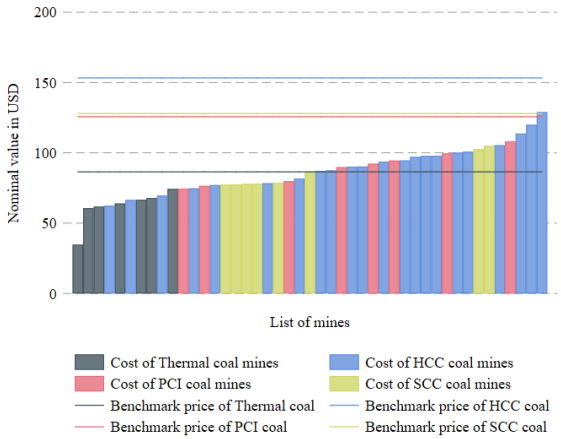
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 8: Cost curve for year 2025



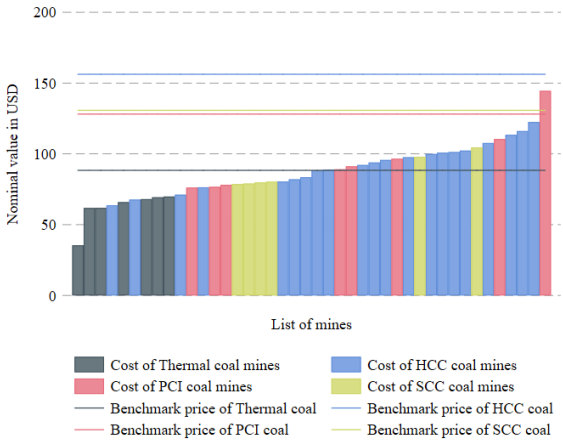
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 9: Cost curve for year 2026



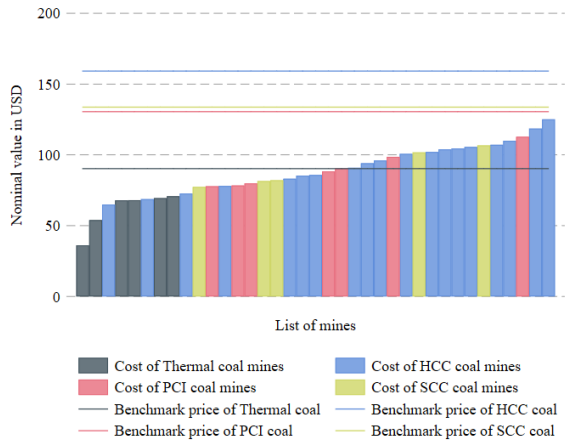
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 10: Cost curve for year 2027



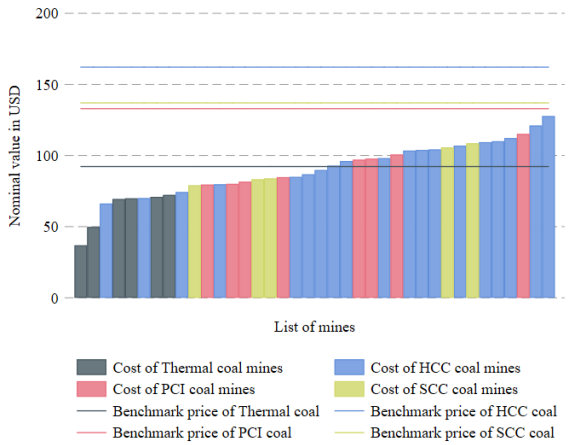
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 11: Cost curve for year 2028



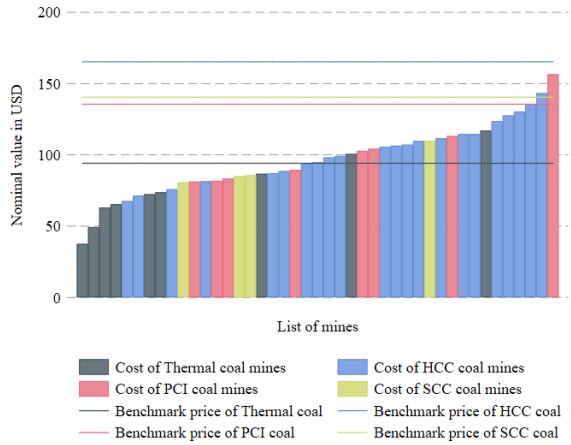
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 12: Cost curve for year 2029



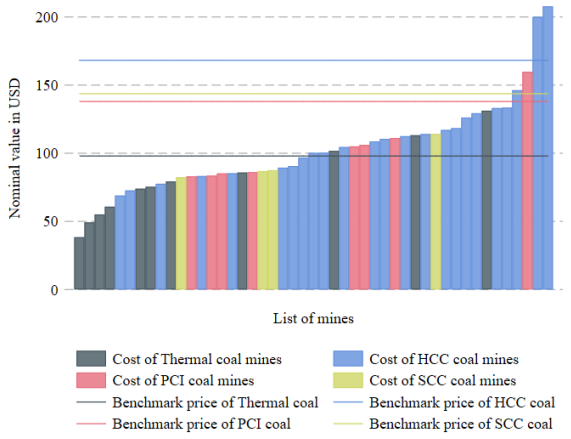
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 13: Cost curve for year 2030



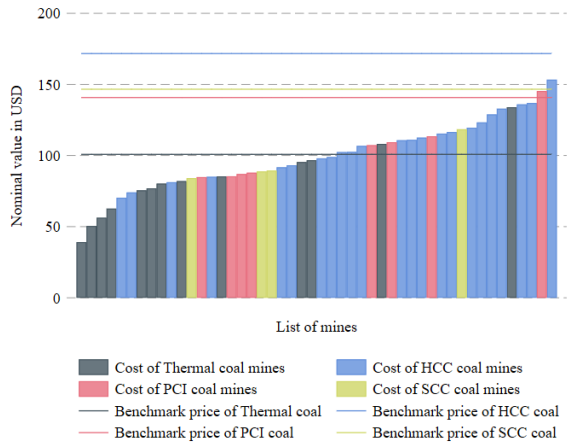
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 14: Cost curve for year 2031



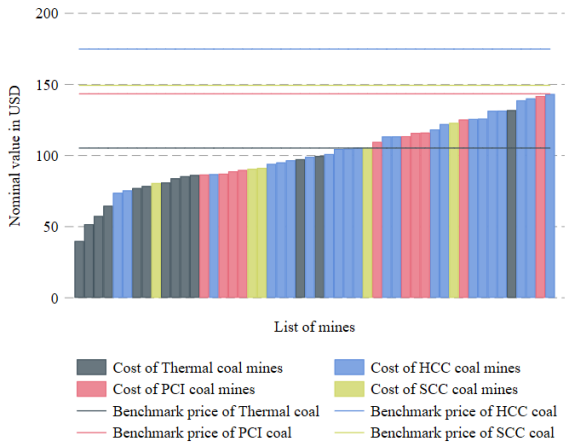
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 15: Cost curve for year 2032



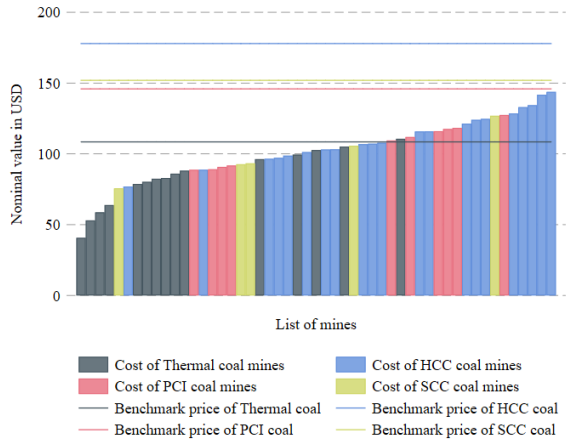
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 16: Cost curve for year 2033



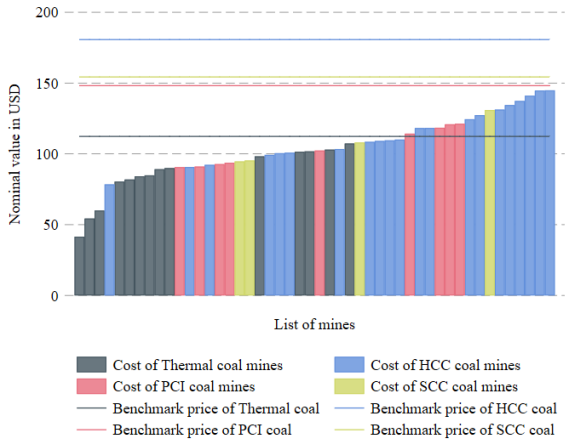
Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 17: Cost curve for year 2034



Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

Figure 18: Cost curve for year 2035



Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

62 Based on my analysis depicted from the charts above, I found several instances where a mine had incurred greater cost than the corresponding benchmark price of the highest quality of coal it produced. For these instances, I believe production would either continue or enter as announced when prices temporary falls below costs, as there are likely to be costs associated with ceasing or reducing production that would outweigh the economic benefits of doing so. However, the table below presents the results of my estimate for the foreseeable demand if I remove production from those mines in years where the price falls below the total cash costs of the relevant mine.

Table 3: Foreseeable demand for the CQCN with production removed for mines with costs higher than the corresponding benchmark price of the highest quality of coal they produce (million tonnes)

Year	Including cross-system usage	Without cross-system usage
2020	270.2	248.6
2021	279.0	257.4
2022	280.3	258.7
2023	280.4	258.8
2024	282.4	260.8
2025	290.1	268.5
2026	277.7	256.1
2027	277.2	255.6
2028	292.7	271.1
2029	297.0	276.0
2030	287.9	269.6
2031	292.3	274.0
2032	297.3	274.0
2033	316.3	290.0
2034	323.8	297.5
2035	307.3	281.0

Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

63 As shown from the table above, the effect of removing these production to total forecasted demand for the CQCN is minor. In particular, forecasted demand will remain to be similar with the figures depicted in the baseline results, with lower volume in year 2023, 2027, 2030, 2031, 2032, 2033 and 2034.

5.2 Results without quantitative amendments based on the Parties' responses

64 For this sensitivity analysis, I provide results of the estimated railings of the CQCN without taking into account of any production estimates provided by the QRC members in their response to my request of information. In other words, in comparison to the baseline results, the production information used to generate results depicted in Table 4 below are solely based on production estimates from Wood Mackenzie.

Table 4: Foreseeable demand for the CQCN without accounting for quantitative inputs from QRC members (million tonnes)

Year	Including cross-system usage	Without cross-system usage
2020	280.7	247.7
2021	283.5	250.5
2022	281.1	248.1
2023	281.8	248.8
2024	286.2	253.2
2025	290.5	257.5
2026	279.3	246.3
2027	281.3	248.3
2028	285.7	252.7
2029	292.8	260.4
2030	289.1	259.4
2031	291.8	265.4
2032	296.8	273.1
2033	310.2	283.5
2034	313.7	287.0
2035	296.6	274.7

Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

65 As shown from Table 4 above, the forecasted total railings of the CQCN over the relevant period under this analysis is similar with the figures shown in the baseline results.

5.3 Including mines which will not use the CQCN

66 For this sensitivity analysis, I provide results of the estimated railings of the CQCN that include mines which will not use the network. Specifically, the results shown in the table below are under the assumptions that:

- Carmichael and Carmichael Underground will be using a combination of the Goonyella, the GAPE and the Newlands system to haul coal to export terminals at the Port of Abbot Point; and
- Alpha, China Stone, Degulla, Kevins Corner and South Galilee will be using the Newlands system to haul coal to export terminals at the Port of Abbot Point.

Table 5: Foreseeable demand for the CQCN including mines that will not use the network

Year	Including cross-system usage	Without cross-system usage
2020	270.2	248.6
2021	279.0	257.4
2022	280.3	258.7
2023	316.9	271.3
2024	336.4	278.8
2025	356.1	290.5
2026	359.2	287.6
2027	368.8	297.2
2028	391.7	320.1
2029	402.1	331.1
2030	402.3	332.0
2031	421.0	342.7
2032	451.1	358.8
2033	491.4	387.4
2034	507.4	403.4
2035	494.4	390.4

Source: RBB Economics analysis of Wood Mackenzie data and information from QRC members.

67 As shown in Table 5 above, including those mines into the analysis has a significant effect on foreseeable demand.

68 I have excluded those mines because they will not, in my opinion, use the CQCN. If Aurizon was to be involved in developing the new Greenfield railways that might be used to carry the coal from these mines to the relevant ports, then there is a possibility that those mines may use part of the CQCN. However, Aurizon has indicated that at present it does not propose to be involved in developing those Greenfields railways, meaning that they will not use the CQCN – see Annex D.

Annexes

A CVs

George Siolis

69 George joined RBB Economics in July 2009 as a Partner in the Melbourne office. He has worked as a micro-economist for 25 years and has advised clients in Australia, Asia and Europe, including the European Commission on a wide range of policy issues. He has specialised in the application of economics to competition and regulatory issues across a range of industries including coastal shipping, agriculture, manufacturing, telecommunications, and financial services.

70 George has advised on many of the most contentious mergers before the ACCC since RBB Economics was established in Australia in 2009 and has presented expert evidence before the Australian Competition Tribunal. He is listed in the GCR's *Who's Who Legal 2017 edition of Competition Lawyers and Economists* and is also a member of the Competition and Consumer Committee (Business Law Section) of the Law Council of Australia.

71 Prior to joining RBB, George worked for Telstra where he helped determine prices both in regulated wholesale markets as well as in competitive retail markets. George was also an economic consultant in the UK for eight years where he developed and led the communications practice at Europe Economics. George began his career at the Productivity Commission (formerly the Industry Commission) in their Canberra and Melbourne offices and was awarded the Commission's first Overseas Development Award in 1995.

72 His project experience acting as an expert on economic issues covers the following:

Competition expertise while at RBB Economics

73 George has provided expert advice to a number of clients where the ACCC had raised significant competitive concerns on proposed mergers including:

- Advised Sea Swift and Toll Marine Logistics on the proposed acquisition by Sea Swift of the Northern Territory and far north Queensland marine freight business of Toll Marine Logistics Australia (a division of Toll Holdings Limited, whose ultimate owner is Japan Post). The proposed acquisition was initially opposed by the ACCC, but Sea Swift successfully sought Authorisation from the Australian Competition Tribunal on the basis that the proposed acquisition would result in such a benefit to the public that it should be allowed to occur. George advised the parties throughout the process and presented expert evidence before the Tribunal during the Authorisation process.

- Advised Shell during their proposed acquisition of BG in Australia.

- Advised Heinz on the likely competitive effects in the wet and dry infant food markets of its proposed acquisition of Rafferty's Garden in Australia.

- Advised Asahi (Schweppes) on their acquisition of Mountain H2O in Australia. The merger combined the major supplier of private label (and some branded) water to major supermarkets with a large supplier of branded bottle water.

- Advised Thomson Reuters on their proposed acquisition of E&Y's tax compliance software business.

- Advised Swift on their proposed acquisition of Rockdale.

- Advised Sleepyhead on their proposed acquisition of Dunlop Foams (a division of Pacific Brands).

- Advised Cargill on their proposed acquisition of the fats and oil businesses of Goodman Fielder.

- Advised National Australia Bank's proposed acquisition of AXA.

- Advised Link on their proposed acquisition of Newreg.

- Advised Donohoe Ice and Bells Pure Ice on their proposal to merge their respective packaged ice manufacturing and distribution and cold storage services businesses.

- Advised a leading online employment website operator in Asia on a proposed merger.

74 George has also advised parties on a wide range of other competition and regulatory issues while with RBB Economics.

- Prepared two expert reports for – and appeared at an Arbitration hearing on behalf of – Brookfield Rail on the economic considerations around pricing for access to rail services in Western Australia. The reports examined the economic efficiency implications of a regulated price for access to a natural monopoly facility and reviewed the methodology developed by a major freight customer to determine a cost-oriented price for access to Brookfield's rail network.
- Wrote an expert report on behalf of the New Zealand Commerce Commission in its proceedings against Hamilton real estate agencies, which was submitted to the High Court in Auckland. The Commerce Commission alleges that the real estate agencies breached the Commerce Act by entering into anti-competitive agreements in response to Trade Me changing its property listing fee.
- Advised local fibre companies in New Zealand on regulatory issues concerning fibre unbundling.

- Advised the ACCC as part of its inquiry into whether to declare domestic mobile roaming. RBB's work involved reviewing a report and model by Frontier Economics that sought to quantify the consumer benefits of domestic roaming.

- Provided expert witness reports on behalf of the Commonwealth of Australia (Department of Communications) on two litigation matters arising out of commercial disputes regarding broadband provision to rural and regional areas in Australia.

- Provided expert advice to wholesale fruit and vegetable traders in Melbourne in a dispute with the Melbourne Market Authority over a commercial dispute. The case settled before George could present his expert evidence in the Supreme Court of Victoria.

- Advised Genesee & Wyoming (Australia) during an investigation by the Essential Services Commission of South Australia (ESCOSA) on whether the prices charged by Genesee & Wyoming for access to the Tarcoola to Darwin railway line have been excessive.

- Provided advice to the provider of tug boat services at a port in northern Australia on the likely effects of the decision by the port operator to license a second tug boat operator to provide services at that port.

- Advised Asciano in Australia on the appropriate methodology that the regulator should use to set access prices for rail services provided by Patrick at Port Botany.

- Advised Viterra on the design of an auction to allocate capacity to third party grain exporters to Viterra's ports.

- Advised Tooltechnic during their Application for Authorisation to engage in Resale Price Maintenance (RPM). This was the first Authorisation for RPM ever granted in Australia.

- Advised Realestate.com.au during the ACCC's review of the proposed Authorisation sought by Property Media Group Pty Ltd (PMG) to collectively bargain and boycott suppliers of online and print real estate advertising. The ACCC rejected the Application (which was subsequently withdrawn) because it considered that while realestate.com.au and domain.com.au have some market power, there is evidence of competition both between each other and from other small and mid-tier players.

- Provided economic advice to SunRice and an expert report to the Independent Consumer and Competition Commission in Papua New Guinea (PNG) on whether SunRice had and was exploiting its market power in the domestic rice market in PNG.

- Advised Telstra on the appropriate approach to determining service lives of new fixed network assets and remaining service lives for Telstra's existing fixed network assets to use in such a building block pricing framework.

- Advised the jet fuel suppliers at Sydney Airport (JUHI) during the Application for declaration of their infrastructure services made by the Board of Airline Representatives of Australia Inc (BARA). The National Competition Council declined to provide access to the jet fuel supply infrastructure to BARA (and found the evidence of RBB to be "compelling").

Regulatory experience at Telstra

75 Prior to joining RBB Economics George was a Pricing Specialist at Telstra and then led the Regulatory Accounting and Cost Modelling team at Telstra. His role there included:

- Working with the marketing and product teams at Telstra to set retail prices for products sold by the Consumer teams at Telstra with the aim of maximising the average revenue per user (ARPU) while protecting market share. This involved developing financial models showing the extent to which consumers would take-up the new products (measuring the penetration rate), estimating how many consumers would substitute other Telstra products for the new product (the rate of cannibalisation), determining how many people would abandon the product over time or move to a competitor's offering (the rate of churn), and estimating the price response of competitors which could then affect Telstra's pricing and market share estimates (the competitor's response).

- Producing (audited) regulatory accounts to the ACCC to ensure Telstra's compliance with its Accounting Separation obligations.

- Producing cost models (including the joint network cost model (JNC model) to allocate the costs of Telstra's (shared) networks over all of its products and services.

- Providing advice to the Chief Financial Officer on all matters concerning Regulatory Finance matters.

76 The role of the team was then expanded to report on the profitability of Telstra's products at a more detailed level in order to guide pricing and investment decisions.

Other regulatory, and cost modelling experience

77 Between 1997 and 2004, George worked as an economic consultant in the UK for National Economic Research Associates (NERA) and Europe Economics (where he developed and led the telecommunications team). His experience during this time included the following:

Regulatory experience

- Directed a study for DG Competition at the European Commission aimed at exploring the reasons for differences in prices for unbundled local loops across EU Member States and at identifying the best practice with regard to estimating costs and setting prices for these services. The study looked at the appropriateness of various costing methodologies, particularly the use of long run incremental cost (LRIC), and at how different methodologies can meet the Commission's policy objectives.

- Provided expert testimony on behalf of the Director of ODTR (the Irish regulator) in a High Court Judicial Review brought by Eircom regarding the price of unbundled local loops in Ireland.

- Prepared a response for the United Kingdom Competitive Telecommunications Association (UKCTA) to Oftel's Consultation Document on Financial Reporting Obligations for Operators with Significant Market Power. The response looked at measures that could limit the market power of vertically integrated operators and for ways to strengthen regulations aimed at avoiding anti-competitive behaviour.

- Project director in a study for the Jersey Competition Regulatory Authority aimed at assessing Jersey Telecom's efficiency in comparison with other European and US

operators, using industry-standard summary ratios and econometric techniques (SFA and DEA).

- Directed a study for DG Enterprise, European Commission to develop a set of analytical tools to help competition authorities take account of the innovation when conducting their investigations into the effects of a merger or anti-competitive behaviour in dynamic industries.

- Conducted a feasibility study and cost benefit analysis of the introduction of mobile number portability in Hong Kong for OFTA. The role included a major presentation to the telecommunications industry in Hong Kong outlining the methodology used to estimate the benefits of number portability and presenting the results of the study to the industry in Hong Kong.

- Advised the Independent Television Commission (ITC) on the economic effects of bundling practices of the cable television operators. This work led to a part time secondment for six months to the Economic Regulation Division of the ITC reporting to the Head of Economic Regulation to advice on mergers, competition policy and other public policy issues.

- Advised the Office of Electricity Regulation in the UK on the separation of distribution and supply businesses.

- Conducted a comparative review of economic regulation in EU Member States in order to develop recommendations for the Finnish Communications Regulator, FICORA to improve its effectiveness as a regulator.

- Prepared a response for Kingston Communications in response to an efficiency study conducted on the company by Oftel.

- For the Office of Utility Regulation in Guernsey, reviewed proposed charges submitted by the incumbent operator, Cable & Wireless Guernsey, and assessed the extent that these met the requirements set out by the Office of Utility Regulation in the legislation.

- Project manager of a study for the National Competition Council, on Overseas Experience in reform of postal services. The study looked at the experience of the UK, Sweden, Finland, Canada, New Zealand and the Netherlands and was used by the ACCC to inform their wide ranging review of Australia Post.

- Lead consultant for an economic impact study for a consortium in Singapore bidding for a fixed telecommunications licence in Singapore. The economic impact study measured the effect on Singapore's GDP of awarding the licence to the bidder.

Cost modelling expertise

- Led a (long-term) project for IT-og Telestyrelsen (the Danish regulator) on the development of bottom up and top-down models in Denmark in order to produce interconnection charges for PSTN services and unbundled local loops. The study required the preparation of criteria and minimum requirements for both models, advice on the preparation of the models, a reconciliation of the bottom-up model with the top

down model built by Tele Danmark, and the development of a hybrid model to set prices for 2003.

- Directed a detailed costing model for the fixed network in Spain (for the Spanish Telecom Regulator, CMT), in order to calculate the cost of interconnection with the incumbent's network (both circuit-switched and IP networks), and providing direct and indirect access to customers and other operators. Retained by CMT to update the cost model and compare the outputs with those obtained by the incumbent operator, Telefonica.

- Directed a study for AGCOM (the Italian regulator) to verify the costs calculated by Telecom Italia (TI) in order to meet their universal service obligations (USO). The study assessed the appropriateness of the methodology used by TI, the accuracy of the algorithms in their model, and the reasonableness and reliability of the assumptions made by TI.

- Managed a project on the development of a bottom-up model to estimate the cost of leased lines in the UK for Oftel in the UK. The models calculated the cost of leased lines under different definitions of the cost increment including incremental costs, fully allocated costs and stand-alone costs. The study also included a paper outlining the advantages and disadvantages of different costing methodologies, a number of presentations to the industry, and the reconciliation of the results of the bottom-up model with the results from BT's top-down model.

- Lead consultant on a project for Singapore Telecom, based in Singapore, to estimate, using top-down and bottom-up methodologies, the long-run incremental cost of different interconnection services. Costing models were developed for both the access and core network and were presented to the telecoms regulator TAS.

- Conducted a training session to the Cost Accounting experts at the Romanian regulator, ANRC and provided advice on how different costing methodologies can be used to determine interconnection charges and to assist the ANRC respond to responses to consultations on related issues. Retained by ANRC to develop a detailed bottom-up, long run incremental cost model in order to estimate the costs of RomTelecom's network.

- For the ACCC, advised on the project team to build a bottom up model to estimate interconnection charges in Australia (until May 1998). The project involved the development of long run incremental cost model to estimate the costs of Telstra's network.

- Managed a project for DG XIII of the European Commission to build an adaptable "bottom-up", forward-looking long-run incremental cost model for the purpose of calculating PSTN charges. The model has since been used in a number of member states including France and Austria.

- Managed a project for DG XIII of the European Commission to provide a clear basis for the assessment and allocation of costs for number portability and call-by-call carrier selection/ pre-selection.

- For ODTR, conducted a high level review of the LRIC methodology developed by Eircom and recommended changes to their cost accounting system to ensure compliance with ODTR requirements.

78 **QUALIFICATIONS**

79 1991 **BEc (Hons) Economics and Political Science,** Monash University

80 2014 **Master of Laws (Juris Doctor)**, Monash University

B Engagement letter

HERBERT SMITH FREEHILLS

Attention: Mr George Siolis
RBB Economics
Level 51
101 Collins Street
Melbourne VIC 3000
George.Siolis@rbbecon.com

4 May 2018
Matter 82654805
By Email

Dear Mr Siolis

Confidential and Privileged

Central Queensland Coal Network – 2020 Declaration Review

Your engagement as an independent expert

1 Introduction

We act for the Queensland Resources Council (**QRC**), a not-for-profit peak industry association representing the commercial developers of Queensland's minerals and energy resources.

By acting for the QRC, HSF indirectly act for a selection of its members, being Anglo American, BMA, Fitzroy Australia Resources, Glencore, Idemitsu, Sojitz, QCoal, Peabody, Whitehaven Coal, New Hope, Caledon, Jellinbah, Rio Tinto, Wesfarmers Curragh and Yancoal.

This letter is to confirm RBB Economics' (**You/Your**) retainer to act as an independent expert in relation to the consideration of regulatory matters relating to the Central Queensland Coal Network (**CQCN**) which is owned by Aurizon Network Pty Ltd (**Aurizon Network**), and to set out the terms of your retainer.

QRC is responsible for payment of your fees, although your accounts are to be addressed to our office as referred to below.

2 Background

The CQCN, owned by Aurizon Network, is a "declared service" within the meaning of the Queensland Competition Authority Act 1997 (Qld) (**QCA Act**). Specifically, the "declared service" as defined in s 250(1)(a) of the QCA Act is the use of a coal system for providing transportation by rail, being a service owned by Aurizon Network.

This declaration expires on 8 September 2020.

The Queensland Competition Authority (**QCA**) has now commenced a review (**Declaration Review**) into whether the CQCN should continue to be a "declared service" (in whole or part) following the expiry of the existing declaration in 2020. As part of the Declaration Review, the QCA has published a staff issues paper (**Issues Paper**) which QRC will be making a submission on.

3 Scope of your assignment

We would like you to prepare an independent expert report in which you address economic matters relevant to the regulation of the CQCN. This report may ultimately form part of (or be annexed to) a submission made in response to the Issues Paper or be relied upon in litigation arising out of the Declaration Review.

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In particular, we request that in preparing your report, you address the following question:

> *What is total foreseeable demand in the market over the relevant period? Relevant information may include that related to access agreements, market conditions, binding and non-binding expressions of interest in capacity and from facility masterplans.*[1]

For your assistance, we also include a short guide to preparation of an expert report as Attachment 1 to this letter.

From time to time you may be required to respond to additional matters if and as those matters arise.

4 Confidentiality

Your consultancy report and any drafts prepared in accordance with your retainer are confidential and are not to be copied or used for any purpose unrelated to the purpose for which you are retained without the permission of QRC.

Materials supplied to you by the QRC or Herbert Smith Freehills as their legal advisor are confidential and are not to be copied or used for any purpose unrelated to your retainer without the permission of QRC.

Your report and any drafts prepared by you should also have the following words inserted on the cover page:

> *This document is protected by legal professional privilege. To ensure privilege is not waived please keep this document confidential and in a safe and secure place. This document should not be distributed, nor any reference to it made, to any person or organisation not directly involved in making decisions on the subject matter of this document. If this document is requested by a government officer, Herbert Smith Freehills should be contacted immediately to ensure that privilege is claimed over the document and it should not be shown to, nor the contents discussed with, the government officer.*

You and any other persons who will be assisting you may be requested to execute a confidentiality undertaking. You may be required to return all documents, copies and workings at the conclusion or termination of your retainer.

5 Conflicts of interest

As an independent expert, it is important that you are free from any possible conflict of interest in the provision of your opinions and report. You should ensure that you have no connection with Aurizon Network, QCA and QRC, which would preclude you from providing your opinion in an objective and independent manner.

Please let us know if you have had any dealings with any of the parties.

In addition, if during the course of your retainer period you become aware of an actual or potential conflict of interest, please inform us immediately.

6 Fee estimate

We would be grateful if you could please confirm details of your rates for this engagement.

Expenses such as taxis, flights, accommodation, parking, couriers, printing etc are to be billed at cost.

[1] Staff Issues Paper, '*Declaration reviews: applying the access criteria*', Queensland Competition Authority, April 2018, p 14, criterion (b) – question (18).

You may be asked to provide an estimate of fees. Should you become aware that your fee estimate is likely to alter in a material way, you must notify Herbert Smith Freehills immediately of the likely change and obtain approval for any material increase.

You should present your memoranda of fees by 8 June 2018. This will assist us to deliver an overall memorandum to QRC.

As mentioned above, it is Herbert Smith Freehills' client which is responsible for paying your fees.

7 Liability for fees

QRC will be responsible for the payment of your invoices. However, as Herbert Smith Freehills is engaging you on behalf of the QRC, please forward your invoices to Herbert Smith Freehills' office.

8 Communications

All communications, whether verbal or written, should be directed to our office, so that we can coordinate, manage and integrate work activities with legal requirements and ensure privilege is maintained as appropriate.

9 Your duties and responsibilities as an expert witness

Your role is that of an independent expert engaged to advise Herbert Smith Freehills on behalf of QRC on the technical matters the subject of this retainer.

Though you are retained by Herbert Smith Freehills on behalf of QRC, you are retained as an independent expert to assist Herbert Smith Freehills in providing legal advice to our client. Accordingly, you are expected to be objective, professional and to form an independent view as to the matters in respect of which your opinion is sought.

Your report must give details of your qualifications, and of the literature, documents and other material used in making the report.

All facts and assumptions on which your opinion is based should be clearly and fully stated. You should not omit to consider material facts which could detract from your concluded opinion.

You should give reasons for each opinion. Where appropriate you should also state the methodology you have used.

Until your report is in final form it should not be signed. You should, however, be aware that that unsigned draft reports may need to be disclosed to other parties.

If, at any stage, you change your view on a particular matter, you should inform us in writing of the change of view without delay.

If, despite the information provided to you and the assumptions you have been requested to make, you consider that your opinion is not properly researched because of insufficient data, or for any other reason, you should state clearly that your opinion is a provisional one. Similarly, if you believe that your opinion is incomplete or inaccurate without some qualification, that qualification must be stated in your report.

You should make it clear if a particular question or issue falls outside your area of expertise.

10 Acceptance of terms

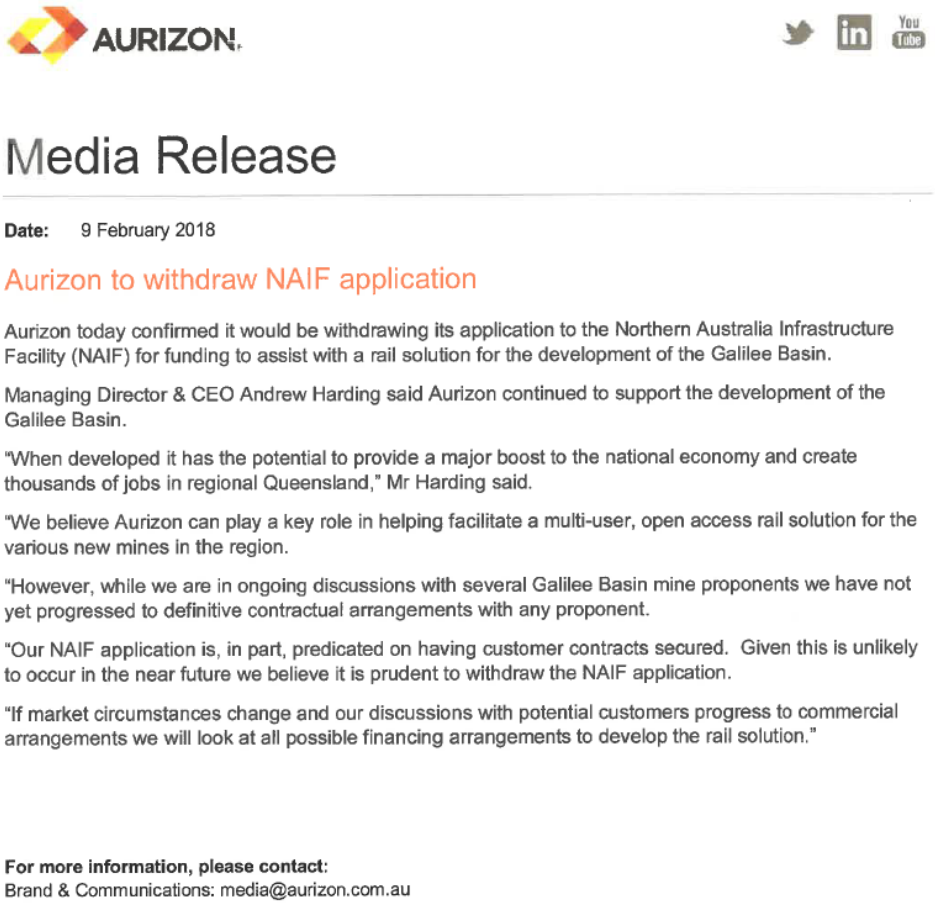
If the above terms are accepted, please sign and date a copy of this letter and send a copy to our offices by email.

We look forward to working with you.

C Confidential Schedule

[Redacted]

D Other supporting documentation



AURIZON

Media Release

Date: 9 February 2018

Aurizon to withdraw NAIF application

Aurizon today confirmed it would be withdrawing its application to the Northern Australia Infrastructure Facility (NAIF) for funding to assist with a rail solution for the development of the Galilee Basin.

Managing Director & CEO Andrew Harding said Aurizon continued to support the development of the Galilee Basin.

"When developed it has the potential to provide a major boost to the national economy and create thousands of jobs in regional Queensland," Mr Harding said.

"We believe Aurizon can play a key role in helping facilitate a multi-user, open access rail solution for the various new mines in the region.

"However, while we are in ongoing discussions with several Galilee Basin mine proponents we have not yet progressed to definitive contractual arrangements with any proponent.

"Our NAIF application is, in part, predicated on having customer contracts secured. Given this is unlikely to occur in the near future we believe it is prudent to withdraw the NAIF application.

"If market circumstances change and our discussions with potential customers progress to commercial arrangements we will look at all possible financing arrangements to develop the rail solution."

For more information, please contact:
Brand & Communications: media@aurizon.com.au

(b) Impairment

During the year, the following impairment losses have been recognised.

	2016 $m	2015 $m
Strategic infrastructure projects and assets under construction (i)	**125**	19
Aquila impairment (ii)	**226**	-
Rollingstock (iii)	**177**	-
Assets classified as held for sale	**-**	1
	528	20

(i) Strategic Projects

West Pilbara Iron Ore Project

The +/-15% non-binding tariffs were submitted on 30 November 2015. The CEOs of the participating companies met in December 2015 to review the progress of the West Pilbara Iron Ore Project (WPIOP). While the CEOs received reports on considerable progress in areas such as the capital and operating costs of the mine and infrastructure, the current market conditions and uncertainty about future supply and demand were central to the CEOs' considerations.

The participants are committed to consolidating the high quality work to date and minimising project costs. However, no material further work will be undertaken on the definitive feasibility studies. Aurizon's period of exclusivity to develop the integrated infrastructure solution expired on 30 April 2016.

As a result of the above decisions and uncertainty surrounding the timing of the development as well as current market conditions, $83 million of project costs were fully impaired at 31 December 2015. The carrying value of the project is now nil.

Galilee Basin

At 31 December 2015 an impairment of $30 million was recorded in relation to the brownfield expansion of the Central Queensland Coal Network (CQCN). The amount represents directly attributable development costs such as engineering designs, environmental and building approvals, which could be recovered through the regulatory process at a future date. However, a decision has been made to impair these costs due to uncertainty surrounding the project's timing and the current market outlook. The carrying value of the project is now nil.

(ii) Investment in Aquila Resources Limited

In July 2014, Aurizon completed the acquisition of 15% interest in Aquila Resources Limited (Aquila) for $226 million. Following the acquisition, Aurizon equity accounts for its share of Aquila's assets, liabilities and profit or loss.

At 31 December 2015 Aurizon performed a review of the value of the individual projects within the Aquila investment. The results of this review are summarised below:

- The Aquila Board carried out a strategic review of the South African manganese and iron ore projects and decided to place the projects into care and maintenance while a divestment program was initiated. As a result, all South African assets were written down to nil
- A supplementary scoping study of the Eagle Downs project was initiated and the timing of full development is uncertain after the termination of a major contract for the project. As a result, the value of Eagle Downs was impaired to $8 million given Aquila's expectation that the mine will continue to be developed
- All other Queensland coal assets were written down to nil based on the current market outlook and given that no substantial expenditure was planned for 2016
- As outlined in (i) above, due to the uncertainty surrounding the timing of the WPIOP development, current market conditions and the agreement that no further material work will be undertaken, the asset was fully written down

At 31 December 2015 an impairment of $153 million for Aquila was recorded.

A further review was completed at 30 June 2016 which resulted in additional impairment of $73 million. The total impairment for Aquila at 30 June 2016 was $226 million. This follows further deferral in the timing of the development of its Queensland coal assets and reflects the material reduction in the long term hard coking coal price of 15% since the date of the last review on 31 December 2015. The impairment provides for all known exposures, including Aquila's contractual obligations in respect of power and port access arrangements, and results in Aurizon's investment being fully written down.

(iii) Rollingstock

Due to the continued improvements in rollingstock efficiency and productivity coupled with a lower volume growth outlook, the Enterprise Rollingstock Master Plan, which forecasts the requirements of locomotives and wagons based on estimated volume demand for the next 10 years, was revised. This review of fleet resulted in 121 locomotives and 1,641 wagons being identified as surplus to the current requirements of the Group. Rollingstock identified as surplus and associated inventory has been impaired by $177 million to net realisable value (of which $148 million was recognised at 31 December 2015) representing approximately 6% of the carrying value of the rollingstock fleet.

(c) Funding Activities

Debt refinancing

In December 2015, Aurizon Network Pty Ltd refinanced $490 million of its syndicated debt facility extending the maturity date to 1 July 2021.

In April 2016, Aurizon Finance Pty Ltd refinanced a $300 million tranche of its bank debt, increasing the tranche size by $200 million to $500 million and extending the maturity date to 1 July 2020.

Issuance of Euro 500 million medium-term note

On 23 May 2016, Aurizon Network Pty Ltd issued a 10-year Euro Medium-Term Note (EMTN) with a coupon of 3.125% raising €500 million. Cross currency interest rate swaps were executed concurrently to fully swap the issuance back to Australian dollar (A$) floating rate debt. Aurizon Network Pty Ltd used the proceeds to repay and cancel $775 million of its syndicated debt facilities.

(d) On-Market Share Buy-Back Scheme

On 11 November 2014, the Company announced an on-market buy-back program. The Company has acquired 70.3 million shares at a cost of $301 million during the year ended 30 June 2016. Since commencement of this program, the Company has acquired 85.5 million shares at a total cost of $370 million.

(e) Enterprise Agreement (EA)

On 3 September 2015, the Fair Work Commission (FWC) approved Aurizon's final outstanding Enterprise Agreement (EA), the Aurizon Train Crew and Transport Operations EA. The approval by the FWC finalised the EA. It covers approximately 1,700 employees in Queensland and came into effect on 10 September 2015. Employees will receive a 4% pay rise annually for three years along with more contemporary employment conditions that will underpin significant productivity and efficiency improvements.

This follows the approval of the Aurizon Construction and Maintenance EA on 21 August 2015, and the Aurizon Staff EA which was approved and implemented in January 2015. As a result of the three EA approvals, approximately 5,000 Queensland based employees will be rewarded with pay increases and competitive conditions, while providing Aurizon with the productivity enhancements and workplace flexibility that the Company needs to sustain and grow its business.

E Map of the CQCN

Attachment 2 – Calibre Expert Report

Independent Expert Report

Central Queensland Coal Network Regulation

PREPARED FOR HERBERT SMITH FREEHILLS

COPP18056-REP-G-001 | 30 May 2018

Calibre Professional Services One Pty Ltd
55 150 624 356

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Appendix A	CVs
Appendix B	Questions
Appendix C	Documents Relied On
Appendix D	Documents Supplied
Appendix E	Confidential Appendix

1 Introduction

Aurizon Network, a subsidiary of Aurizon Holdings Limited, owns and operates the Central Queensland Coal Network (CQCN). Aurizon Holdings Limited (Aurizon) also operates coal freight trains that run on the rail network. Figure 1.1 shows the current network.

Figure 1.1: Central Queensland Coal Network (QCA website)

The CQCN is declared for third-party access in accordance with the Queensland Competition Authority (QCA) Act. The process for gaining access to the network is governed by Aurizon Network's access undertaking, which is approved, from time to time, by the QCA.

Section 250 of the QCA Act which covers the CQCN is due to expire in September 2020.

Many of the third parties affected are represented by the Queensland Resource Council (QRC), a not-for-profit peak industry association representing the commercial developers of Queensland's minerals and energy resources. The QRC works to secure an environment conducive to the long-term sustainability of minerals and energy sectors in Queensland, aiming to achieve positive outcomes for its members.

The QRC has engaged Herbert Smith Freehills (HSF) to provide guidance on the formal declaration review process set to take place prior to the 2020 Regulation expiration date. This process includes notification, submission, draft decision, comment, recommendation and decision phases.

Calibre was engaged by Herbert Smith Freehills (HSF) as an independent expert to prepare a report for the QRC on technical matters of the CQCN 2020 Declaration.

2 Scope of Assignment

Calibre has been requested to provide an independent expert report in which economic matters relevant to the regulation of the CQCN are addressed. This Report is intended to be objective, professional and to form an independent view. All facts and assumptions on which Calibre's opinion is based are detailed in the report.

Calibre has been asked to independently address four questions relating to the CQCN. These questions are detailed in Appendix B are paraphrased below:

1. What is the current capacity of the CQCN?
2. Is it reasonably possible to expand capacity of the CQCN?
3. If so, to what extent, at what cost, and in what timeframe can the CQCN capacity be expanded?
4. What would be the cost of building an alternative facility to services excess demand beyond the CQCN's current capacity?

The above questions have been considered and are addressed in Section 5 of this report. HSF have not requested Calibre to make any assumptions regarding the above four questions, other than what is detailed in this Report.

2.1 Terminology

The term 'facility' is utilised in the QCA Staff Issues Paper – *Declaration reviews: applying the access criteria*, April 2018. For the purposes of this Report, the 'facility' is regarded as the 'CQCN', as advised by HSF. For the purposes of assessing the capacity of the CQCN, it is further broken down into five discreet rail systems, as shown in Figure 1.1.

3 Qualifications and Experience

As a market leader in heavy haul rail, Calibre has executed (in study, design or delivery) more than 4,000 kilometres of rail over the last decade. Our rail personnel have extensive experience in the delivery of passenger, light, freight and heavy haul rail projects in Australia and around the world.

Calibre has been involved with recent Central Queensland rail projects, having design, studied, managed and undertaken independent roles on multiple fronts. This exposure to projects across the network has provided a sound basis on which to provide opinions to the matters discussed in this Report.

3.1 Key People

Todd Webster BEng(Civ)(Hons), DipPM

Todd has been involved in all aspects of the CQCN independent review, with a focus on capacity and rail network analysis.

Todd has sixteen years' experience across multiple disciplines of civil engineering including rail, roads, bridges, earthworks, subdivisions, water treatment plants, pipelines and pump stations. His exposure to a range of small and large scale projects from both the design and construction disciplines has equipped him with a solid knowledge base of how to deliver a successful project.

Todd's recent roles, as Design Coordinator, Independent Engineer's Representative and Design Manager for various large rail projects in regional Queensland has provided good exposure to both the CQCN and third-party railways. These projects have provided Todd an opportunity for technical input on railway design, development and operation. Phases have included study, design and construction with interfaces to approval authorities, project stakeholders, clients and railway operators.

Greg Boytar BEng(Civ)

Greg has provided expert rail advice and industry knowledge to assist with this review and has undertaken the key role of peer reviewer.

Greg is a professional civil engineer with more than 25 years of design and construction experience. He has led numerous design and construction teams on major projects in the private, public and mining sectors. Greg has a great depth of experience in all aspects of civil engineering design, construction, and supervision/monitoring of construction. He has provided expert support to independent and owner's engineering roles, independent audit/due diligence, expansion, optimisation and selection studies, feasibility studies and detailed design.

4 Summary of Opinions

1. It is relevant to consider Aurizon's Capacity Assessments in determining the CQCN capacity, as Aurizon have access to the most relevant data and most advanced simulation model.

2. The tonnages estimated in Table 5.2 present the findings of Calibre, based on publicly available information. Calibre's estimate System Capacity is also summarised in Table 4.1 below. The below estimate is less than Aurizon's quoted capacity in their Baseline Capacity Assessment (2016).

Table 4.1: Summary of Calibre's Estimate System Capacity

System	**Calibre Estimated System Capacity** (Mtpa)
Newlands / GAPE	50
Goonyella	130
Blackwater	75
Moura	20
Total	**275**

3. Calibre believes there is potential capacity to expand the current Central Queensland Coal Network (CQCN). Increased capacity can be realised through track upgrades, additional infrastructure, modified train consist configuration, and/or operational improvements. The suggested upgrades in these areas are summarised in Table 5.2.

   With an expansion of the CQCN and resulting increase in capacity using the above strategies, it will be necessary to construct additional balloon loops and coal handling infrastructure at the ports. New port terminals or major expansions may also be required to support the additional tonnage.

4. Calibre believes the Goonyella, Blackwater and Moura Systems will require upgrades to accommodate foreseeable demand. Expansion of the network needs to be undertaken with guidance from an accurate simulation model to identify the most appropriate and cost-effective upgrades. The following upgrades are recommended to meet foreseeable demand:

Table 4.2: Recommended Upgrades to Existing Network

System	Recommended Upgrades	Cost
Goonyella	Construction of a third track **Or** Decrease in headway	$800 million **Or** $100 million
	Additional rollingstock	Not yet priced
	Fourth balloon loop at Dalrymple Bay	$45 million
Blackwater	Fourth balloon loop at the RG Tanna Coal Terminal	$40 million
	Second balloon loop at the WICET	$50 million
	Additional rollingstock	Not yet priced
Moura	*Initial track investment for SBR tonnage* Construct WICET 3rd loop Construct Moura Link Construct Moura main line passing loop	$460 million
	Potential SBR tonnage ramp-up investment Formation strengthening Construct additional main line passing loops Duplicate main line sections	$100 million / year
	Additional rollingstock	Not yet priced

The proposed upgrade configuration for the Goonyella System appears to be a reasonable investment, although the decreased headway on the Connors Range section appears to be a more cost-effective option than a third track for the required tonnage and timeframe.

For the Blackwater System, the proposed balloon loops appear to be a reasonable investment, although with further investigation, there may be low-cost interim options to delay construction of the balloon loops (e.g. signalling upgrades, reduced headways or reduction of North Coast Line interactions) to address the foreseeable tonnage and timeframe. The balloon loops would also add future proofing to the network, so are an advantage in that regard.

To ensure capacity of the Moura System is adequate for foreseeable demand in the relevant period, the upgrades summarised in Table 4.2 will be sufficient. The network upgrades will also require commensurate increase in port balloon loops and unloading facilities.

To meet initial increase in demand on the Moura System from the Surat Basin, a large initial investment is required. Once railings commence, it is likely there will be an ongoing works program that will initially see additional passing loops constructed, the existing formation strengthened, and eventually, duplication of much of the Moura main line.

5. Estimated rail infrastructure construction costs are based on Calibre estimates and delivered projects. Calibre estimates an alternative rail facility could be built at $7m per kilometre, equating to an approximate cost of $19.7 billion for the entire network.

5 Questions

5.1 Network Capacity

The capacity of the CQCN is subject to many variable factors which interact to influence the overall capacity of the CQCN. In terms, the key influencing factors include:

- Track layout, infrastructure configuration and rail / non-rail interactions
- Signalling system configuration and available headways
- Rollingstock capacity and capability
- Loading, unloading, provisioning and other operational durations
- Rail system operating methodologies, parameters, procedures and practices
- Reliability and availability of the above parameters

The most reliable way to assess the capacity of the network is to develop a rail simulation tool to model all the factors and how they contribute to the efficiency of the system. However, it is difficult and costly to develop and maintain an accurate independent rail operations model of the CQCN, as traditionally many of the above parameters were not well known or available to an independent party. Systems within the CQCN have been statically and dynamically modelled in the past by Calibre, but current key inputs are not readily available.

Aurizon Network discuss the development of independent dynamic models and independent expert auditing in Section 3.9 of the 2017 Draft Access Undertaking (UT5):

> *No capacity modelling consultancy candidate for the third-party expert verification role has a CQCN modelling process of comparable quality and capability to that of Aurizon Network. Aurizon Network considers that its modelling process is the best reference point for the third-party expert verification process.*

Aurizon Network is generally recognised as having expertise in this area, and a more accurate capacity assessment is likely to be achieved by an appropriately qualified third-party auditing Aurizon Network's model (which has been the subject of incremental improvements over many years) rather than an expert auditor putting in place an entirely new model.

Aurizon modelling process (CQSCM) is the best available reference, however Calibre is cautious in directly adopting the Aurizon Network outcomes as the model inputs could potentially be skewed in favour of Aurizon.

The following sections review recent work involving capacity assessments of the CQCN.

5.1.1 Aurizon Network Capacity Assessment

Aurizon Network are required to undertake a Capacity Assessment as part of the Undertaking, as detailed in clause 7A.4.1(a) of the Access Undertaking (UT4). The Capacity Assessment is published by Aurizon Network, most recently as the *Baseline Capacity Assessment Report*, Public Release 2016, which covers FY18 and FY19.

Aurizon Network have also published the 2016 System Operating Parameters, which describe the methodology and the input parameters used to undertake the Capacity Assessment. Aurizon base the System Operating Parameters on the key metrics of the contracted Access Agreements, including:

- Number of train services required
- Mode of operation (period between trains)
- Sectional run times
- Loading and unloading times
- Network operations

Visibility of these Parameters is increasing, evident in the 2016 System Operating Parameters document sections discussing Stakeholder Consultation and System Capacity Assessment (Sections 1.3.2 and 1.3.3). Aurizon Network have committed to include an annual System Capacity Assessment focusing on overall supply chain performance in UT5. This Assessment will be separate from the Baseline Capacity Assessment and the annual Capacity Assessment, which focus on Rail Infrastructure capacity.

Currently, Aurizon have access to the most accurate information regarding the network operational parameters, rollingstock performance, maintenance regimes, access agreements, etc., so it is prudent to consider Aurizon's own Capacity Assessments which discuss capacity of the CQCN.

Based on the Aurizon Network *Baseline Capacity Assessment Report*, Public Release 2016, the capacity of the CQCN is summarised in Table 5.1.

Table 5.1: CQCN Capacity by System

System	Absolute Capacity (Mtpa)	Existing Capacity (Mtpa)	Committed Capacity (Mtpa)	Available Capacity (Mtpa)
Newlands / GAPE[1]	90.3	53.7	51.4	2.31
Goonyella	220	140	139	1.86
Blackwater	288	96.1[2]	78.2	17.9
Moura	54.9	32.7	7.96	24.7
Total	**653.2**	**322.5**	**276.56**	**46.77**

1 – The Newlands and GAPE system tonnages are reported together, as they are a combined network connecting to the Abbot Point Coal Terminal. The Goonyella to Abbot Point (GAP) Expansion Project included a new port balloon loop, holding roads, duplications, passing loops, signalling upgrades and other track upgrades. Key to the GAPE Project was the construction of the Northern Missing Link between North Goonyella and the Newlands System, which opened in late 2011.

2 – Existing Capacity on the Blackwater System is exclusive of capacity currently committed to non-coal transport.

Aurizon detail the factors influencing the various measures of Capacity in Section 1.4 of their 2016 System Operating Parameters, with the chart in Figure 5.1.

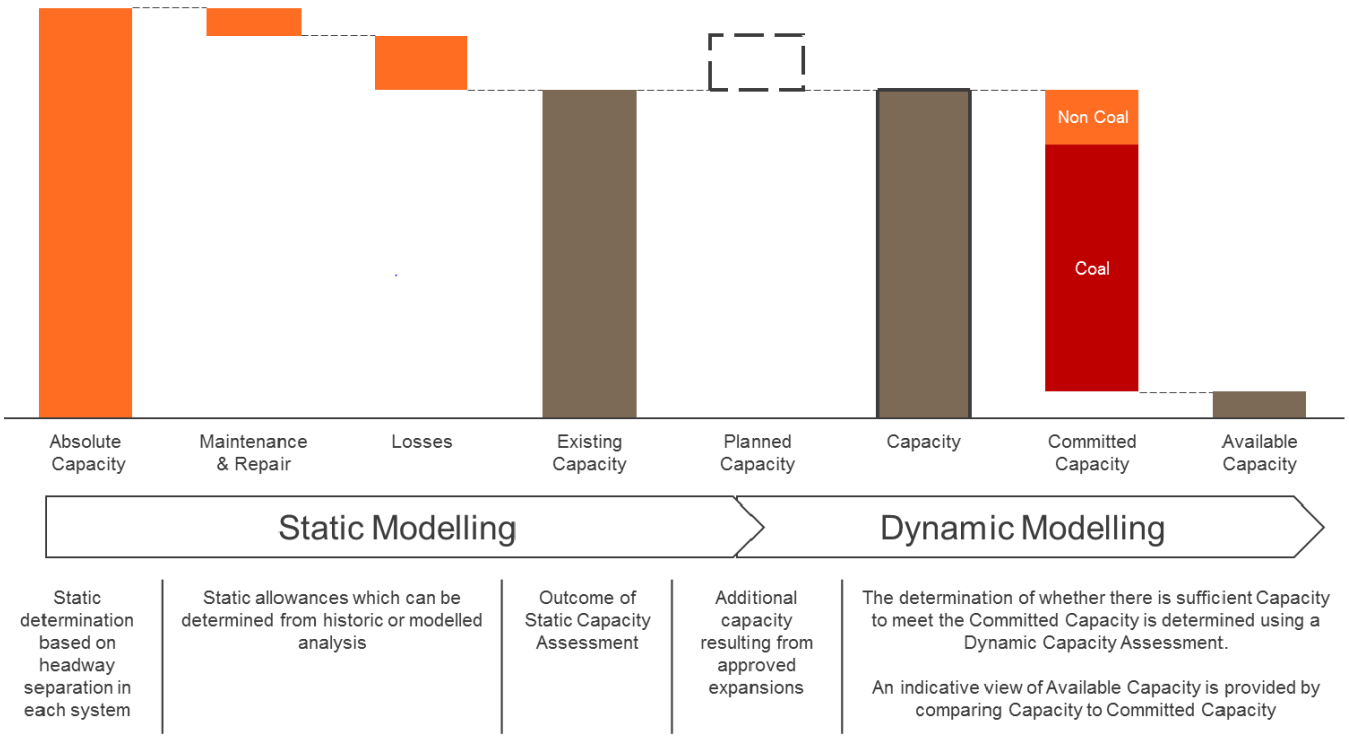

Figure 5.1: Contributing factors in Aurizon Capacity Assessments

The Absolute Capacity takes into consideration the minimum train headway and therefore the number of available train paths on the longest section of track in the system, rather than all of the key metrics and inputs from the System Operating Parameters listed above. Absolute Capacity is not a fair measure of the overall system capacity, as it represents an 'ideal-case' scenario without restriction. Maintenance possessions, on-track plant delays, speed restrictions and other losses are not accounted for the Absolute Capacity. These impacts are well documented in the Aurizon 2016 System Operating Parameters, being based off historical evidence and actual maintenance planning.

With the incorporation of planned and unplanned network impacts, planned capacity expansions and simulation within their dynamic model, known as the Central Queensland Supply Chain Model, Aurizon determine the system Capacity figures. These figures are however, subject to various modelling inputs and assumptions by Aurizon, including:

- Modelling inaccuracies and variance from actual operations
- Assumptions on maintenance delays
- Assumptions on loading, unloading, provisioning, crew changes and other potential delays.

5.1.2 GHD Report

The above points have been discussed in greater depth within the GHD *Review of Aurizon Network's Baseline Capacity Assessment Report,* March 2018, reviewing the Aurizon Network Baseline Capacity Assessment, as detailed in the 2016 Baseline Capacity Assessment Report. GHD were engaged by the QCA in August 2017 to review and comment on the methods and assumptions used by Aurizon Network to determine the various capacities, as detailed in Table 5.1.

GHD recommended that the QCA accept the Aurizon Network Baseline Capacity Assessment, but had concerns in the following areas:

1. Aurizon Network dynamic modelling is undertaken in discrete one-month periods. GHD do not accept Aurizon Network's modelling practice in this regard. Aurizon Network CQSCM is capable of modelling for periods of time beyond a one-month period and indeed beyond a one-year period. The system Aurizon Network manages operates 24/7. The long-term operation of the systems bears little resemblance to what has been dynamically modelled. Modelling a 24/7 coal system using a model that resets itself each month affords no continuity and does not take into account congestion that may and is likely to spill-over from month to month and hence compound. GHD consider that restricting the modelling period to one-month intervals does not accurately reflect a 24/7 coal rail system and the limitations of track infrastructure.

2. GHD also had concerns with respect to the brief warm up period of 7-days used prior to recording system data for modelled runs. A longer period is preferred to ensure the system reaches a "steady-state" and therefore mimics the actual system. GHD recommend a 30-day warm-up period be adopted to reflect how Train Service Entitlements (TSEs) are contractually provided (i.e. on a monthly basis) to access holders. Aurizon Network provided GHD with a summary chart to indicate that applying a range of 7-day to 30-day warm-up period to a one-month simulation had a negligible impact on the number of available TSEs. Without seeing the raw data for this simulation, GHD were unable to verify accuracy of Aurizon Network's analysis.

3. GHD recommended that Aurizon Network's dynamic modelling at critical supply chain interfaces should reflect what exists in practice, rather than being modelled on contracted positions which do not always align with existing physical infrastructure or timing. Aurizon Network advised GHD that it adopted time at port assumptions based on maximum conditions expressed in Access Agreements. GHD's analysis of CQSCM cycle time data suggests that this approach has not been undertaken in all cases. GHD disagree with Aurizon Network methodology to model the value specified in Access Agreements for time at the port. Access Agreements do not reflect what is expected to occur on a day-to-day basis but reflect, commercially, the maximum time threshold in which a train should be at the port. Assuming worst-case port times but modelling more realistic rail components can only serve to make rail operations "appear" better than perhaps really occurs. GHD recommends taking a midpoint of historic time at port while ensuring this time does not exceed the maximum quoted in Access Agreements.

4. GHD consider Aurizon Network's static modelling assumptions to be conservative and attribute to a comparatively low Existing Capacity determination when compared against industry. This has a direct impact on the determined Available Capacity, given that Existing Capacity is calculated by subtracting (from Absolute Capacity) track non-availability that takes into account track possession times for track maintenance and renewal activities (15% of Absolute Capacity across the CQCN) and other losses (between 21.5% and 28.5%) arising from, for example, unplanned maintenance and network reliability factors. GHD note that Aurizon Network also use different estimates for track outages due to maintenance between its dynamic (planned maintenance schedule) and static (standard 15%) models.

Further to the above comments and concerns regarding the Aurizon Network modelling, GHD made the following recommendations regarding the Capacity of each system:

- Goonyella - GHD recommended that Aurizon Network's assessment that there is sufficient capacity to accommodate current TSEs is accepted. However, GHD consider that Aurizon Network's determination of Available Capacity for the Goonyella system is conservative. GHD disagree with Aurizon Network's position that less than 1% capacity exists for additional TSE's (371 new TSE's) in the Goonyella system.

- Blackwater - GHD recommended that Aurizon Network's assessment that there is sufficient capacity to accommodate current TSEs is accepted. GHD also consider that Aurizon Network's determination of Available Capacity for the Blackwater system is reasonable, notwithstanding the conservative assumption of track availability (59.5% of Absolute Capacity) underpinning the figures.

- Newlands - GHD recommended that Aurizon Network's assessment that there is sufficient capacity to accommodate current TSEs is accepted. However, GHD consider that Aurizon Network's determination of Available Capacity for the Newlands system is conservative. GHD disagree with Aurizon Network's assessment that only 2.5% capacity (relative to Absolute Capacity exists for additional TSE's (673 new TSE's) in the Newlands system.

- Moura - GHD recommended that Aurizon Network's assessment that there is sufficient capacity to accommodate current TSEs is accepted. GHD also consider that Aurizon Network's determination of Available Capacity for the Moura system is reasonable, notwithstanding the conservative assumption of track availability (59.5% of Absolute Capacity) underpinning the figures.

In summary of the above, GHD recommended that the QCA accept the Aurizon Network Baseline Capacity Assessment (BCA), but suggest the issues outlined above be rectified in future capacity assessments.

5.1.3 Aurizon Network Response to GHD Report

Aurizon Network responded to the comments and recommendations of the GHD report summarised above in March 2018, with the following key points matching the numbering above:

1. Aurizon Network carried out a 12 month continuous simulation for the BCA to test the difference between the two approaches. A shortcoming of the 12 month continuous process with the available modelling process is that the number of train consists assigned cannot be varied from month to month, as is the practice in actual operations. The analysis carried out indicated that the overall results between the two approaches were very similar, however the monthly process was more accurate due to the train consist quantity issue.

   The GHD Report infers that there may be incidents and events that pass from month to month that are not captured in the simulation model. To clarify, simulation of individual months does capture ongoing events. In particular, the maintenance plan used in the BCA covers a 12 month period and hence, provides continuity to a 12 x 1 month model. The warmup periods overlap into the previous month; hence, any congestion effect created by maintenance activities will develop in the warmup period and continue into the analysis period.

2. Aurizon Network performed an analysis to compare the outputs of simulations run with warmup periods from 7 to 30 days. The results indicate that there is insignificant change in results for warmup periods longer than 7 days, and demonstrate that stability is achieved in 7 days with no material difference in the throughput achieved for all warm up periods.

3. The primary reason for Aurizon Network to perform Capacity Assessments is to determine if there is sufficient capacity to support the Access rights of Access Holders and Access Seekers in line with the obligations and conditions provided for in the agreements. The outcomes from these Capacity Assessments are also used to provide information to Access Holders and Access Seekers regarding the capacity of the Central Queensland Coal Network.

If Aurizon Network were to delink the Capacity Assessment from the commercial terms set out in Access Agreements, this could lead to scenarios where the performance of other access holders outside of their contract would impact the ability of Aurizon Network to either contract capacity or provide capacity in line with obligations.

4. Aurizon Network do not consider that the utilisation parameters used for the calculation of available capacity are conservative when compared to industry and academic sources. Further, based on its experience as a network operator, Aurizon Network considers the parameters used are prudent in relation to the reliable delivery of train services.

   Aurizon Network claim that the majority of the references cited in the GHD Report quote a practical capacity utilisation of 60% to 75%, however it is unclear in a number of these whether maintenance is included. Given Aurizon Network's planning values are 59.5% to 63.75% which includes consideration for maintenance and renewals activities, Aurizon Network does not agree that its determination of Available Capacity is conservative.

5.1.4 Aurizon Maintenance Practices

Aurizon Network announced to its customers, rail and port operators and CQCN supply chain stakeholders on 30 January 2018 that the QCA's Draft Decision on the UT5 Access Undertaking, made on 15 December 2017, would have significant impacts on the CQCN operational efficiency, capacity and reliability.

As a result of the Draft Decision, Aurizon will be making changes to the planning and execution of planned maintenance and capital works. Substantial changes to Aurizon's operating practices, business decisions and maintenance activities were also forecast, with the effect that there would be an initial loss of 20 Mtpa of capacity across the CQCN, with additional losses of capacity likely.

Aurizon Network claim they could not wait for the Final Decision in 2018 before implementing some of the changes stipulated in the QCA's Draft Decision, as the implications will apply retrospectively from 1 July 2017 (when the UT5 regulatory period commenced).

There appear to be two main categories of change, as outlined in Aurizon correspondence to its customers, rail and port operators, and CQCN supply chain stakeholders on 9 March 2018. These two change categories are maintenance practices and rectification works, as detailed below:

Aurizon Network plan to modify their maintenance practises relating to rail defects to reduce risk on long-term track reliability and productivity, and to reduce cost. Rectification of rail defects will be focussed on permanent rather than temporary rectification work, subject to individual circumstances. The focus on permanent rectification work of rail defects is to ensure that, to the greatest extent possible, Aurizon's activities do not result in higher than efficient asset maintenance and renewal costs, or a degradation on the reliability or availability of Aurizon assets.

Aurizon Network also plan to focus on the necessary rectification work for sections of the network where the rail infrastructure is in a degraded state, but has continued to be assessed and operated for an extended period under the asset management framework using a Temporary Approved Non Compliance. The impact on customers will be minimised through planning works to coincide with other maintenance or renewal work where possible.

With the re-assessment of risk to long-term track reliability and productivity, Aurizon inform there will be changes to its maintenance practices to reflect the Draft Decision on UT5. Despite the changes and resulting impact on train path availability, Aurizon have committed to maintaining all contractual and regulatory obligations to current and prospective customers, along with applicable statutory and safety obligations.

5.1.5 Calibre Commentary

Considering the ongoing analysis of the network and recent discussions mentioned above, Calibre forms the opinions regarding the current annual network capacity, under current operational conditions, as shown in Table 5.2. These figures are largely based on Aurizon information and demand profiles, taking into consideration the points raised in the above sections and Calibre opinion to arrive at the figures in Table 5.2.

Table 5.2: Calibre Estimated System Capacity

System	Estimated System Capacity (Mtpa)	Comments
Newlands / GAPE	50	Minimal impact from NCL / non-coal Newer sections in system less affected by increased maintenance regime Single line sections potentially impacted by increased maintenance regime
Goonyella	130	Constrained system operating near capacity Consistent demand profile and operation over previous years Higher potential impacts due to increased maintenance regime
Blackwater	75	Large interaction with North Coast Line and constraints towards port Increased amount of dual track to mitigate maintenance delays Some sections requiring higher levels of maintenance
Moura	20	Available capacity within the system Somewhat constrained and inefficient towards port Significant sections requiring higher levels of maintenance Lower utilisation potentially facilitating higher levels of maintenance
Total	**275**	

5.2 Potential to Expand Capacity

Calibre considers that there is potential to expand capacity of the current network throughout Central Queensland. As with any supply chain, an analysis is undertaken to determine where the constraints are located in the system, and the optimal location for upgrade works. In the CQCN, this could involve the aspects discussed in the following sections.

Many programs have been explored by Aurizon and others to expand the existing network. Previous examples include QR Network's 2009 Coal Rail Infrastructure Master Plan, and the Queensland Government's CoalPlan 2030 released in 2010. Aurizon also released the Network Development Plan, most recently published for the 2016-2017 period. This Plan details Aurizon's medium to long term approach to development options to achieve an increase in tonnages on the CQCN. The Plan investigates all types of investment to increase tonnage on the systems, including track, signalling, rollingstock and operations.

Recently implemented major expansions include the Goonyella to Abbot Point Expansion Project, the Wiggins Island Rail Project Stage 1. Further expansions were also investigated, being subsequent stages of the above projects and expansions such as the Surat Basin Railway and Galilee Basin contributions. However, Aurizon predict that future expansions may be smaller, in line with incremental expansions in existing port facilities.

5.2.1 Track Upgrades

As Aurizon have identified, there are sections of the network that are under-performing and causing operational delays, which can be addressed with improvements to the infrastructure (refer Table 5.3). These sections are identified by hi-rail inspection, notification from operational staff, train crew or the control centre. Upgrades would usually result in the removal of speed restrictions or other operational constraints to allow the faster running of trains.

Table 5.3: Summary of Track Upgrades

Activity	Description	Comments
Track Upgrades	Removal of poor embankment causing uneven track conditions	Minor track defects are usually addressed with periodic maintenance by the ballast tamping machine, but if the issue emanates from below the track structure, the embankment may need to be re-built. The cost of embankment replacement is significant, due to the need to remove existing rail, sleepers, ballast and capping layer. The foundation often needs treatment or repair with earthworks equipment, then subgrade is then re-constructed with stiffer material, capping replaced and track structure reinstated.
	Removal of rail defects causing unreliable conditions and operational constraints	Wear and tear degrades the rail condition and can even cause premature failure of rail resulting in reduced availability. Minor defects are often addressed with grinding and other maintenance, but sections of rail need replacement periodically. Aurizon undertake a re-railing program across the CQCN as part of planned maintenance activity, but isolated problems can often occur.
	Renewal of sleepers to improve track condition	Much of the older track on the CQCN is constructed of timber sleepers, which degrade over time and reduce the operational reliability. The fastening systems used to attach the rail to timber sleepers can work loose over time and affect track stability. Re-sleepering can be combined with the above two track upgrades.

5.2.2 Additional Infrastructure

With knowledge and assessment of the network, additional infrastructure can be added to the system to increase the throughput (refer Table 5.4). Planning must be undertaken to ensure that any potential upgrades are located and configured such that they contribute to the overall system efficiency; without this the investment is wasted, or will not be realised until other bottlenecks are addressed. Potential changes are modelled to assess their effectiveness and determine the optimal location. The infrastructure tabulated below can be used to expand the system capacity.

Table 5.4: Summary of Additional Track Infrastructure

Activity	Description	Comments
Additional track infrastructure	Passing loops	Where single line track is featured in the network, oncoming trains must wait in passing loops for (typically) loaded traffic to clear. Unloaded trains can then travel to the next passing loop, enter a mine loop or different track section. With additional passing loops at strategic locations, more trains can be accommodated on the network and loaded train movements can be prioritised.
	Duplication, Triplication	Once optimal/maximum effectiveness of adding additional passing loops is reached (due to slowing, stopping and acceleration times) it becomes necessary to duplicate the single line. This largely avoids the need for on-coming trains to wait for each other, increasing overall network efficiency. In busy mainline areas, triplication may be justified for the same reasons.
	Holding roads	Where trains need to queue prior to loading, unloading or entering another network section, it is often efficient to have the queued consist held off the mainline so that through traffic is not delayed.
	Grade easing, curve easing, additional cant	Changes to the current geometry of the railway can also provide benefits in areas where the train speed is affected. Minor changes can often be achieved inside the existing railway constraints, but major changes require additional land acquisition and construction of new track.

5.2.3 Train Consist Configuration

It is technically possible to modify train parameters to increase the system capacity. For example, an increase in the payload of each train to increase the capacity of the network. The CQCN operates on a 26.5 tonne axle load, whereas other Australian heavy haul systems feature 40 tonne axle loads. However, there are no simple solutions in this regard, which is discussed further below in Table 5.5.

Table 5.5: Train Consist Configuration Options

Activity	Description	Comments
Train consist configuration	Increased axle load	Any increase in axle load would require assessment, upgrade and potentially replacement of bridges and other drainage structures. The track structure would also require assessment and upgrades, or at least increased maintenance to facilitate the greater axle loads. Speed restrictions could be placed on the loaded consists to negate some of the above requirements, but again, this would also have a negative impact of system efficiency. There are limitations with the current wagon fleets, which are designed for a specific load and volume. A slight increase in allowable axle load and therefore wagon payload may be able to be accommodated without a new fleet. Minor modifications may be necessary.
	Longer trains	With an increase in axle load unlikely as discussed above, longer trains appear a more attractive option. However, significant infrastructure changes would also be necessary to accommodate longer trains, including lengthening of passing loops, yards and depots, along with changes to the signalling systems. Additional locomotives may also be required for the longer trains, further adding to the required length of consist. The locomotives may need to be distributed throughout the consist to limit the in-train forces. Performance of the train will also need to be assessed for the impact on sectional run times and braking / acceleration.
	Additional consists	It is feasible to make additional consists available in each system. However, if the number of trains are not the constraint, it will have little effect on throughput, and may impact operational efficiency due to congestion. The requirement for additional rollingstock would need to be assessed in line with tonnage demand and ability of the network infrastructure to accommodate additional trains.
	Additional locomotives	Placing additional locomotives in the train consist can increase the performance of the train, potentially reducing the cycle time if there are no other constraints or congestion cancelling out the gains.
	Rollingstock reliability	Ongoing assessment of the delays caused by rollingstock issues would allow focused improvement in the areas generating the most frequent and longest delays. This is a core focus of Aurizon, so there is unlikely to be any easy or cheap improvements in this regard.

5.2.4 Operational Improvements

There are other operational improvements that could be investigated and would likely contribute to an increase in overall network capacity (refer Table 5.6). These are both within the rail network, and the broader supply chain system.

Table 5.6: Summary of Operational Improvements

Activity	Description	Comments
Operational improvements	Signalling projects	Signalling technology has progressed since the CQCN was developed, but the signalling system is gradually being updated to the more efficient Remote Control Signalling across the network. While it would be too costly to refurbish the entire CQCN with a system such as European Train Control System (ETCS), a reduction of headway would allow trains to run closer together, and increase the capacity of the network. There are many small improvements that can be made across the CQCN to incrementally increase capacity.
	Power system upgrades	Where the network is electrified, train spacing is often limited by the ability of the overhead traction system to supply multiple trains. Additional power feeds and associated infrastructure would allow trains to run with reduced spacing.
	Loading and unloading capacity	The system capacity can be increased by reducing the loading and unloading times of trains. While material handling capacity increases are often expensive to implement once the facility is built, there may be incremental changes that can be utilised to improve efficiency. Analysis and improvement should extend from the mine, stockpile, loadout facility to the train loading process. Similarly, at the port, assessment and improvement can extend from the dump station, materials handling and stockyard management to the shipping strategy.
	Yard and provisioning delays	There are inefficiencies in the network in constrained areas such as Callemondah and Jilalan. A decrease in time spent in the yards would contribute to the overall system capacity, or at least have the potential to save on additional consist / infrastructure when an increase in capacity is required.
	Train crew delays	Due to the variable nature of the train cycle time, it is not uncommon for the train crew to have to stop mid-trip to change over. The operating train is parked in a passing loop or other available area while the train crew hands over. Reduction in these delays would contribute to greater system capacity, however ‘day of operations’ delays often supersede any planned efforts.

With an expansion of the CQCN and resulting increase in capacity using the above strategies, it will be necessary to construct additional balloon loops and coal handling infrastructure at the ports, considering any currently available capacity or planned upgrade projects already underway. New port terminals or major expansions may also be required to support the additional tonnage. Detailed modelling and analysis on the supply chain, including the port coal handling and shipping strategies of all stakeholders would be undertaken to determine the optimal timing and location of port infrastructure upgrades.

5.3 Extent, Cost and Timeframe of Capacity Expansion

There are incremental increases that can be investigated and implemented to expand the capacity of the current facility. As discussed in the above sections, discreet de-bottle-necking projects, additional passing loops, duplications, yard and provisioning improvements, operational changes, and signalling upgrades can be used to increase the network capacity.

Expansion of the network needs to be undertaken with guidance from an accurate simulation model to identify the most appropriate and most cost-effective upgrades.

As an example, the addition of one extra passing loop on a long single line section can allow an additional consist to be added to the mine-port cycle. Provided there is available rollingstock, there are available train paths across the network, and that no other constraints limit the network throughput, the addition of passing loops would result in additional capacity. Refer Table 5.7 for an explanation and cost estimate for this example.

Table 5.7: Extent and Cost of Capacity Expansion (passing loop example)

Upgrade	Description	Approximate Cost
Passing loop (Holding road)	Approximately 2km long, allowance for earthworks, drainage, track, turnouts, signalling integration, closure works. Duration of approximately 6 months for construction when delivered as a discreet project, depending on earthworks volume, drainage and bridge requirements and network closure schedules.	$20m

The above example is a simplistic view, and an additional passing loop may not be the most effective upgrade for a system where there are other interfaces and constraints. Aurizon Network demonstrate the relationships and key factors contributing to the network throughput in Figure 2 of their 2016 Network Technical Strategy, as seen in Figure 5.2 of this document.

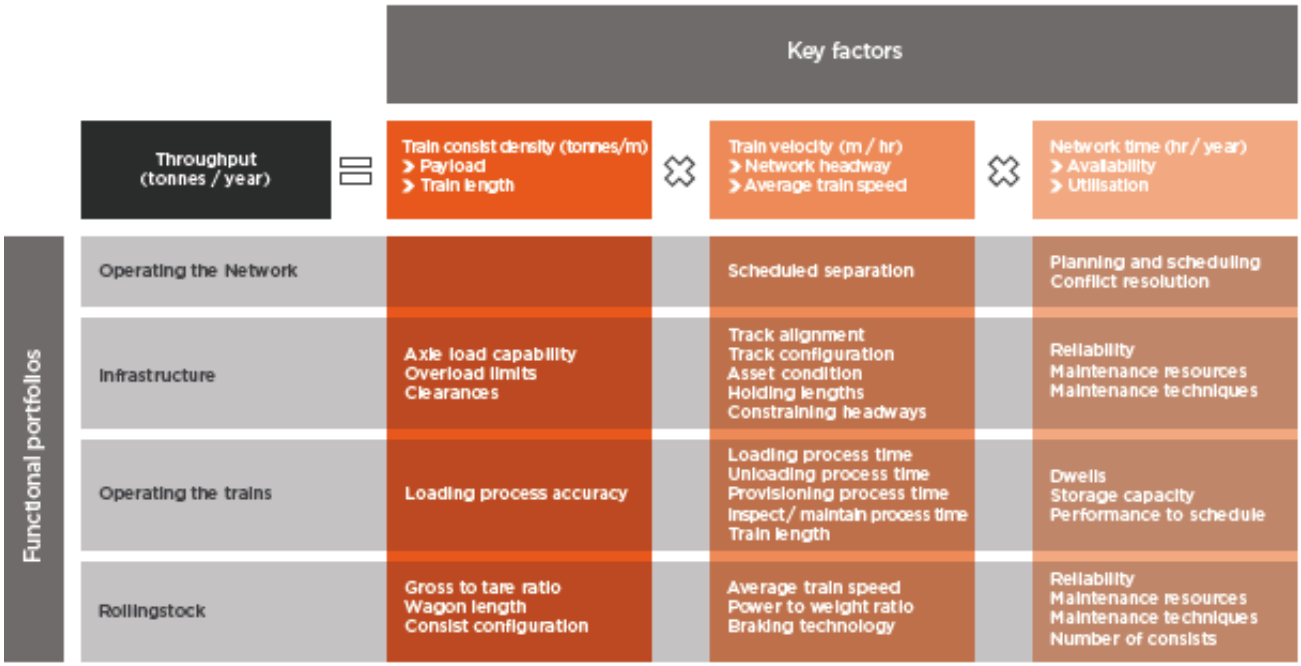

Figure 5.2: Aurizon Network Throughput - Key Factors

Aurizon outline their pre-concept level studies in their Network Development Plan, designed to identify and evaluate options to meet potential future demand, and as a basis for concept studies when additional tonnage is requested.

Calibre developed a view on current CQCN capacity and calculated foreseeable excess requirement, based on RBB foreseeable demand figures. These values are tabulated in Appendix E. For the entire network, foreseeable demand significantly exceeds Calibre's estimate of current capacity.

Based on Calibre's metrics, upgrades will be required in the Goonyella, Blackwater, and Moura Systems to meet this foreseeable demand. The Newlands System should not require upgrades to meet foreseeable demand for the relevant period.

5.3.1 Goonyella System

There is limited available capacity on the current Goonyella system at this time. Expansion works are likely to be required should there be any existing mines seeking additional tonnage, or additional access seekers requiring new tonnage. Further, increased capacity of the Goonyella network will need to be undertaken in conjunction with port capacity upgrades at Dalrymple Bay and Hay Point terminals.

Aurizon Network identify the main constraint on Goonyella system as the train headway between Hatfield and Yukan, where the railway traverses the steep grades of the Connors Range. Aurizon suggest that an improvement in constraining headway and increased train velocity would allow greater throughput, and identified two alternative methods to achieve this. These alternative methods are construction of a third track (estimated by Aurizon at $800m), or a decrease in headway (estimated by Aurizon at $100m) over the same section. The decrease in headway would be achieved by 'an operational change and investment'.

Both alternatives suggested above require additional rollingstock to support the increase in tonnage, which is appropriate given the current equipment and regime.

In addition to the above alternatives, a fourth loop is required at Dalrymple Bay to cater for the additional throughput, at an estimated cost of $45m.

These upgrades would satisfy the foreseeable requirement over the relevant period. The proposed upgrade configuration appears to be a reasonable investment, although the decreased headway on the Connors Range section appears to be a more cost-effective option than a third track for the required tonnage and timeframe.

5.3.2 Blackwater System

The additional foreseeable demand on the Blackwater system is calculated by taking into consideration current tonnage, forecast maintenance impacts and other system constraints. When considering the supply chain as a whole, it is necessary to also consider the current and future tonnage of the Moura system, as towards the port the two systems combine.

Aurizon indicate there is considerable available capacity in both the Blackwater and Moura systems in the 2016 BCA, suggesting that the current overall system capacity constraint is not specifically due to the railways. Given recent upgrades were completed on these systems as part of the Wiggins Island Rail Project, this appears reasonable.

Indeed, the first upgrade of the Blackwater system proposed by Aurizon in the 2016 Network Development Plan (NDP) is the addition of a fourth balloon loop at the RG Tanna Coal Terminal. In the various infrastructure scenario concepts investigated by Aurizon, this upgrade appears to be the first infrastructure required to increase system capacity. However, this upgrade is triggered when the capacity reaches 110 Mtpa.

It is possible that this investment can be delayed a number of years, and other low-cost network improvements carried out to extract some more capacity prior to the additional balloon loop commitment. Further study would be required to see if, for example additional sets of signals on the North Coast Line or approach to Gladstone would reduce the headways to allow increased throughput. However, these options do not appear as low-cost alternatives in the NDP.

While not a large investment in railway capital expenditure terms (estimated by Aurizon at $40m with current train lengths), the additional balloon loop at RG Tanna would allow a capacity increase of 30 Mtpa, with 24 Mtpa coming from the Blackwater system as indicated in the 2016 NDP. The cost of a balloon loop is not considerably greater than the cost of an additional passing loop, at approximately $20m. Given that comparison, the balloon loop represents good value. There would of course be additional investment in rollingstock to support this tonnage increase and associated below rail maintenance, as for any significant capacity expansion.

The additional balloon loop at RG Tanna would satisfy the foreseeable requirement over the mid-term. However, if the ramp up continues to increase as forecasted by RBB, a second balloon loop at WICET will also be required, at an approximate cost of $50m. If there are changes to the train consists using the Blackwater trunk (additional wagons / locomotives), the investment in a second WICET loop may be able to be delayed. However, the increase in loop lengths and associated changes to the signalling system across the network would outweigh the cost of a balloon loop.

The proposed balloon loops appear to be a reasonable investment, although with further investigation, there may be low-cost interim options to delay construction of the balloon loops (e.g. signalling upgrades, reduced headways or reduction of North Coast Line interactions) to address the foreseeable tonnage and timeframe. The balloon loops would also add future proofing to the network, so are an advantage in that regard. It is worth considering, subject to commercial arrangements, whether additional tonnage can be balanced between other Gladstone terminals from year to year as interim solutions.

5.3.3 Moura System

The Moura system currently supports a limited number of mines, with key tonnage originating from the Callide, Dawson and Baralaba areas. The Moura System is single line, comprising a total track length of 315km with 14 passing loops, as detailed in the Moura System Information Pack, Issue 7.0. The Moura trunk line has eight passing loops located at Stowe, Stirrat, Clarke, Fry, Mt Rainbow, Dumgree, Annandale and Belldeen.

The system has a number of constraints that have typically influenced throughput, which will need to be addressed to increase the system capacity. These constraints are:

- Speed restrictions on sections of the mainline due to areas with sub-optimal track condition;
- Tighter curves and steeper grades than optimal, thereby increasing sectional run times;
- Constrained paths towards port in the Gladstone area, with multiple interfaces and movements; and
- Areas requiring significant maintenance after weather events.

There is a large difference in the current tonnage transported to the foreseeable demand, requiring significant upgrades to the Moura system. The current main line is suitable for 26.5 tonne axle load, comprising 60kg/m rail and concrete sleepers, allowing 80 km/h maximum line speed. The current geometry and alignment of the railway is not ideal for heavy haul in some sections. The alignment features areas of expansive soils, crosses major watercourses, and traverses multiple ranges. There are sections where the maximum achievable speed is as low as 23 km/h due to steep upward grades. There are other areas where the speed is restricted to 40 km/h due to steep downward grades.

Aurizon's preferred method for increasing capacity is to upgrade the existing asset rather than adopting a new alignment to avoid these sub-optimal sections. Upgrades have been investigated in projects such as the Banana to Wooderson Upgrade Project, Moura Link Project, and increased port capacities. The proposed increase in tonnage is largely derived from the Surat Basin Railway (SBR), which originates to the south of Moura. A large greenfield upgrade project of 210 km is proposed to link to the SBR to the existing network at Banana. Additional capacity will be required on the Moura System to accommodate demand from Surat Basin.

In order to meet the foreseeable demand, Calibre recommends the system upgrades in Table 5.8, proposed in Aurizon's 2016 Network Development Plan (NDP). The below upgrades will require commensurate increase in port balloon loops and unloading facilities.

The tonnage ramp-up is relatively sharp from the SBR, so many of the upgrades are required for the first year of operation (2027), with progressive expansion over the next several years. Note that Table 5.8 does not include the construction cost of the Surat Basin Railway, but focuses on the upgrades to the Moura line, which will be required to accommodate the additional demand.

Table 5.8: Moura System Suggested Upgrades

Suggested Upgrade	Year Required	Strategy	Cost ($m)
Construct WICET third loop[1]	2026	Initial ramp up	40
Construct Moura Link	2026	Initial ramp up	400
Construct Moura main line passing loop	2026	Initial ramp up	20
Moura main line formation strengthening	2027+	Progressive	100
Construct additional main line passing loops	2027+	Progressive	20 each
Duplicate Moura main line sections	2027+	Progressive	$7m / km

1 – Assuming the 2nd WICET Loop has already been constructed to cate for additional Blackwater system tonnage at this point.

It appears there is an initial investment of at least $460 million to facilitate the first years of the Surat Basin tonnage along the Moura system. Once railings commence, it is likely that there will be an ongoing works program (potentially costing in the order of $100m per year) that will initially see additional passing loops constructed and the existing formation strengthened, and eventually result in much of the main line being duplicated.

5.4 Cost of Alternative Facility

It is technically feasible to construct a parallel railway network in Central Queensland. However, there would be significant challenges to overcome to gain approval, support, funding and patronage to implement such an exercise.

Calibre has developed an 'order of magnitude' estimate rate of $7.0 million per kilometre, to assess what the potential costs of a comparable railway to the existing CQCN, with the following parameters:

- Total track length is taken from the Aurizon Network System Information Packs to quantify comparable network track length. It is likely that the route could be shortened with a new network, and interaction with the North Coast Line avoided.
- If the new facility shares tonnage with the existing CQCN, the amount of duplicated railway allowed in the track length can be reduced.
- Assumptions are based on utilising the same port infrastructure (dump station, conveyors, stock piles, reclaimers, ship loaders) being used, and as such no port costs are included.
- Similarly, assumptions are based on using the same mine infrastructure (train load out) being used, and as such no mine costs are included.
- Railway construction rates taken from Calibre estimating database for comparable Queensland heavy haul rail projects
- The rates do not include approvals, land acquisition and other owner's costs.
- The rates do not include electrification, which is likely add another $1 million per kilometre (approximately).

The cost breakdown contributing to $7.0 million per kilometre is summarised in Table 5.9 below.

Table 5.9: Cost Structure of Alternative Facility

Break-up	Discipline	Percentage (%)
Greenfield Non-electrified	Embankment & Cuttings	24
	Roads & Crossings	5
	Bridges	20
	Drainage	5
	Tracklaying	14
	Signalling	3
	Communications	2
	Miscellaneous (Access Road & Water)	3
	Construction Facility (including Accommodation)	13
	Detail Design	4
	Construction Management	7
	Total	**100**

The total estimated cost of an alternative rail facility running parallel to the existing CQCN is approximately $19,734 million. This cost is broken down by network in Table 5.10 below.

Table 5.10: Cost of Alternative Parallel Facility by Network

Estimate	Comparable System	Length (km)	Rate ($m / km)	Cost ($m)
Greenfield	Blackwater	1171.361	7.0	$8,200
Non-electrified	Moura	315.094	7.0	$2,206
	Newlands	311.416	7.0	$2,180
	Goonyella	1021.319	7.0	$7,149
	Total	**2819.190**		$19,734

Calibre's above cost estimate can be benchmarked against the recent cost estimate for ARTC's Inland Rail project that will run from Brisbane to Melbourne. ARTC's 'Case for Inland Rail' document quotes an estimated construction cost of $10.7 billion for the 1700 km of proposed track. This equates to an estimated cost of $6.3m per km. ARTC's cost estimate was independently verified by industry experts including PB, Aquenta, Arup, GHD, SLR, and Coffey.

ARTC's proposed route for Inland Rail includes 1100 km of major upgrades and enhancements to existing track and rail corridors, and 600 km of new track. The use of existing rail infrastructure and corridors accounts for the reduced rate when compared to Calibre's estimate rate of $7.0m per km.

CENTRAL QUEENSLAND COAL NETWORK REGULATION

Appendix A CVs

HERBERT SMITH FREEHILLS

Todd Webster

Project Manager

BEng(Civ)(Hons), DipPM

Qualifications

Griffith University, Bachelor of Engineering (Civil), Honours, 2001, Diploma of Project Management, 2010, Registered Project Manager (Reg PM) AIPM

Affiliations & memberships

Australian Institute of Project Management, Member, Engineers Australia, Member

Career Summary

2011 to Present
Project Manager, Calibre

2010 – 2011
Senior Project Engineer, Calibre

2009 – 2010
Project Engineer, Horizon Alliance Rail & Road Project

2008 – 2009
Quality Design Verifier, Horizon Alliance Rail & Road Project

2007 – 2008
Project Engineer, Southern Regional Water Pipeline Alliance

2006
Design Engineer, Southern Regional Water Pipeline Alliance

2005
Executive Engineer, KBR

2003 – 2004
Assistant Project Manager, KBR

Todd has sixteen years' experience across multiple disciplines of civil engineering including rail, roads, bridges, earthworks, subdivisions, water treatment plants, pipelines and pump stations.

His exposure to a range of small and large scale projects from both the design and construction disciplines has equipped him with a solid knowledge base of how to deliver a successful project.

Todd's recent roles, as Design Coordinator, Independent Engineer's Representative and Design Manager for various large rail projects in regional Queensland has provided good exposure to both the CQCN and third-party railways.

These projects have provided Todd an opportunity for technical input on railway design, development and operation. Phases have included study, design and construction with interfaces to approval authorities, project stakeholders, clients and railway operators.

Relevant Experience

Areas of Expertise

- Project Management
- Design Management
- Construction Management

Project Experience

Aurizon, Wiggins Island Rail Project; Independent Engineer, 2013-2016
Independent Engineer's Representative responsible for monitoring and reporting progress of the design and construction packages to the Principal mining clients, reviewing risk and opportunity, reviewing project schedule and variations to the project scope and assessing technical and commercial aspects of the project.

Stockland, Caloundra South Rail Alignment Study, 2015
Design Manager and key interface role on this urban rail corridor and alignment study, with deliverables including design documentation and reporting. Key interfaces of the project included DTMR and TransLink. Project resources managed across three offices with multiple clients and key stakeholders.

Adani, Carmichael Mine and Rail Project, Clients Engineer, 2012-2013
Senior Project Engineer responsible for coordinating deliverables from a multidisciplinary team and off-shore sub-contractor for the delivery of FEED study and BFS level estimate for a 200km greenfield railway.

Responsibilities included site survey, construction methodology, risk and safety workshops, schedule management with tight timeframes, client interface, reporting and cost control of lump sum budget, and interface with the off-shore engineering sub-contractor.

Hancock Galilee, Kevin's Corner Project Railway BFS, 2011-2012
Project Manager of the Kevin's Corner Project Railway Bankable Feasibility Study responsible for delivery of the preliminary design, estimate and report of the 20 km heavy haul Greenfield rail project.

Vale, Option 4A Below Rail Bridging Study, 2011
Senior Project Engineer responsible for the management of deliverables across several teams, project strategy, development of scopes of work and

Todd Webster

Continued

Relevant Experience continued

specifications, development of the estimate, production of the BFS report, and client liaison.

Hancock Coal, Alpha Coal Project Railway Bfs, 2010-2011
Senior Project Engineer responsible for the management of deliverables across several teams, project strategy, development of scopes of work and specifications, market pricing through a quotation process, development of the estimate, production of the BFS report, and client liaison.

The project required a value engineering phase in which cost saving ideas were investigated, estimated and reported. This phase involved alignment development, service interface investigation, flood modelling and land resumption plans.

DTMR & Queensland Rail, Darra to Springfield Transport Corridor, 2009-2010
This project involved the upgrade of the existing Centenary Motorway from two lanes to four lanes, with the addition of a rail line in the same corridor.

Project Engineer primarily responsible for the major reconstruction of adjacent arterial roads, involving services, earthworks, drainage, pavement, accommodation works, landscaping and road furniture. Teamwork was required with the design, community, traffic, safety, commercial and quality teams to ensure a successful outcome.

DTMR & Queensland Rail, Darra to Springfield Transport Corridor, 2008-2009
Quality and Design Verifier on the Engineering Management Team responsible for ensuring that construction was undertaken in accordance with the design and specifications in the most efficient way, conducting inspections and releasing hold points in the quality documentation, answering requests for information and review of design documentation prior to construction. Assistance and advice was also given to the construction team in order to ensure the best outcome for the project was implemented.

Linkwater Projects, Southern Regional Water Pipeline, 2007-2008
Project Engineer on the construction phase, responsible for the construction of two large pump stations, office building and a chemical dosing facility. Role involved facets of civil, structural, electrical and mechanical engineering, as well as technical direction, management of site personnel, procurement, quality documentation, project controls and contract management.

Linkwater Projects, Southern Regional Water Pipeline, 2006
Design Engineer during the design phase, responsible for the pipeline design, provision of design documentation of over 90 km of large diameter pressure pipe, pump stations, balance tanks and chemical dosing facilities. Route selection and detailed design were undertaken in the field and office, in addition to managing subcontractors and liaising with construction staff.

Greg Boytar

Principal Civil Engineer

BEng(Civil)

Qualifications

Queensland University of Technology, Bachelor of Engineering (Civil), 1995

Affiliations & memberships

Institute of Engineers, Member

Career Summary

2011 to Present
Principal Civil Engineer, Calibre

2003 – 2011
Director, P Bujtar Pty Ltd

1997 – 2003
Senior Engineer, P Bujtar Pty Ltd

1991 – 1996
Cadet Civil Engineer, Various Consultancies

1986 – 1989
Cadet Surveyor, Various Consultancies

1983 – 1991
Drafter/Designer, Various Consultancies

Greg is a professional civil engineer with more than 25 years of design and construction experience. He has led numerous design and construction teams on major projects in the private, public and mining sectors. Greg has a great depth of experience in all aspects of civil engineering design, construction, and supervision/monitoring of construction.

Greg has extensive structural and civil design experience covering buildings and bridges, roads, hydrology and hydrologic investigations, hydraulic investigation and design, geotechnical interpretation, embankment design, flood modelling, dam wall design, environmental dams/lakes, ROM pad design, haul roads, rail earthworks and drainage, water storage and reuse, decanting basins, spillway design, open channel and piped drainage systems, water supply, sewerage networks and trunk mains.

Project tasks undertaken include design, documentation, supervision and construction structural reviews and recommendations.

Greg has extensive experience with communicating between all levels of Government and regional Councils, as well as the private sector and environmental groups.

Relevant Experience

Areas of Expertise

- Earthworks and Drainage Design
- Hydrology and Hydraulics
- Roadworks, Drainage, Sewerage and
- Water Supply
- Stakeholder Consultation

Project Experience

Greg is currently involved in projects in South East Queensland, Central/Regional Queensland, Western Australia and in Asia.

He has extensive local knowledge and maintains positive and professional relationships with the relevant local and state authorities.

MACH Energy, Mount Pleasant Coal Mine Project – CHPP to TLO, Principal Civil Engineer and Construction Support- Current
The Mount Pleasant Coal Mine Project CHPP – TLO comprises works to support the development of a new coal mine in the Upper Hunter Region of New South Wales.

Greg's responsibilities are to provide all levels of Civil Engineering input, design support, construction management and quality and regular work on-site to support the Calibre/DRA Joint Venture (CDJV) D&C Solution.

Greg's areas of responsibilities encompass all of the earthworks and drainage across the areas of plant, facilities, transfers and overland conveyors to train load out including temporary and permanent works.

Aurizon, Wiggins Island Rail Project, Independent Engineer, 2012 - Current
The Wiggins Island Rail Project is the staged development of new rail lines and upgrading of existing lines to service the new Wiggins Island Coal Export Terminal at the Port of Gladstone.

Greg's responsibilities as Principal Civil Engineer for the Independent Engineer include review of monthly reporting, design reviews, review of repair and

Greg Boytar

Continued

Relevant Experience continued

maintenance works and review of Quality Assurance for all aspects below-rail infrastructure.

MMG, Sepon Sustain Scrubber Project, 2014 - 2016
The MMG Sepon project is an open-pit copper mining operation in Laos. Calibre developed the PFS in 2014, and completed the detailed design and construction support for installation of sizing equipment, scrubber circuit and screening, conveying and pumping of scrubber discharge to an oversize stockpile for transport and process by the existing plant, in 2016.

Greg performed the role of Principal Civil Engineer, providing all Civil Engineering services and solutions. All aspects of design, constructability, construction and commissioning of the new facilities, including design for plant shutdown and commissioning were incorporated in Greg's responsibilities.

Adani, Carmichael Coal Mine and Rail Project, Queensland, 2012 and 2014
Principal Civil Engineer on the Bankable Feasibility Study for development of the Carmichael Coal Mine Project. Greg also provided technical review on the Bankable Feasibility Study for the Carmichael Coal Rail Projects.

Galilee Basin to Abbot Point Coal Terminal, Due Diligence Proceedings, 2012 – 2013
In 2013, Greg was part of a small and specialised team provided to carry out forensic investigation required to complete a Due Diligence process, focusing on the Aurizon solution to transport product coal from the Galilee Basin to Abbot Point Coal Terminal.

BHP Billiton Iron Ore, Western Australia, 2012 - 2013
During his time in the BHP/Calibre Perth Office, Greg was involved as Principal Civil Engineer across a number of BHPBIO projects at various stages, from study to execution. Greg also led a small technical team to advise, assist and verify/amend designs to provide the best outcome for the client while managing risk to the client and third parties operating in the vicinity of the infrastructure under development.

FMG, Western Australia, 2012
Lead/Principal Civil Engineer (technical) responsible for development, verification and implementation of execution earthworks and drainage solutions to rail infrastructure including bridges, waterways, rail-yards and associated works 'below-rail' for the T155 Project for the Fortescue Metals Group Ltd to execution.

Rio Tinto, Western Australia, 2012
Responsible for development and implementation of several drainage solutions and flood studies for impact and surface water management to projects for Rio Tinto Iron Ore in Western Australia. Greg provided oversight and technical input and review/verification to the specialist water team progressing the works relating to flood modelling, flood routing.

Principal/Lead Civil Engineer for transport, earthworks and drainage works progressed from the Queensland Office on multiple projects at various stages from study to detailed design to execution.

Vale 2011-2012
Lead/Principal Civil Engineer in Optioneering and Optimisation of transport of product from pit to port, covering all aspects of below-rail and ancillaries including approvals and Client liaison.

Hancock Coal, Alpha Coal Rail Project, 2011-2012
As Lead Civil Engineer for earthworks and drainage, Greg has been involved in the development and implementation of flood modelling of major and complex systems within Queensland, working face-to-face with external consultants and clients and presenting findings in public and stakeholder consultations.

Greg played a pivotal role in meetings and client presentations, as well as local and state government representatives including the Coordinator General's Office

Greg Boytar

Continued

Relevant Experience continued

and regional offices for Queensland Transport. He led the civil engineering team through successful peer reviews by both private and government engineers.

Greg was the Senior Engineer/Principal Civil overseeing and reviewing all drainage aspects including flood modelling, cross drainage and longitudinal drainage and open channels. All drainage infrastructure was designed to comply with strict, State imposed design criteria. Greg was integral to meetings within all levels of State and Local Government with the Client.

CENTRAL QUEENSLAND COAL NETWORK REGULATION

Appendix B Engagement

HERBERT SMITH FREEHILLS

HERBERT SMITH FREEHILLS

Attention: Mr Todd Webster
Resources Leader
Calibre Professional Services One Pty Ltd
Ground Floor
545 Queen Street
Brisbane QLD 4000
todd.webster@calibregroup.com

4 May 2018
Matter 82654805
By Email

Dear Mr Webster

Confidential and Privileged

Central Queensland Coal Network – 2020 Declaration Review

Your engagement as an independent expert

1 Introduction

We act for the Queensland Resources Council (**QRC**), a not-for-profit peak industry association representing the commercial developers of Queensland's minerals and energy resources.

By acting for the QRC, HSF indirectly act for a selection of its members, being Anglo American, BMA, Fitzroy Australia Resources, Glencore, Idemitsu, Sojitz, QCoal, Peabody, Whitehaven Coal, New Hope, Caledon, Jellinbah, Rio Tinto, Wesfarmers Curragh and Yancoal.

This letter is to confirm Calibre Professional Services One Pty Ltd's (**You/Your**) retainer to act as an independent expert in relation to the consideration of regulatory matters relating to the Central Queensland Coal Network (**CQCN**) which is owned by Aurizon Network Pty Ltd (**Aurizon Network**), and to set out the terms of your retainer.

QRC is responsible for payment of your fees, although your accounts are to be addressed to our office as referred to below.

2 Background

The CQCN, owned by Aurizon Network, is a "declared service" within the meaning of the *Queensland Competition Authority Act 1997* (Qld) (**QCA Act**). Specifically, the "declared service" as defined in s 250(1)(a) of the QCA Act is the use of a coal system for providing transportation by rail, being a service owned by Aurizon Network.

This declaration expires on 8 September 2020.

The Queensland Competition Authority (**QCA**) has now commenced a review (**Declaration Review**) into whether the CQCN should continue to be a "declared service" (in whole or part) following the expiry of the existing declaration in 2020. As part of the Declaration Review, the QCA has published a staff issues paper (**Issues Paper**) which QRC will be making a submission on.

3 Scope of your assignment

We would like you to prepare an independent expert report in which you address economic matters relevant to the regulation of the CQCN. This report may ultimately form part of (or be annexed to) a submission made in response to the Issues Paper or be relied upon in litigation arising out of the Declaration Review.

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T +61 3 9288 1234 F +61 3 9288 1567
herbertsmithfreehills.com DX 240 Melbourne

HERBERT SMITH FREEHILLS

In particular, we request that in preparing your report, you address the following questions:

(1) *What is the current capacity of the relevant facility*?[1]

(2) *Is it reasonably possible to expand the capacity at the facility*?[2]

(3) *If so, to what extent, at what cost and in what timeframe*?[3]

(4) *What would be the cost of building an alternative facility to service excess demand*?

For your assistance, we also include a short guide to preparation of an expert report as Attachment 1 to this letter.

From time to time you may be required to respond to additional matters if and as those matters arise.

4 Confidentiality

Your consultancy report and any drafts prepared in accordance with your retainer are confidential and are not to be copied or used for any purpose unrelated to the purpose for which you are retained without the permission of QRC.

Materials supplied to you by the QRC or Herbert Smith Freehills as their legal advisor are confidential and are not to be copied or used for any purpose unrelated to your retainer without the permission of QRC.

Your report and any drafts prepared by you should also have the following words inserted on the cover page:

> This document is protected by legal professional privilege. To ensure privilege is not waived please keep this document confidential and in a safe and secure place. This document should not be distributed, nor any reference to it made, to any person or organisation not directly involved in making decisions on the subject matter of this document. If this document is requested by a government officer, Herbert Smith Freehills should be contacted immediately to ensure that privilege is claimed over the document and it should not be shown to, nor the contents discussed with, the government officer.

You and any other persons who will be assisting you may be requested to execute a confidentiality undertaking. You may be required to return all documents, copies and workings at the conclusion or termination of your retainer (other than electronic copies of your report and documents relied upon in preparing your report, kept on a secure server for quality assurance purposes).

5 Conflicts of interest

As an independent expert, it is important that you are free from any possible conflict of interest in the provision of your opinions and report. You should ensure that you have no connection with Aurizon Network, QCA and QRC, which would preclude you from providing your opinion in an objective and independent manner.

Please let us know if you have had any dealings with any of the parties, other than your role as Independent Engineer on the Wiggins Island Rail Project (which you have

[1] Staff Issues Paper, '*Declaration reviews: applying the access criteria*', Queensland Competition Authority, April 2018, p 13, criterion (b) – question (6).

[2] Staff Issues Paper, '*Declaration reviews: applying the access criteria*', Queensland Competition Authority, April 2018, p 13, criterion (b) – question (7).

[3] Staff Issues Paper, '*Declaration reviews: applying the access criteria*', Queensland Competition Authority, April 2018, p 13, criterion (b) – question (7).

indicated will not preclude you from providing your opinion in an objective and independent manner).

In addition, if during the course of your retainer period you become aware of an actual or potential conflict of interest, please inform us immediately.

6 Fee estimate

Your rates for this engagement are as per your proposal of 22 November 2017.

Expenses such as taxis, flights, accommodation, parking, couriers, printing etc are to be billed at cost.

You may be asked to provide an estimate of fees. Should you become aware that your fee estimate is likely to alter in a material way, you must notify Herbert Smith Freehills immediately of the likely change and obtain approval for any material increase.

You should present your memoranda of fees by 8 June 2018. This will assist us to deliver an overall memorandum to QRC.

As mentioned above, it is Herbert Smith Freehills' client which is responsible for paying your fees.

7 Liability for fees

QRC will be responsible for the payment of your invoices. However, as Herbert Smith Freehills is engaging you on behalf of the QRC, please forward your invoices to Herbert Smith Freehills' office.

8 Communications

All communications, whether verbal or written, should be directed to our office, so that we can coordinate, manage and integrate work activities with legal requirements and ensure privilege is maintained as appropriate.

9 Your duties and responsibilities as an expert witness

Your role is that of an independent expert engaged to advise Herbert Smith Freehills on behalf of QRC on the technical matters the subject of this retainer.

Though you are retained by Herbert Smith Freehills on behalf of QRC, you are retained as an independent expert to assist Herbert Smith Freehills in providing legal advice to our client. Accordingly, you are expected to be objective, professional and to form an independent view as to the matters in respect of which your opinion is sought.

Your report must give details of your qualifications, and of the literature, documents and other material used in making the report.

All facts and assumptions on which your opinion is based should be clearly and fully stated. You should not omit to consider material facts which could detract from your concluded opinion.

You should give reasons for each opinion. Where appropriate you should also state the methodology you have used.

Until your report is in final form it should not be signed. You should, however, be aware that that unsigned draft reports may need to be disclosed to other parties.

If, at any stage, you change your view on a particular matter, you should inform us in writing of the change of view without delay.

If, despite the information provided to you and the assumptions you have been requested to make, you consider that your opinion is not properly researched because of insufficient data, or for any other reason, you should state clearly that your opinion is a provisional one. Similarly, if you believe that your opinion is incomplete or inaccurate without some qualification, that qualification must be stated in your report.

HERBERT SMITH FREEHILLS

You should make it clear if a particular question or issue falls outside your area of expertise.

10 Acceptance of terms

If the above terms are accepted, please sign and date a copy of this letter and send a copy to our offices by email.

We look forward to working with you.

Yours faithfully

Matthew Bull
Partner
Herbert Smith Freehills

+61 3 9288 1582
+61 448 259 556
matthew.bull@hsf.com

Richard Robinson
Senior Associate
Herbert Smith Freehills

+61 2 9322 4822
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richard.robinson@hsf.com

date 11/10/18

sign here ►

name of expert Mark Cannon

HERBERT SMITH FREEHILLS

Attachment 1

Preparation of your expert report

1 Introduction

Your introduction should contain the following information:

(a) A summary of your qualifications and experience (or reference to the appropriate paragraph in a statement you have previously filed in the proceedings).

(b) The scope of your assignment, including:

(1) the questions you have been asked;

(2) the assumptions (if any) you have been asked to make; and

(3) reference to the appendices or attachments in which these are set out.

(c) A list of people who have assisted you in the preparation of your report, including their qualifications and the roles they played.

(d) Reference to the appendices or attachments setting out the lists of documents you have relied on, and been supplied with.

(e) Each paragraph of the report should be numbered, the pages should be numbered and the report should be in double spacing.

2 Summary of opinions

In the case of reports where a number of opinions have been expressed, a summary of your opinions should appear between the introduction and body of the report.

3 Appendices or attachments

As a minimum, your report must have the following appendices or attachments:

(a) Your curriculum vitae (if this is the first report you have filed in these proceedings).

(b) The question(s) supplied by Herbert Smith Freehills which you answered in your report.

(c) The assumptions (if any) you were asked to make for the purposes of preparing your report.

(d) A list of documents you have relied on for the purposes of preparing your report.

(e) A list of documents supplied to you by Herbert Smith Freehills.

4 Checking the Report

(a) Paragraph numbering and cross referencing

If you have made multiple drafts of your report it will be necessary to check the paragraph numbering remains sequential and that cross referencing is still accurate.

(b) Footnotes

Check footnotes are on the same page as the paragraphs to which they refer.

Check that every document referred to in a footnote is in the list of documents relied on in the appendices.

(c) Documents relied on

Check that every document referred to in the report is in the list of documents relied on in the appendices.

Prepare a copy of every document relied on in your report for sending to Herbert Smith Freehills when your report is filed. In the case of journal articles, internet printouts, media reports, statistics etc, copies of the entire document are required. In the case of text books or other large publications, a copy of the front cover, title page, page showing publication details including edition and year of publication, and entirety of any chapter containing material referred to are required.

(d) Signing off on your Report

When your report is fully completed you must ensure that the last page of the body of the report (ie before any appendices, exhibits or attachments) is signed and dated. There is no requirement for signature to be witnessed.

CENTRAL QUEENSLAND COAL NETWORK REGULATION

Appendix C Documents Relied On

HERBERT SMITH FREEHILLS

Key documents relied on the for the Independent Expert Review

- ARTC, (n.d.), 'The Case for Inland Rail'.
- Aurizon, 2018, 'Aurizon Network Response to *Review of Aurizon's Baseline Capacity Assessment Report*'.
- Aurizon, 2017, 'Blackwater System Information Pack (Version 7.0)'.
- Aurizon, 2017, 'Goonyella System Information Pack (Version 7.0)'.
- Aurizon, 2017, 'Moura System Information Pack (Version 7.0)'.
- Aurizon, 2017, 'Newlands System Information Pack (Version 7.0)'.
- Aurizon, (n.d.), 'Network Development Plan | 2016 - 2017'.
- Aurizon, 2016, 'Aurizon Network Submission 2017 Draft Access Undertaking'.
- Aurizon, 2016, 'Baseline Capacity Assessment Report | Public Release 2016'.
- Aurizon, 2016, 'Network Technical Strategy'.
- Aurizon, 2016, 'System Operating Parameters | Public Release 2016'.
- GHD, 2018, 'Review of Aurizon Network's Baseline Capacity Assessment Report'.
- Queensland Competition Authority (QCA), 2018, 'Staff issues paper: *Declaration Reviews: applying the access criteria*'.
- QCA, (n.d.), 'Aurizon Network – detailed map' [web page].
- Queensland Resources Council (QRC), 2018, 'Baseline capacity assessment' [letter].

CENTRAL QUEENSLAND COAL NETWORK REGULATION

Appendix D Documents Supplied

HERBERT SMITH FREEHILLS

Documents supplied by HSF:

- Nil

CENTRAL QUEENSLAND COAL NETWORK REGULATION

Appendix E Confidential Appendix

HERBERT SMITH FREEHILLS

CONTACT US

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Attachment 3 – Michael O’Bryan QC Opinion

IN THE MATTER OF

THE QUEENSLAND RESOURCES COUNCIL

AND

THE ISSUES PAPER RELEASED BY THE QUEENSLAND COMPETITION AUTHORITY

OPINION

A. Introduction

A.1 Background

1. The Queensland Competition Authority (**QCA**) has published a paper titled "Declaration reviews: applying the access criteria" (**Issues Paper**). The Issues Paper was published in connection with the QCA's review into whether certain services that are taken to be declared until 8 September 2020 under s 250 of the *Queensland Competition Authority Act 1997* (Qld) (**QCA Act**), should remain declared following that date. Those services include the use of any part of the railway network known as the "Central Queensland Coal Network" (**CQCN**), which we address in this opinion. We refer to the service or services constituting the use of the CQCN as the "**CQCN Service**".

2. Our instructing solicitors act for the Queensland Resources Council, whose members include several coal miners who produce coal which is transported using the CQCN Service.

3. We have been asked to provide an opinion on the following questions raised in the Issues Paper (in so far as they concern the declaration of the CQCN Service):

   (a) (**First Question)** In relation to s 76(2)(a) of the QCA Act (**Criterion (a)**): Is the market in which the declared service (i.e. the CQCN Service) is provided a separate market to the market for the provision of above rail haulage services on the CQCN? What factors are relevant to the assessment of this question (which arises from question (4) on page 20 of the Issues Paper)?

   (b) In relation to s 76(2)(b) of the QCA Act (**Criterion (b)**):

      (i) (**Second Question**) What impact, if any, does a hypothetical or yet-to-be-completed rail project (such as the Carmichael Rail Project or the Inland Rail Project) have on the assessment of Criterion (b) (which arises from questions (15)(a) and (b) on page 14 of the Issues Paper)?

(ii) (**Third Question**) What impact, if any, do existing access contracts with Aurizon Network Pty Ltd (which may limit or prevent an access seeker's use of a competitor's service offering) have on the assessment of Criterion (b) (which arises from question (15)(d) on page 14 of the Issues Paper)?

(iii) (**Fourth Question**) Whether costs ancillary to accessing a declared service are relevant in determining whether there is or will be actual or potential substitution between the services of competing facilities (which arises from question (9) on page 13 of the Issues Paper).

4. In Parts B and C of this opinion, we describe the facts and legislation which bear on our responses to the Questions. In Part D we address the First Question, which concerns Criterion (a). In Part E, we outline our views on the interpretation and application of Criterion (b), and the background to the introduction of Criterion (b), and then respond to the Second to Fourth Questions.

A.2. Summary of answers to the Questions

5. With respect to the First Question, in our view the market or markets in which the CQCN Service is provided is or are separate markets to the market or markets in which above rail haulage services on the CQCN are provided. The key factor relevant to this assessment is whether efficiencies from vertical integration of above and below rail services dictate integration between above and below rail operations in the context of the CQCN. We understand that a material proportion of coal volumes on the CQCN are hauled by above rail operators which do not also provide below rail services (i.e. Pacific National and BMA Rail). That provides strong evidence that separate markets exist.

6. As to the Second and Third Questions, Criterion (b) requires the identification of the relevant service the subject of potential declaration, the definition of the market in which that service is supplied, the assessment of foreseeable demand in that market and the resolution of the question whether the facility for the service could meet total foreseeable demand in the market at the least cost compared to any 2 or more facilities. Contrary to the suggestion in section 3.3.1 of the Issues paper, Criterion (b) does not require any analysis of current or potential competitors in the market. The question is a natural monopoly question. For that reason, the existence of present or potential future competitors in the market for the supply of the service is only relevant in so far as it provides information relevant to the definition of the market or the costs of a second facility. If the available information suggests that there is a relevant market comprising the use of rail tracks (and associated infrastructure) between geographical localities that might be described as region (or point) A and region (or point) B, the possibility that a further rail line might be constructed that would provide a substitute

service does not relevantly add to the market definition. The only relevance of another rail line or a potential new rail line is that it might confirm the likelihood of substitution between services (adding to the information about the economic boundaries of the market) or provide additional information concerning the costs of a second facility.

7. Likewise, existing access contracts with Aurizon Network (which may limit or prevent an access seeker's use of a competitor's service offering) have little relevance to the assessment of Criterion (b). Their only relevance is to provide information as to foreseeable demand in the market for the service (as the contracts are evidence of such demand). Of course, the identification of total foreseeable demand is not limited by reference to volumes contracted under existing access contracts with Aurizon Network, but must include all potential sources of demand in the market for the service.

8. As to the Fourth Question, in our view ancillary costs are relevant to defining the market for the service for the purposes of Criterion (b), because they are relevant to assessing whether there is likely to be actual or potential substitution between the services of competing facilities. If the service the subject of possible declaration is a rail track service between geographical localities that might be described as region (or point) A and region (or point) B, the substitutes (or competitive constraints) for that service might consist of haulage using different modes (for example road transport) and haulage between different geographic localities. Whether those alternatives are economic substitutes so as to be considered as part of the same market will depend on all costs associated with the service in question and the substitutes, including, for example, the costs of required loading and unloading facilities.

B. Relevant facts

9. The CQCN is a heavy haulage railway network which connects coal mines in central Queensland to the coal export terminals at Abbot Point, Dalrymple Bay, Hay Point and the Port of Gladstone. The CQCN is owned and operated by Aurizon Network Pty Ltd (**Aurizon Network**). It includes four rail systems known as the Blackwater, Goonyella, Moura and Newlands systems.

10. The CQCN is used to transport coal produced by coal miners which have coal mines in the vicinity of the CQCN, including Anglo American, BHP Mitsubishi Alliance, Fitzroy Australia Resources, Glencore, Idemitsu, Sojitz, QCoal, Peabody, Whitehaven Coal, New Hope, Caledon, Jellinbah, Rio Tinto, Wesfarmers Curragh and Yancoal. The CQCN is used to transport coal to port, and in some cases to power stations located in the vicinity of the CQCN.

11. Aurizon Network has entered into access arrangements for the supply of the CQCN Service, in some cases with rail haulage providers, and in other cases with miners. Haulage providers

can use the rights granted under these arrangements to operate trains to supply haulage services to miners. Miners can use the rights granted under these arrangements to operate trains to transport coal, or to obtain haulage services from a haulage provider.

12. The following haulage operators currently operate trains on the CQCN:

    (a) Aurizon Operations Ltd, which is the largest haulage operator, and provides rail haulage services to miners; Aurizon Operations Ltd is a related body corporate of Aurizon Network;

    (b) Pacific National, which is the second largest haulage operator, and provides rail haulage services to miners. Pacific National began providing haulage services in 2009. It is not related to Aurizon Network or any coal miner; and

    (c) BMA rail, which is owned by and provides haulage services exclusively to the participants in the BHP Mitsubishi Alliance (**BMA**). BMA is Australia's largest coal producer, and also owns the coal export terminal at Hay Point, near Mackay. BMA began providing haulage services in 2014. It is not related to Aurizon Network.

C. Relevant legislation

C.1 Declaration framework

13. Part 5 of the QCA Act governs "Access to services". Its object 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"*.[1]

14. Part 5 establishes a regime by which the Minister may "declare" a service.[2] If a service is declared, the provider of that service must negotiate in good faith with access seekers who seek to negotiate an access agreement regarding use of the service, and make all reasonable efforts to try to satisfy the access seeker's reasonable requirements.[3] Disputes arising during negotiations may be referred to mediation or arbitration under the avenues established by the QCA Act.[4]

15. The "services" that may be declared are services *"provided, or to be provided, by means of a facility"*, including *"the use of a facility (including, for example, a road or railway line)"*, and

---

[1] QCA Act s 69E.

[2] QCA Act, s 84.

[3] QCA Act, ss 99 – 101.

[4] QCA Act, Division 5.

"the handling or transporting of goods or other things" (QCA Act, s 72(1)).[5] "Facility" is defined to include, relevantly, "rail transport infrastructure", which has the meaning given in the relevant definition in schedule 6 of the *Transport Infrastructure Act 1994* (Qld). In summary, that definition defines "rail transport infrastructure" to mean "facilities necessary for operating a railway" including, relevantly, railway track and works built for the railway, and certain other identified things associated with the railway's operation but not including other rail infrastructure.

C.2 The declaration of the CQCN Service

16. Under s 250 of the QCA Act, certain services are taken to have been declared by the Minister. This includes the CQCN Service – specifically, the service or services constituting the *"use of a coal system for providing transportation by rail"*.[6] "Coal system" is defined to mean rail transport infrastructure that is:

    (a) part of any of the Blackwater, Goonyella, Moura or Newlands systems (each being a railway described in a diagram in schedule 1 of the QCA Act); or

    (b) directly or indirectly connected to such a system and owned or leased by the owner or lessee of the system (or their related body corporate),

    and include an extension of such a coal system that:

    (c) was built on or after 30 July 2010;

    (d) does not directly connect the system to a coal basin which was not directly connected to the system on 30 July 2010; and

    (e) is owned or leased by the owner or lessee of the coal system (or their related body corporate).[7]

17. Again, "rail transport infrastructure" has the meaning identified in schedule 6 of the *Transport Infrastructure Act 1994*, (QCA Act, schedule 2). The deemed declaration under s 250 expires on 8 September 2020.[8]

C.3 Consideration of the access criteria following the expiry of a declaration

18. At least 6 months (but not more than 12 months) before the expiry date of a declaration of a service, the QCA must make a recommendation to the Minister as to whether the service or

---

[5] The definition of "service" contains certain exclusions that are not material to this opinion (QCA Act, s 72(2)).

[6] QCA Act, s 250(1). Before the introduction of s 250, the CQCN Service was declared under regulation 4 of the *Queensland Competition Authority Regulation 1997* (Qld).

[7] QCA Act, s 250(3) and (4).

[8] Issues Paper, 1.

part of it should be declared, or not declared, with effect from the expiry date.[9] Accordingly, the QCA must make a recommendation to the Minister about whether the CQCN Service should continue to be declared following the expiry of the current declaration.

19. In making this recommendation, the QCA must consider the "access criteria" for the service. It must recommend that the CQCN Service be declared if it is satisfied about all of those criteria; it must recommend that the CQCN Service not be declared if it is not satisfied about all of those criteria; and it may recommend that part of the CQCN Service be declared if it is satisfied about all of those criteria for that part of the CQCN Service.[10]

20. On receiving a recommendation from the QCA about the CQCN,[11] the Minister must declare the CQCN Service if satisfied about all of the access criteria; must decide not to declare the CQCN Service if not satisfied about all of those criteria; and may declare part of the CQCN Service if satisfied about all of those criteria for that part of the CQCN Service.[12]

21. The "access criteria" are identified in s 76(2) of the QCA Act, and relevantly include the following:[13]

> *(a) that access (or increased access) to the service, on reasonable terms and conditions, as a result of a declaration of the service would promote a material increase in competition in at least 1 market (whether or not in Australia), other than the market for the service [**Criterion (a)**]; and*
>
> *(b) that the facility for the service could meet the total foreseeable demand in the market –*
>
> *(i) over the period for which the service would be declared; and*
>
> *(ii) at the least cost compared to any 2 or more facilities (which could include the facility for the service) [**Criterion (b)**]*

22. In relation to Criterion (b), the QCA Act further provides as follows:[14]

> *(3) For subsection 2(b), if the facility for the service is currently at capacity, and it is reasonably possible to expand that capacity, the authority and the Minister may have regard to the facility as if it had that expanded capacity.*

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[9] QCA Act, s 87A.

[10] QCA Act, s 87C.

[11] See the definition of "declaration recommendation" in schedule 1 of the QCA Act.

[12] QCA Act, s 86.

[13] QCA Act, s 76(2).

[14] QCA Act, s 76(3) and (4).

> *(4) Without limiting subsection (2)(b), the cost referred to in subsection (2)(b)(ii) includes all costs associated with having multiple users of the facility for the service, including costs that would be incurred if the service were declared.*

23. The current forms of Criterion (a) and Criterion (b) were introduced by the *Queensland Competition Authority Act 2018* (**QCA Amending Act**), which amended the previous forms of those criteria. The purpose of the changes made by the QCA Amending Act to Criterion (a) and Criterion (b) was to reflect changes that had been made to the equivalent access criteria under the *Competition and Consumer Act 2010* (Cth) (**CCA**). The relevant Explanatory Notes identified that:

> *"While Queensland's access regime is separate from the National Access Regime, the amendments to the access criteria in the Bill are intended to reflect the revised criteria being introduced at the national level."*[15]

24. Following those amendments, Criterion (a) and Criterion (b) under the QCA Act are substantially similar to the equivalent criteria in s 44CA(2) of the CCA; there are differences in drafting style, but those differences do not bear on our analysis. Accordingly, we use the terms "Criterion (a)" and "Criterion (b)" to refer to the relevant criteria under both the CCA and the QCA Act.

D. First Question: market definition under Criterion (a)

25. The First Question, which relates to Criterion (a), is:

> *Is the market in which the declared service (i.e. the CQCN Service) is provided a separate market to the market for the provision of above rail haulage services on the CQCN? What factors are relevant to the assessment of this question?*

26. The First Question arises from one of the consultation questions in the Issues Paper, which asks interested parties to identify the relevant dependent markets for the purpose of Criterion (a).[16] The First Question is significant because if above rail haulage services are provided in the same market as the below rail CQCN Service, the market in which haulage services are supplied is not an "other" market for the purpose of Criterion (a).

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[15] *Queensland Competition Authority Amendment Bill 2018 – Explanatory Notes*, at 1-2; see also similar observations at 5.

[16] Issues Paper, 20, question (4).

27. The First Question raises a question of functional market definition, as it asks whether the supply of above and below rail services, being complementary but functionally distinct services[17] at different levels of the supply chain, occurs in the same market.

D.1 Principles governing market definition under Criterion (a)

28. Criterion (a) reads:

> *"that access (or increased access) to the service, on reasonable terms and conditions, as a result of a declaration of the service would promote a material increase in competition in at least 1 market (whether or not in Australia), other than the market for the service"*

29. The QCA Act defines "market" as *"a market in Australia or a foreign country"*;[18] when "market" is used in relation to services, it includes a market for those services, and other services that are able to be substituted for, or are otherwise competitive with, those services.[19] This definition is relevantly identical to the definition of "market" in the CCA.[20]

30. The concept of a "market", and the approach to market definition under the QCA Act, have not been the subject of judicial consideration. However, the equivalent matters have been extensively considered under the CCA (formerly the *Trade Practices Act 1974* (Cth) (**TPA**)). Given that the QCA Act and the CCA contain relevantly identical provisions governing the meaning of "market", and that Criterion (a) and Criterion (b) under the QCA Act are substantially similar to and intended to reflect the equivalent criteria in the CCA, it is appropriate to have regard to the case law governing market definition under the CCA when interpreting Criterion (a) under the QCA Act.

31. Under the CCA, a market is a notional facility which accommodates rivalrous behaviour involving sellers and buyers,[21] and refers to a place of close competition or in which there is

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[17] The text of the QCA Act recognises that above and below rail services are different services, in that the definition of "service" distinguishes between "the use of a facility (including … [a] railway line)", and "the handling or transporting of goods or other things" (QCA Act, s 72(1)). This distinction is reflected in the definition of the CQCN Service, (described in paragraph 16 above), which clearly contemplates a below rail service. See also *Rail Access Corporation v New South Wales Minerals Council Ltd* (1998) 87 FCR 517 at 524.

[18] QCA Act, s 71(1).

[19] QCA Act, s 71(2).

[20] CCA, s 4E; the only difference of substance is that the CCA defines a "market" as "a market in Australia" unless the contrary intention appears; that difference does not bear on our analysis here.

[21] *Air New Zealand v Australian Competition and Consumer Commission* (2017) 344 ALR 377 at [12] (Kiefel CJ, Bell and Keane JJ).

the possibility of strong substitution.[22] Courts have often observed that the purpose of the "market" concept in the CCA is to identify the nature and sources of competition for the acquisition and supply of goods and services, and to facilitate an assessment of the effects on competition of conduct proscribed by the Act.[23] However, the second aspect of that purpose is only partially apt in the context of Criterion (a), which requires assessment of the competitive effect of access, but not of any proscribed conduct.

32. Markets are usually defined by reference to three primary dimensions: the products that are supplied and acquired, the geographic area of supply and acquisition and the functional level of the distribution chain (for example, manufacture, wholesale or retail) at which the supply and acquisition occurs.[24] As expressed by French J (with whom Spender and O'Loughlin JJ agreed) in *Singapore Airlines Ltd v Taprobane Tours WA Pty Ltd*:

> "*In competition law it [market definition] has a descriptive and a purposive role. It involves fact-finding together with evaluative and purposive selection. In any given application it describes a range of economic activities defined by reference to particular economic functions (eg manufacturing, wholesale or retail sales), the class or classes of products, be they goods or services, which are the subject of those activities and the geographic area within which those activities occur. In its statutory setting the market designation imposes, on the activities which it encompasses, limits set by the law for the protection of competition. It involves a choice of the relevant range of activity by reference to economic and commercial realities and the policy of the statute. To the extent that it must serve statutory policy, the identification will be evaluative and purposive as well as descriptive*"[25] (emphasis added).

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[22] See *Re Queensland Co-operative Milling Association Ltd* (1976) 25 FLR 169 (***QCMA***) at 190; *Singapore Airlines v Taprobane* (1991) 33 FCR 158 at 178 per French J (citing Areeda and Kaplow, Anti Trust Analysis, 4th ed, 1998 at 572); *Seven Network v News* [2007] FCA 1062 at [1773] – [1775] per Sackville J and (2009) 182 FCR 160 at [621] per Dowsett and Lander JJ; *Boral Besser Masonry v ACC*C at (2003) 215 CLR 374 at 458 per McHugh J; *TPC v Australian Meat Holdings* (1988) 83 ALR 299 at 330 per Wilcox J.

[23] *Queensland Wire v BHP* (1989) 167 CLR 177 (***Queensland Wire***) at 187 per Mason CJ and Wilson J, at 195 per Deane J and at 199 per Dawson J; *ACCC v Liquorland (Australia) Pty Ltd* [2006] FCA 826 at [429] per Allsop J, cited with approval in *Seven Network v News* [2007] FCA 1062 at [1763] – [1764] per Sackville J and on appeal by the Full Federal Court in (2009) 182 FCR 160 at [346] per Dowsett and Lander JJ (with whom Mansfield J agreed) and in *ACCC v Metcash* (2011) 198 FCR 297 at [244] per Yates J (with whom Finn and Buchanan JJ agreed at [1] and [2]); *Application by Sea Swift Pty Limited* [2016] ACompT 9 at [181].

[24] See, e.g., *Australian Competition and Consumer Commission* v *Flight Centre Travel Group Limited* (2016) 339 ALR 242 at [67] (per Kiefel and Gageler JJ).

[25] (1991) 33 FCR 158 at 174.

And

"*It [market definition] is a focussing process and the court must select what emerges as the clearest picture of the relevant competitive process in the light of commercial reality and the purposes of the law.*"[26]

33. The boundaries of the product and geographic dimensions of the market are usually defined by considering the products and geographic sources of supply that are economically substitutable for the relevant product (whether a good or service) in question.[27] Consideration of those substitution possibilities enables the actual and potential suppliers in the market to be identified. The Trade Practices Tribunal in *QCMA* explained the meaning of a "market" as follows:

> "*We take the concept of a market to be basically a very simple idea. A market is the area of close competition between firms or, putting it a little differently, the field of rivalry between them. ... Within the bounds of a market there is substitution – substitution between one product and another, and between one source of supply and another, in response to changing price. So a market is the field of actual and potential transactions between buyers and sellers amongst whom there can be strong substitution, at least in the long run, if given a sufficient price incentive...*".[28]

34. In *QCMA*, the Trade Practices Tribunal went on to observe that in assessing substitution, the question "whether such substitution is feasible or likely depends ultimately on customer attitudes, technology, distance, and cost and price incentives".[29] It continued:

> *"in determining the outer boundaries of the market we ask quite a simple but fundamental question: If the firm were to "give less and charge more" would there be, to put the matter colloquially, much of a reaction? And if so, from whom?"*[30]

35. However, the functional dimension of markets is not defined by substitution. Rather, the starting point for identifying the functional dimension of a market is to consider the strength of any complementarity between activities at 2 or more levels of the supply chain. If the complementarity is so strong that efficiencies from vertically integrating such activities within a single firm "dictate" vertical integration, such that a firm could not profitably undertake the activities on a vertically separated basis, this suggests the existence of a single market

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[26] (1991) 33 FCR 158 at 178.

[27] *QCMA* at 190; *Queensland Wire* at 187 – 188 per Mason CJ and Wilson J, at 195 per Deane J, at 199 per Dawson J and at 210 – 211 per Toohey J.

[28] *QCMA* at 190.

[29] *QCMA* at 190.

[30] *QCMA* at 190.

encompassing both functional levels.[31] So, for example, if the efficiencies of vertically integrating above and below rail services in Central Queensland were such that those services were only ever supplied by vertically integrated firms, and it was not profitable to supply either service on a standalone basis, this would suggest the existence of a single market in which both rail track and rail haulage services were supplied. In contrast, evidence that a vertically integrated firm supplies to third parties those goods or services that it supplies to itself by means of its vertical integration is strong evidence of the existence of separate functional markets.[32]

D.2 Application of principles to the market in which the CQCN Service is supplied

36. The answer to the first question depends on the extent of any complementarities between the CQCN Service and above rail haulage services, and to ask whether the efficiencies from vertical integration of those services are such as to dictate that they occur within a single firm.

37. The fact that Aurizon Network and Aurizon Operations are part of the same corporate group suggests that there may be some efficiencies to be achieved from vertical integration of the CQCN Service with rail haulage services. However, the fact that Aurizon Network supplies the CQCN Service for use by Pacific National and BMA Rail, who together haul a material proportion of the total coal volume carried over the CQCN, strongly suggests that above and below rail haulage services can profitably be supplied on a vertically separated basis, and hence that the efficiencies from vertical integration are not such as to *dictate* that integration. Accordingly, the supply of the below rail CQCN Service and the supply of above rail haulage services occur in separate markets. This conclusion is consistent with previous decisions under the TPA and CCA which have identified separate markets for below rail and above rail services.[33] It is also consistent with the view expressed in the explanatory materials which accompanied the introduction of the QCA Act (including Part 5 of that Act), and in the report

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[31] *Re Sydney International Airport* [2000] ACompT 1 (***Re Sydney International Airport***) at [97]; *Re Services Sydney Pty Limited* [2005] ACompT 7 at [117]; *Re Fortescue Metals Group Ltd* (2010) 242 FLR 136 (***Re Fortescue***) at [1043], [1044]. M Brunt, "'Market definition' Issues in Australian and New Zealand Trade Practices Litigation", (1990) 18 *Australian Business Law Review* 86, 122.

[32] *Re Fortescue* at [1037]; *Re Queensland Independent Wholesalers* (1995) 132 ALR 225 at 265.

[33] *Re Fortescue* at [1138] – [1142]. See also *Re Sydney International Airport* at [97], in which the Tribunal, when considering an application for declaration of services provided by certain airport infrastructure, observed: *"Though in the past usually vertically integrated, track services and the running of passenger or freight trains can be, and increasingly are, provided separately. As such, they operate in functionally distinct markets, even though there is perfect complementarity between them."* In the context of s 46 of the TPA, see *Pacific National (ACT) Limited v Queensland Rail* [2006] FCA 91 at [954], [965] and [966] per Jacobson J.

of the "Hilmer Review" which led to the introduction of the access regime under the CCA.[34]

38. Accordingly, in our view the market or markets in which the CQCN Service is provided are separate markets to the market or markets in which above rail haulage services on the CQCN are provided.

E. Declaration Criterion (b)

39. Each of the Second to Fourth Questions concern Criterion (b). It is convenient to consider the proper construction and application of Criterion (b) before turning to each of those questions.

E.1 The interpretation of Criterion (b)

40. Statutory provisions must be construed by reference to their text, context and purpose.[35] As to purpose, as far as possible a court should adopt a construction of the words of a statute which promotes the purpose of the statute.[36] As to context, the construction of a provision of a statute must take account of the language of the statute as a whole.[37] Regard may be had to extrinsic material to confirm that the meaning of a provision is the ordinary meaning conveyed by the text read in context, or to determine the meaning of the provision if it is ambiguous or obscure or the ordinary meaning leads to a result that is manifestly absurd or is unreasonable.[38]

41. Accordingly, the proper construction of Criterion (b) begins with attention to the statutory language used in s 76(2) of the QCA Act. That text should be considered in its context, including particularly ss 76(3) and (4). The purpose of Part 5 of the QCA Act is stated in s 69E (extracted above).

42. The relevant extrinsic materials to the introduction of Criterion (b) in its current form reveal that the access criteria under Part 5 are intended to reflect the equivalent criteria under Part

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[34] *Queensland Competition Authority Bill 1997*, Explanatory Notes at 4 (which gave, as the example of a natural monopoly which had interests in upstream or downstream markets, "a rail operator who also owns the track"); Independent Committee of Inquiry, Commonwealth of Australia, *National Competition Policy: Report by the Independent Committee of Inquiry* (1993) at 240-241: *"Some facilities that exhibit these [natural monopoly] characteristics occupy strategic positions in an industry, and are thus "essential facilities" in the sense that access to the facility is required if a business is to be able to compete effectively in upstream or downstream markets. For example, competition in electricity generation and in the provision of rail services requires access to transmission grids and rail tracks respectively."*

[35] *Network Ten v TCN Channel Nine* (2004) 218 CLR 273 at [10] – [12] restating the principles of statutory construction set out in *CIC Insurance v Bankstown Football Club* (1997) 187 CLR 384 at 408 and *Newcastle City Council v GIO General* (1997) 191 CLR 85 at 112.

[36] Section 14A of the *Acts Interpretation Act 1954* (Qld).

[37] *CIC Insurance v Bankstown Football Club* (1995) 187 CLR 384 at 408; *Project Blue Sky v Australian Broadcasting Authority* (1998) 194 CLR 355 at 381.

[38] Section 14B of the *Acts Interpretation Act 1954* (Qld).

IIIA of the CCA.[39] Accordingly, it is appropriate to have regard to the background to the introduction of Criterion (b) under the CCA as well as under the QCA when considering the interpretation of Criterion (b).

43. Previous decisions of courts and the Australian Competition Tribunal (previously called the Trade Practices Tribunal) on Criterion (b) may also have some relevance to the interpretation of Criterion (b), to the extent to which the statutory language of Criterion (b) in its current form, read against the background to the introduction of Criterion (b), evidences an intention to adopt a particular concept in the same way that it was previously applied by the Court or Tribunal.

44. Stated simply, Criterion (b) poses the question whether the facility for the service could meet the total foreseeable demand in the market, over the period of the proposed declaration, at the least cost compared to any 2 or more facilities. Answering that question involves the following five steps:

(a) first, the relevant service must be identified;

(b) second, the market in which the service is supplied must be identified;

(c) third, an assessment of total foreseeable demand in that market must be made;

(d) fourth, an assessment must be made of whether the facility for the service could meet the total foreseeable demand in that market; and

(e) fifth, if the answer to question 4 is yes, a comparison must be made of the costs of meeting the total foreseeable demand by using the facility and by using any 2 or more facilities.

45. Most of those questions do not give rise to any difficulties of statutory construction. The principles associated with market definition have been articulated by the courts and the Tribunal in the context of the CCA, as discussed above, and would be applicable in the present statutory context. However, the one aspect of the statutory enquiry that might give rise to disagreement is the meaning of the expression "cost".

46. The word "cost" is not defined in the QCA. It may have a range of meanings both as to the particular measure of cost (total cost, variable cost or incremental cost, for example) and the relevant categories of cost. With respect to the latter aspect, the word may mean the costs directly arising to the facility operator from the use of the facility to meet demand, or may mean all costs arising from the use of the facility to meet demand whether those costs are

[39] Contained in CCA, s 44CA*;* see: *Queensland Competition Authority Amendment Bill 2018 – Explanatory Notes*, at 1-2 and 5.

incurred by the facility operator or by the facility user or other downstream market participants. Costs in the latter category could include, for example:

(a) the costs to users arising from the need to transport coal from mine to the relevant rail facility;

(b) the costs to users arising from delays in the transportation of coal on the rail facility because of the need to schedule multiple users;

(c) the costs to users arising from the need to transport coal from the relevant rail facility to a port facility.

47. In our view, the text, context and purpose of the statutory provision support the conclusion that "cost" has a meaning that is broader than the costs directly arising to the facility operator from the use of the facility to meet demand, and would include costs arising from the use of the facility to meet demand whether those costs are incurred by the facility operator or by the facility user or other downstream market participants.

48. As to statutory text, we observe that the expression "least cost" is unqualified. In particular, the statute does not refer to "costs incurred by the facility operator".

49. As to statutory context, there is nothing in the section to suggest that cost is to take a narrow meaning. Indeed, s 76(4) provides expressly to the contrary. That subsection stipulates that the cost referred to in Criterion (b) includes "all costs associated with having multiple users of the facility for the service". The types of costs that are associated with multiple users are costs associated with coordination issues, which are typically costs of congestion and delay to transportation (which give rise to costs of lost productivity). A further indication of the intended breadth of the word "costs" in Criterion (b) is the fact that subsection (4) is stated to be without limitation to Criterion (b).

50. As to statutory purpose, s 69E states that the object of Part 5 of the QCA is to promote the economically efficient operation of, use of and investment in, significant infrastructure. As stated in a number of decisions of the Tribunal when considering Part IIIA of the CCA, the promotion of economic efficiency is best advanced when consideration is given to all costs arising from a particular economic activity, including relevantly access to infrastructure facilities.[40] Conversely, a narrow conception of costs, whereby costs arising from the use of a facility are ignored, is likely to be productive of inefficient outcomes.

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[40] *Re Sydney International Airport* at [205], cited in *Duke Eastern Gas Pipeline Pty Ltd* [2001] ACompT 2 at [59], and *Application by Telstra Corporation Limited* [2009] ACompT 1 at [17]. See also *Re Fortescue*, in which the Tribunal cited this passage from *Re Sydney International Airport* at [836], and observed that social costs *"are clearly relevant"* to the decision whether to declare a service, but should be considered outside of criterion (b) as it then stood (at [845], [846]).

51. A broader construction of "costs" in Criterion (b) is also supported by the legislative history and relevant extrinsic material.

52. Before Criterion (b) was introduced into the QCA Act in its current form, the equivalent criterion (**Previous Criterion (b)**) was: *"that it would be uneconomical to duplicate the facility for the service"*.[41] There were textual differences between the Previous Criterion (b) under the QCA Act and the equivalent provision under the CCA,[42] but they are not material to our opinion. Accordingly, we refer to both provisions as the "Previous Criterion (b)".

53. The Tribunal and courts interpreted the Previous Criterion (b) in different ways over time.

    (a) In *Sydney International Airport*[43], the Tribunal interpreted the Previous Criterion (b) under the TPA as requiring assessment of whether development of another facility would be uneconomical having regard to the associated costs and benefits of development for society as a whole[44] (**Net Social Benefit Test**).

    (b) In *Duke Eastern Gas Pipeline* (***Duke***)[45], the Tribunal interpreted a provision that was closely comparable to the Previous Criterion (b)[46] as requiring a form of natural monopoly analysis – that is, requiring a decision maker to ask whether a single facility could meet market demand for the service provided by the facility at less cost than 2 or more facilities (having regard to costs and benefits to the community as a whole, including productive, allocative and dynamic effects)[47] (**Duke Test**).

    (c) In *Re Fortescue,* the Tribunal interpreted the Previous Criterion (b) under the TPA as requiring a different form of natural monopoly analysis to the Duke Test; that is, requiring the decision maker to ask whether the facility could provide society's reasonably foreseeable demand for the relevant service at a lower total production cost (having regard solely to the costs of producing that service, and not the costs of complementary services) than if provided by 2 or more facilities[48] (**Pilbara Test**). However, in appeals following the decision in *Re Fortescue*, the Full Court of the

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[41] Previously contained in QCA Act, s 76(2)(b).

[42] The equivalent criterion under the CCA was: *"that it would be uneconomical for anyone to develop another facility to provide the service"* (previously contained in CCA, s 44G(2)(b) and 44H(4)(b)).

[43] *Re Sydney International Airport* [2000] ACompT 1.

[44] *Re Sydney International Airport,* [205].

[45] *Duke Eastern Gas Pipeline Pty Ltd* [2001] ACompT 2 (***Duke***).

[46] The provision was s 1.9 of the *National Third Party Access Code for Natural Gas Pipeline Systems*, which read "*that it would be uneconomic for anyone to develop another Pipeline to provide the Services provided by means of the Pipeline".*

[47] *Duke* at [64] and [137].

[48] *Re Fortescue* at [850] and [855].

Federal Court[49] and the High Court[50] held that the Previous Criterion (b) under the TPA should be interpreted by asking whether it would be privately profitable for anyone to develop another facility to provide the service (**Private Profitability Tests**).

54. Following the decision in which the High Court adopted a Private Profitability Test (**Pilbara HC Decision**), the Productivity Commission, and a separate panel tasked with undertaking a "root and branch" review of Australian competition law and policy (**Harper Panel**), considered whether the Previous Criterion (b) in the CCA should be amended or replaced.

55. The Productivity Commission recommended that the Previous Criterion (b) under the CCA be replaced with a provision requiring a new form of natural monopoly analysis (**PC Test**), which was different from each of the interpretations of the Previous Criterion (b) that had been adopted in the past. The PC Test would have required the relevant decision maker to ask whether the facility could meet total foreseeable market demand (including demand for the service provided by the facility and substitutable services) over the declaration period at least cost.[51] The costs to be considered under the PC Test were production costs, including production costs incurred by the infrastructure service provider from coordinating multiple users of its facility.[52]

56. The Harper Panel also recommended that the Previous Criterion (b) should be amended, but unlike the Productivity Commission, it recommended that the Previous Criterion (b) should continue to be interpreted using a Private Profitability Test.[53]

57. The Commonwealth government subsequently announced that it would adopt the Productivity Commission's recommendation to adopt the PC Test, and that this would have the effect of "restoring the test applied prior to the High Court decision in 2012" (i.e., the Pilbara HC Decision).[54] There is some difficulty in this statement, because the PC Test does not in fact adopt any test that had been applied before the Pilbara HC Decision. The PC Test considers only "production" costs, and not the broader social costs and benefits that are considered

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[49] *Pilbara Infrastructure Pty Ltd v Australian Competition Tribunal* (2011) 193 FCR 57 at [99] – [100] per Keane CJ, Mansfield and Middleton JJ.

[50] *Pilbara Infrastructure Pty Ltd v Australian Competition Tribunal* (2012) 246 CLR 379 at [107] per French CJ, Gummow, Hayne, Crennan, Kiefel and Bell JJ.

[51] Productivity Commission 2013, *National Access Regime*, Inquiry Report no. 66, Canberra (***Productivity Commission Report***), 154, recommendation 8.2, p 33.

[52] Productivity Commission Report, 160, 162, 167.

[53] Commonwealth of Australia, Competition Policy Review, Final Report, March 2015, provided by Professor Ian Harper, Peter Anderson, Su McCluskey and Michael O'Bryan QC, 321, 322, 325 (recommendation 42).

[54] Commonwealth of Australia, *Australian Government Response on the National Access Regime* (24 November 2015), 3, and Commonwealth of Australia, *Australian Government Response to the Competition Policy Review* (24 November 2015), 34.

under the Net Social Benefit Test and the Duke Test. Consequently, it is inapt to describe any implementation of the PC Test as "restoring" a previous interpretation of Criterion (b).

58. The Commonwealth government released an exposure draft of a bill to amend the CCA to introduce the following new form of Criterion (b) (**Draft Provision**):[55]

> *(b) that the facility that is used (or will be used) to provide the service could meet the total foreseeable demand in the market at the least cost*.

59. The draft also proposed the following explanatory clause:

> *For the purposes of paragraph (1)(b), the cost referred to in that paragraph is to take into account the costs, to the provider of the service, of co-ordinating multiple users of the facility.* (emphasis added)

60. The exposure draft of the associated Explanatory Materials (**Draft CCA EM**) identified that the Commonwealth government had "decided to implement all of the recommendations of the Productivity Commission".[56] It also observed that the Draft Provision:

(a) required consideration of whether the relevant facility "could meet the total foreseeable demand for the service or a substitute service at least cost", which would in turn require identification of the market in which the relevant service was provided, including any substitute services *"that serve or will serve the market"*;[57]

(b) did not define what "costs" were to be considered, but the Draft CCA EM stated that the relevant costs included the cost to the provider of the service of co-ordinating multiple users of the facility.[58]

61. The Draft CCA EM also noted that costs of *"application for declaration"* should generally not be considered (because they are *"costs of access regulation, rather than the costs of operating the facility"*),[59] and that administrative and compliance costs that may be imposed once a service is declared would be considered under a different criterion.[60]

62. Accordingly, the Draft Provision appears to have been intended to be substantially similar to the PC Test.

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[55] *Exposure Draft- Competition and Consumer Amendment (Competition Policy Review) Bill 2016*, schedule 13, item 3 proposing to insert a new s 44CA.

[56] *Exposure Draft – Competition and Consumer Amendment (Competition Policy Review) Bill 2016, Exposure Draft Explanatory Materials* (**Draft CCA EM**) at [13.13].

[57] Draft CCA EM, [13.22] – [13.23].

[58] Draft CCA EM, [13.28].

[59] Draft CCA EM, [13.29].

[60] Draft CCA EM, [13.30].

63. Following consultation on the exposure draft materials referred to above, Criterion (b) was introduced into the CCA by the *Competition and Consumer Amendment (Competition Policy Review) Bill 2017* (**CCA Amending Bill**). The form in which Criterion (b) was introduced differed from the Draft Provision. The key differences were the introduction into Criterion (b) of:

(a) an express requirement that the cost of using the incumbent facility to meet demand be compared to the cost of using any 2 or more facilities to meet demand;[61]

(b) a provision permitting consideration of expansions to the incumbent facility as part of the "least cost" analysis in certain circumstances;[62] and

(c) the omission of the words *"to the provider"* in the provision that allowed reference to *"all costs associated with having multiple users of the facility (including such costs that would be incurred if the service is declared)"*.[63]

64. The Explanatory Memorandum associated with the CCA Amending Bill (**Final CCA EM**) contains many statements that are similar to those that were included in the Draft CCA EM. However, the CCA EM also expressly states, with respect to the provision referred to in paragraph (c) above, that "*These co-ordination costs could include the costs of lost production or of being allocated less of the service's capacity as a result of the facility becoming a multi-user facility."*[64]

65. The Final CCA EM also gives detailed examples of the types of co-ordination costs that could be considered under Criterion (b). These examples suggest that the costs that can be taken into account under Criterion (b) are much broader than those to be taken into account under the PC Test (which focussed on "production costs" to the facility operator of providing the relevant service). Accordingly, while the Final CCA EM repeats the observation that the Commonwealth government decided to implement all of the Productivity Commission's recommendations,[65] in fact the Final CCA EM makes clear that Criterion (b) is intended to be applied having regard to a broader range of costs than is contemplated under the PC Test.

66. Criterion (b) was introduced into the QCA Act in its current form by the QCA Amending Act. As noted above, the associated Explanatory Notes identified that the changes to the access criteria were intended to ensure that the access criteria under the QCA Act would reflect the

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[61] Equivalent to QCA Act, s 76(2)(b)(ii).

[62] Equivalent to QCA Act, s 76(3).

[63] Equivalent to QCA Act, s 76(4).

[64] Final CCA EM, [12.31].

[65] Final CCA EM, [12.11].

changes that had been made under the CCA.[66] The Explanatory Notes also observe, in relation to the background to the relevant amendments, that the Commonwealth Government had accepted the recommendations of the Productivity Commission.[67] However, for the reasons explained, the text of Criterion (b), read in light of the Final CCA EM, contradicts any suggestion that Criterion (b) implements the PC Test.

E.2 The Second Question: impact of a hypothetical or yet-to-be-completed rail project

67. The Second Question asks, in relation to Criterion (b): what impact, if any, does a hypothetical or yet-to-be-completed rail project (such as the Carmichael Coal and Rail project or the Inland Rail project) have on the assessment of Criterion (b)?

68. The Second Question arises from the following question in the Issues Paper, under the heading "*Identify the relevant market including identify customers and competition in the market*":[68]

> *"What are the actual and/or potential competing services in the market that may be substitutable for the declared service? In particular,*
>
> *(a) To what extent is a hypothetical facility or yet-to-be constructed facility relevant to the QCA's assessment?*
>
> *(b) For the below rail services provided by Aurizon Network and Queensland Rail, will the Carmichael Coal and Rail project and the Inland Rail project provide services in the same market(s)? Also, what is the relevance of other proposed rail projects to the QCA's assessment?"*

69. The Issues Paper expresses the view that:

> *"… criterion (b) only requires an identification and assessment of the cost at which total foreseeable demand could be met by facilities that will be (or are likely to be) in operation during the period for which the service would be declared". As such, staff view is that it is not relevant to consider:*
>
> - *hypothetical facilities; or*
> - *facilities which are unlikely to be in operation during the declaration period."*[69]

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[66] *Queensland Competition Authority Amendment Bill 2018 – Explanatory Notes*, at 1-2; see also similar observations at 5.

[67] *Queensland Competition Authority Amendment Bill 2018 – Explanatory Notes*, at 1-2; see also similar observations at 2.

[68] Issues Paper, 14, questions 15(a) and (b).

[69] Issues Paper, 8 – 9.

70. We take a different view to that stated in the Issues Paper. The analysis required under Criterion (b) is whether the facility is a natural monopoly, as opposed to a monopoly. The Criterion requires a comparison between the costs that would arise if total foreseeable demand in the market were to be served by the facility in question and the costs that would arise if the demand were to be served by 2 or more facilities. It is not relevant to that enquiry whether a second facility has been constructed or is in contemplation. The natural monopoly question is answered by reference to cost considerations in the relevant market. The Criterion does not invite, or require, any consideration of the question whether the facility is likely to remain a monopoly into the future; as such the Criterion does not invite, or require, any consideration of the extent of existing competition in the market, or the likelihood of competition emerging in the relevant market. The natural monopoly question is, by definition, a hypothetical or theoretical question.

71. The existence of present or potential future competitors in the market may conceivably be relevant to the task of market definition, in so far as such facts provide information that is relevant to that task. In the context of rail infrastructure, the market definition analysis would require consideration of possible substitute services (or services that otherwise competitively constrain the service in question) including other rail infrastructure, road haulage or even conveyor type infrastructure. Whether such alternatives are economic substitutes (or otherwise competitive constraints) would depend on questions of commercial and economic feasibility having regard to costs and other land and regulatory considerations. If the available information suggests that there is a relevant market comprising the use of rail tracks (and associated infrastructure) between geographical localities that might be described as region (or point) A and region (or point) B, the possibility that a further rail line that would provide a substitute service might be constructed does not relevantly add to the market definition, save perhaps to provide additional evidence supporting a particular conclusion.

72. The existence of present or potential future competitors in the market may also conceivably be relevant to the cost comparison. The alternative facility or service may provide useful cost information of a second facility, and thereby aid the "least cost" analysis.

73. However, the "least cost" question posed by Criterion (b) is not limited to an analysis of costs of using alternative facilities that are in existence or likely to be built.

E.3 Third Question: impact of existing access contracts on the assessment of Criterion (b)

74. The Third Question asks, in relation to Criterion (b): what impact, if any, do existing access contracts with Aurizon Network (which may limit or prevent an access seeker's use of a competitor's service offering) have on the assessment of Criterion (b)?

75. The Third Question is based on one of the consultation questions identified in the Issues Paper which asks, under the heading *"Identify the relevant market including identify customers and competitors in the market"*: *"What is the relevance, if any, of existing access contracts which may limit/prevent an access seeker's use of a competitor's service offering?"*[70]

76. It follows from our views on the appropriate approach to applying Criterion (b) that access contracts with Aurizon Network (which may limit or prevent an access seeker's use of a competitor's offering) have little relevance to the assessment of Criterion (b). The only relevance of such contracts is to provide information as to foreseeable demand in the market for the service, as the contracts are evidence of such demand.

77. Of course, the identification of total foreseeable demand is not limited by reference only to volumes contracted under existing access contracts with Aurizon Network, since those volumes may not exhaustively comprehend the total foreseeable demand over the declaration period. As such, the assessment of the total foreseeable demand must be undertaken regardless of the extent of information that is available from relevant access contracts, and must include all potential sources of demand for the CQCN Service.

E.4 Fourth Question - relevance of ancillary costs to potential substitution

78. The Fourth Question asks whether costs ancillary to accessing a declared service are relevant in determining whether there is or will be actual or potential substitution between the services of competing facilities. This question arises from the Issues Paper which asks, under the heading *"Identify the relevant market including identify customers and competitors in the market"*: [71]

> *"Are costs ancillary to accessing the declared service relevant in determining whether there is/will be actual or potential substitution between the services of competing facilities (i.e. whether the services are in the same market)? For example, to access the coal handling facility at a terminal, miners need access to above and below rail services. If so, what are these ancillary costs and their magnitude? Please provide information for services provided by competing facilities where relevant."*

79. The Issues Paper states that *"ancillary costs are not relevant to assessing the concept of 'at least cost'. But those costs are relevant to determining whether services are in the same market"*.[72]

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[70] Issues Paper, 14, question 15(d).

[71] Issues Paper, 13, question (9).

[72] Issues Paper, 15.

80. The Issues Paper does not specifically define what is meant by the phrase "ancillary costs". However, the example referred to in the extract above suggests that above and below rail services might impose costs that can be described as "ancillary" to those associated with accessing a declared service. The Issues Paper elsewhere provides a further example of ancillary costs as costs that are necessarily incurred in accessing the service, but not a cost of using the facility (such as additional transportation costs).[73] For the purpose of responding to the Fourth Question, we assume that an "ancillary cost" is a cost which is required to be incurred in order for a person to use a declared service, but is not a cost of using the relevant facility to supply that service.

81. In our view, ancillary costs are relevant to defining the market for the service for the purposes of Criterion (b), because they are relevant to assessing whether there is likely to be actual or potential substitution between the services of competing facilities. As discussed above, if the service the subject of possible declaration is a rail track service between geographical localities that might be described as region (or point) A and region (or point) B, the substitutes (or competitive constraints) for that service might consist of haulage using different modes (for example road transport) and haulage between different geographic localities. Whether those substitutes are economically viable so as to be considered as part of the same market will depend on all costs associated with the service in question and the substitutes, including "ancillary costs" such as the costs of required loading and unloading facilities.

82. By way of elaboration, the costs of transporting coal which might be a source of demand for the CQCN Service from the relevant coal mine to the loading point for the CQCN or a substitutable service would be "ancillary costs". If the relevant mine project was located very close to the CQCN, and several times as far away from the loading point for the alternative service, the costs of transporting the coal to the alternative service may be so high that the use of that alternative service was not an economic substitute. In this situation, the alternative service would not be supplied in the same market as the CQCN Service.

83. There are many examples of ancillary costs that might be relevant in this way. These could include, non-exhaustively, ancillary costs associated with:

    (a) loading coal on to or unloading coal from trains used to transport coal over the CQCN or using an alternative service;

    (b) developing the infrastructure or acquiring the equipment required to enable coal from a particular deposit to be transported over the CQCN or using an alternative service, such as costs of developing roads or loading or unloading facilities, to the extent that

[73] Issues Paper, 15.

that infrastructure or equipment did not form part of the facility used to provide the CQCN Service or the alternative service;

(c) negotiating or obtaining legal rights required in order to use or have access to particular land or infrastructure required to enable the relevant coal to be transported using the CQCN Service or an alternative service; and

(d) costs associated with acquiring haulage services over the CQCN or an alternative service.

84. Therefore, we agree with the statement in the Issues Paper that ancillary costs are relevant to determining whether services are in the same market, because they are relevant to assessing whether there is likely to be actual or potential substitution between the services of competing facilities.

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