CEG COMPETITION ECONOMISTS GROUP

North Queensland Export Terminal
Criterion b

Confidential – 26 August 2025

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1 Introduction

1. We have been engaged by Gilbert + Tobin acting for the North Queensland Export Terminal (NQXT) in relation to the proposed declaration of the terminal Part 5 of the *Queensland Competition Authority Act 1997* (Qld) (QCA Act). We have been asked to provide our opinion in relation to whether the coal handing services provided by NQXT satisfy the criterion set out under section 76(2)(b) of the QCA Act (Criterion b).

2. We have read the Expert's Code of Conduct and have prepared this report in accordance with the Code.

3. We have been assisted in the preparation of this report by our colleagues Dr Ker Zhang, Micheal Boon and Coleton Brubaker. The opinions expressed in this report are held by each of the authors.

4. The remainder of this report is structured as follows:

   - Section 2 contains a summary of our conclusions;
   - Section 3 provides background on the commercial realities and competition within the CQCN;
   - Section 4 provides a theoretical framework around Criterion b and market definition;
   - Section 5 provides an illustrative application of our theoretical framework;
   - Section 6 undertakes an empirical application of our theorical framework to estimate foreseeable demand in the market;
   - Section 7 concludes on if NQXT is least cost to serve foreseeable demand in the market;
   - Section 8 discusses the implications of competition from our empirical analysis to support our conclusions; and
   - Section 9 summarises and critiques the report of Mr Houston.

2 Summary of conclusions

5. This report assesses whether the North Queensland Export Terminal (NQXT) satisfies Criterion b of the Queensland Competition Authority Act declaration criteria. Criterion b requires a determination of whether NQXT could meet total foreseeable demand in the market at least cost compared to alternative facilities. Our analysis draws upon economic theory, evidence of historical and ongoing coordination in the Central Queensland Coal Network (CQCN), and empirical estimates of foreseeable demand and cost structures.

2.1 Commercial realities are instructive of the scope of the market

6. The CQCN is a rail network that creates an interconnected rail and port system in which capacity expansions and utilisation decisions have historically been coordinated to reduce overall system costs. The Goonyella to Abbot Point Expansion (GAPE) exemplifies this. Constructed in 2011, it connected the Goonyella and Newlands rail systems at a cost of $1.2 billion, enabling mines in the Goonyella system to access an expanded NQXT. This investment was underwritten by long-term take-or-pay contracts with key mines (that were aligned across rail and port contracts), demonstrating that serving demand through both NQXT and DBCT was expected to be lower cost than relying on DBCT alone. This system-level logic underscores that the CQCN is managed as a coordinated whole, not as isolated 'monopoly' subsystems.

2.2 Relevant market for assessing NQXT under Criterion b

7. Criterion b requires defining the relevant market as the output from mines that NQXT could profitably serve if it were the only available supplier. This test assesses potential demand for NQXT absent alternatives, consistent with its role as a natural monopoly test. Using a Hotelling spatial competition framework, the relevant market encompasses all mines with positive willingness to pay for NQXT services, accounting for coal prices, extraction costs, and rail haulage costs. This includes not only mines in the Newlands system but also Goonyella mines that have historically contracted with NQXT.

8. In [redacted] we show our stylised estimate of each mine's willingness to pay to export via NQXT. This willingness to pay is calculated as:

   - The FoB value of production from each mine (based on Wood Mackenzie forecasts for mine specific coal grades and associated prices averaged over 2025 to 2030); less
   - Wood Mckenzie estimates of extraction costs and Houston Kemp/QCA estimates of above and below rail transport costs for that mine to NQXT.

9. [redacted] orders the mines from the highest willingness to pay to the lowest willingness to pay in order to derive a demand curve for export via NQXT on the assumption that no alternative terminal was available to that mine. The volume of each mine is represented by each flat portion of the curve. That is, volumes from large mines, like Goonyella Riverside and Carmichael represent long flat portions of the demand curve.

[redacted]

bound has negligible impact on result.

10. It is notable that despite Carmichael being relatively close to NQXT compared to most other mines within this market (such as Lake Vermont, which is substantially further away), [redacted]. This is because [redacted]

11. It is notable that [redacted] is one of the mines in the Goonyella system that has historically contracted with NQXT.[1] This is consistent with the fact that, for miners with

[1] Although we understand that [redacted] Smith Statement at [121].

high value coal, the availability of capacity at NQXT can be much more important than higher costs of transport to NQXT vs DBCT.

2.3 Foreseeable demand in the market cannot be met by NQXT at least cost

12. Applying this framework, we conservatively estimate foreseeable demand in NQXT's market at approximately [redacted] averaged over 2025 to 2030. As noted, this includes demand from Goonyella mines such as [redacted], in addition to Newlands system mines.

13. [redacted] substantially exceeds NQXT's nameplate capacity of 50 mtpa. It also exceeds the capacity of the GAPE and Newlands systems to deliver coal to Abbot Point. While NQXT serves an important share of market demand, it cannot serve the total foreseeable demand without significant and costly expansions. Given the existence of DBCT and other terminals it is lower cost to serve foreseeable demand making use of non-NQXT capacity.

14. Evidence shows that NQXT and DBCT compete for Goonyella mines, [redacted]. Our modelling of duopoly competition using Hotelling the spatial competition model confirms that overlapping markets between NQXT and DBCT result in lower prices and greater consumer surplus compared to monopoly supply (even absent regulation of DBCT). The implication is that NQXT does not hold natural monopoly characteristics: its market is contestable, and efficient outcomes rely on the presence of multiple terminals.

15. Our analysis demonstrates that NQXT cannot meet total foreseeable demand in its market at least cost relative to alternative facilities. While NQXT plays an important role in diversifying export pathways and providing competitive discipline on DBCT and other terminals, it lacks the capacity to serve all foreseeable demand and does not exhibit natural monopoly characteristics. On this basis, NQXT does not satisfy Criterion b.

2.4 Issues with report of Mr Houston

16. In contrast to our analysis, Mr Houston proposes a non-standard version of the hypothetical monopolist (SSNIP) test. The test proposed by Mr Houston only allows two nonsensical conclusions: either that the any firm that is pricing above the "competitive level" will be found *not* to be a monopoly, and a firm pricing at the "competitive level" would be found to be a monopoly.

17. In any event, Mr Houston does not apply his proposed test. The approach actually adopted by Mr Houston appears to define the market to include all mines that prefer

NQXT plus mines that are approximately indifferent between NQXT and DBCT. This is not a market definition, this is an estimate of NQXT's share of the market.

18. Even adopting Mr Houston's flawed approach, Mr Houston failed to assess miners beyond Byerwen. If Mr Houston had done so, and adopted appropriate assumptions (consequential to his implicit conclusion that the GAPE would be significantly under-utilised), he would have found [redacted] As such, even adopting Mr Houston's flawed approach, the foreseeable demand would significantly exceed NQXT's nameplate capacity.

3 Framework for understanding efficient capacity staging and competition in the CQCN

19. In this section we discuss the commercial evidence of coordination and interdependent decision-making within the CQCN and competition between NQXT and DBCT. This evidence is relevant to our consideration of Criterion b for two reasons:

    a. The evidence of economic coordination and interdependent decision-making across the CQCN indicates that overall costs are lowered for serving production from mines in the Goonyella system by the existence of both DBCT and NQXT; and

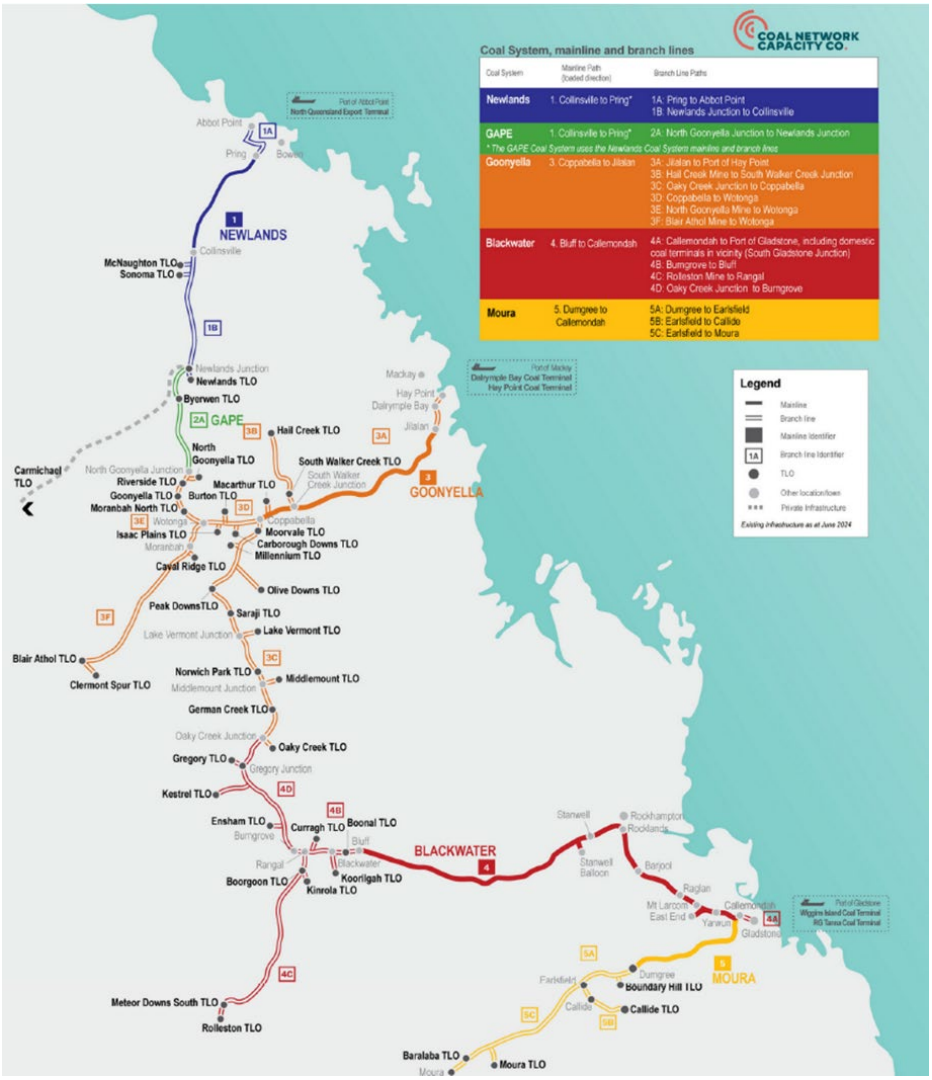
    b. The evidence of competition between NQXT and DBCT for mines in the Goonyella system indicates that the market NQXT operates in extends to at least those mines, as they evidently have a positive demand for the services supplied by NQXT.

20. In the following sections we provide the context for coordination and competition on the CQCN, discuss the construction of the Goonyella to Abbot Point Expansion GAPE as an example of coordinated decision making within the CQCN that lowers the costs of the system to participants, and examples of competition between NQXT and DBCT for coal handling services.

3.1 Context for coordination and competition with the CQCN

21. The CQCN has 5 interconnected rail systems that connects coal mines within the Bowen Basin to 5 coal export terminals including NQXT and DBCT, as illustrated below in Figure 3-1.

Figure 3-1: CQCN Map[2]



22. The 5 coloured lines in this map represent the 5 rail systems that are operated by Aurizon:

- Newlands (blue);
- GAPE (green);
- Goonyella (orange);
- Blackwater (red);
- Moura (yellow).

[2] Coal Network Capacity Co, ACAR25: Annual Capacity Assessment Report, June 2025, page 2. Accessible online at https://www.qca.org.au/wp-content/uploads/2025/06/acar25-report_redacted.pdf.

23. The Newlands and GAPE rail systems link mines to NQXT at Abbot Point. The Goonyella rail system links mines to DBCT and HPCT at Hay Point. The Blackwater and Moura systems link mines to RGTCT and WICET at Gladstone.

24. The coal exported from the Bowen Basin includes both metallurgical (or coking) coal used in the manufacturing of steel and thermal coal which is used primarily for the generation of electricity in coal-fired power stations.

3.2 Coordinated construction of the GAPE lowers costs in the CQCN

25. The Goonyella to Abbot Point Expansion (GAPE) project, also referred to as the Northern Missing Link, was constructed by Aurizon in 2011 to connect the Newlands and Goonyella rail systems at a cost of around $1.2 billion.

26. The GAPE project created a rail corridor that made it technically feasible to export coal from mines in the Goonyella system through Abbot Point where NQXT is located. The primary purposes of the GAPE project were stated to be to:[3]

    a. Alleviate capacity pressures on the Goonyella rail system and at port infrastructure, including at Hay Point; and

    b. Utilise the capacity expansion of the terminal at Abbot Point to 50 mtpa, in part from mines located on the Goonyella rail system.

27. The GAPE project was underwritten by long-term take-or-pay agreements between Aurizon and mines located in Goonyella system (and Newlands systems). These take-or-pay agreements allowed the delivery of the GAPE project on behalf of five foundation mine customers, including QCoal, Rio Tinto Coal, BHP Mitsui Coal (BMC), Middlemount Coal and Lake Vermont Resources.[4] The mine customers located in the Goonyella system and that utilise NQXT have contracted capacity with Aurizon under a GAPE Deed. The GAPE Deeds supplement the regulated access agreements and provide for Aurizon to recover an additional 'above regulated' return on the rail expansion costs associated with the GAPE project.

28. We understand that the capacity covered in the take-or-pay agreements from mines in the Goonyella system was equivalent to around 30% of the nameplate capacity of DBCT.[5]

3 https://www.qca.org.au/wp-content/uploads/2019/05/9358_R-QCA-DraftDec-GAPE-June13-0713-1.pdf

4 https://www.qca.org.au/wp-content/uploads/2019/06/9382_r-aurizon-gape-gapesub-0413.pdf

5 [redacted]

29. The construction of the GAPE for the purposes stated at 26 above is evidence that serving demand from mines in the Goonyella system is lowered through the ability to access coal handling services at both NQXT and DBCT.

30. That is, at the time of the construction of the GAPE, it was evident that it was lower cost for some mines in the Goonyella system to finance both the GAPE (including on the basis of above-regulated returns under GAPE Deeds) and the expansion of NQXT rather than incur the costs of doing the same through DBCT. Whilst for other mines in the Goonyella system, it was lower cost to utilise the capacity they have access to at DBCT. Importantly, from the perspective of all mines in the Goonyella system, there are lower costs from serving their demand from the use of a combination of capacity at NQXT and DBCT.

31. This is true both historically and prospectively. For example, if coal exports continue to grow, expansions of capacity in terminal and rail capacity will be required to serve demand from the Newlands, Goonyella and other regions within the CQCN system. The least cost expansion path will depend on the relative expansion costs of port and rail capacity serving DBCT versus NQXT.

32. The expansion of capacity at DBCT appears likely to result in GAPE foundation customers redirecting capacity from NQXT to DBCT. This may leave both NQXT and the GAPE underutilised such that NQXT and Aurizon would (efficiently) seek to attract some miners' exports through NQXT. This ability is likely to at least delay future expansions at DBCT as mines in the north of the Goonyella system would have lower costs of exporting through NQXT if NQXT and Aurizon levied (efficient) charges to reflect the less than full utilisation of those assets.[6]

33. Historically, miners have found that the demand for coal exports is best served by a combination of expansions at DBCT and NQXT. This will continue to be true in the future as miners continue to optimise across a mix of expansions for coal exports via Hay Point and Abbott Point (and Gladstone). That is, the CQCN and will continue to be run as a system – with the demand for handling services at one terminal depending on the spare capacity or otherwise of exports via a competing terminal.

3.2.1 Expected cost savings from diversification benefits

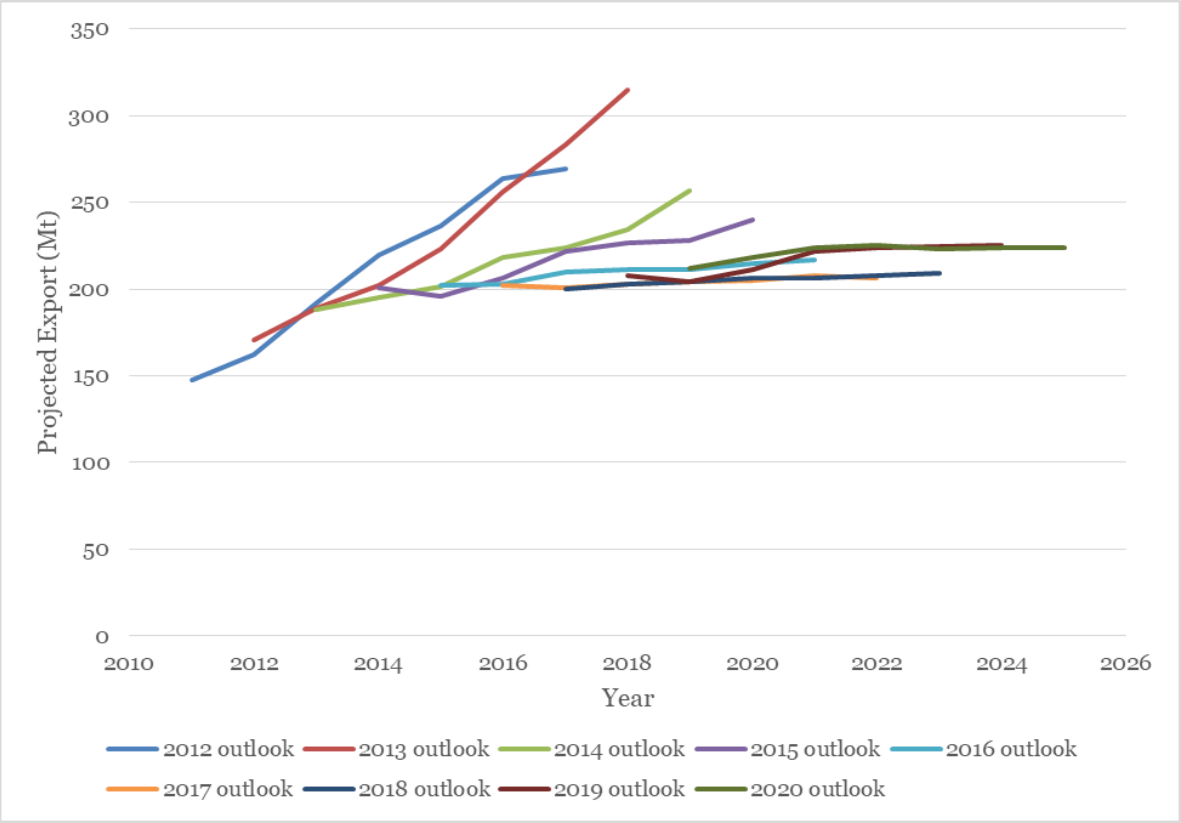
34. Foreseeable demand is not expected demand. Foreseeable demand is demand that could occur with a reasonable probability. Historically, the demand for coal has been highly volatile and difficult to predict. This is illustrated in the following figure which charts each year's forecast coal exports between 2010 and 2018. It shows substantial

[redacted] DBCT had a nameplate of 84.2 mtpa in that year.

6 See also Sections 3.5 8.3 and 9.3 of this report.

revisions in forecasts over the period. There has been up to 100 mtpa variation in forecast demand for thermal coal exports from Australia for a given year

Figure 3-2: Australian thermal coal export forecasts



Source: Resources and Energy Quarterly Report from Australian Office of the Chief Economist. Note: The first point of each line represent the actual level for that year, with projections for the next 6 years

35. There is a substantial opportunity costs for miners to leave coal in the ground when demand, and prices, are at their peak. The largely fixed costs of extracting coal means that the additional revenue gain from meeting higher demand for coal in periods of high demand directly flow through to profits of the miner.

36. As Criterion b asks whether it is "least cost" for demand to be served by more than one facility it is relevant to consider whether a mine would, absent having access to NQXT, reasonably foresee a cost in leaving coal in the ground if DBCT was capacity constrained over the relevant period. If so, then that demand is part of the reasonably foreseeable demand for NQXT.

3.3 NQXT serving Goonyella mines

37. In this section we discuss the mines in the Goonyella system that have used the coal handling services at NQXT to export coal from Abbot Point. These include mines in the Goonyella system that have long-term contracts with NQXT, as well as mines that have entered short-term contracts and spot transactions with NQXT. We also provide an overview of ongoing renewal negotiations for mines in the Goonyella system.

38. The existence of these past contracts and transactions, and the current ability to have negotiations for new contracts, indicates that mines in the Goonyella systems have sufficient willingness to pay for the coal handling services supplied by NQXT to generate a positive surplus from exporting through Abbot point. In economics, the demand for a service is the amount of the service for which buyers could generate a positive surplus from consuming.

3.3.1 Long term contracts with Goonyella mines

39. In the following table we set out the Goonyella mines that have long term contracts for the export coal through NQXT over the past 5 years. The table presents the peak annual capacity contracted in that period.

[redacted]

Source: Witness statement of Mark Bradley Smith dated 22 August 2025, Table 1

3.3.2 Short term services provided to Goonyella mines

40. In the following table we set out the Goonyella mines that have entered into short-term contracts or spot transactions for the export of coal through NQXT over last 10 years. The table presents the peak annual capacity contracted or agreed in that period.

Source: NQXT contract profile spreadsheet

3.3.3 Ongoing renewal negotiations with Goonyella mines

41. We have been provided with a copy of a witness statement of Mark Bradley Smith, General Manager of NQXT, dated 22 August 2025. Based on the evidence of Mr Smith, we understand that :[7]

    a. ;

    b.

    c. and

    d. .

42. In addition, we understand that NQXT has .[8]

43. We further understand that NQXT is hopes to .[9]

7 Witness statement of Mark Bradley Smith dated 22 August 2025, paragraph 121.

8 Witness statement of Mark Bradley Smith dated 22 August 2025, paragraph 122.

9 Witness statement of Mark Bradley Smith dated 22 August 2025, paragraph 124.

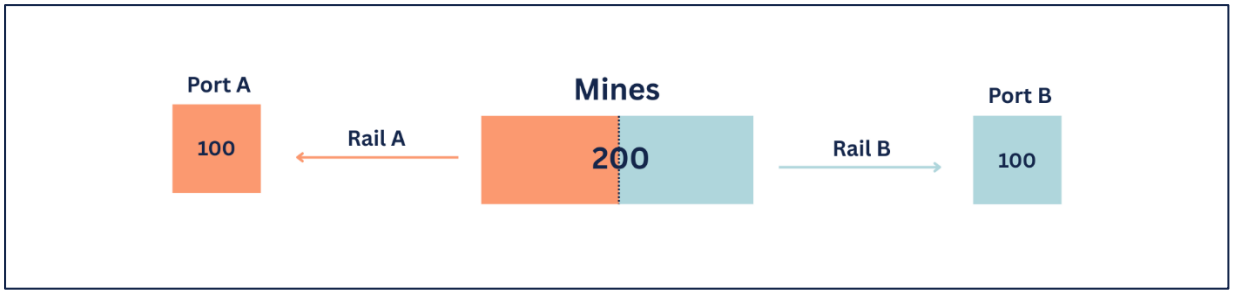
3.4 Cost saving from staggered capacity expansions

44. With the GAPE built and NQXT expanded to its current capacity the optimal (least cost) size of DBCT and the Aurizon rail network that connects DBCT is smaller. The CQCN is, both actually and efficiently, run as an interconnected system. Exports via DBCT are lower as a result of expansions at NQXT (facilitated by the GAPE). Similarly, exports at DBCT would be higher (and at higher cost) if the Goonyella system were operated as an island (separate from the Newlands and Blackwater systems).

45. One source of cost advantage from having two ports staggering their capacity expansions can be illustrated in a stylised example. Assume a railway line stretching exactly 100 km and connecting two ports (call them Port A and Port B) at either end of the line. In addition, imagine there are mines generally in the middle of the railway line, but with half somewhat closer to Port A and half somewhat closer to Port B.

46. Beginning with a simple example, assume that each port and railway line has an initial export capacity of 100 mtpa, which is just enough to accommodate the mines' combined output of 200 mtpa. This simple example is illustrated in the figure below.

Figure 3-5: Initial state of illustrative example of railway and port system



47. Now assume that the output of all of the mines grows at a constant rate of 5 mtpa per annum. This means that absent any capacity expansions, in the next year the system will be capacity constrained as the total system output will exceed the system's export capacity. It follows that a rail and port expansion is required. However, port and rail expansions are lumpy in nature and therefore cannot smoothly increase to keep pace with the annual growth in the mines output. Let the minimum efficient increment of port and rail expansions be 50 mtpa.

48. If the ports are operated as separate systems, the railway and ports in both directions must expand simultaneously, which would add 100 mtpa of capacity, despite in the first year only requiring an additional 5 mtpa of capacity, and involve significant (underutilised) capital expenditures that result in excess system capacity of 95 mtpa (=100-5).

49. In contrast, if the ports are operated as one system, the rail and port expansion would only occur in one direction which would reduce the excess system capacity in the first year to 45 mtpa (=50-5).[10]

50. This comes at a cost of modestly higher transport costs for the mines in the middle who are now hauling their coal to a port that is further away than their closest port. However, unless the additional haulage costs for those mines are large relative to the cost of unutilised capacity, overall costs will be minimised by only expanding one port and rail system at a time.

51. We consider that this is observable in the history of expansion of supply chain capacity across the CQCN and the relevant terminals. Coal producers valued available capacity at one or other of DBCT and NQXT more than any transport cost differential. We consider this is a more economically rational and sensible explanation of such swing volumes than Mr Houston who finds them irrelevant to his analysis and explains them as attributable to "strategic reasons".[11]

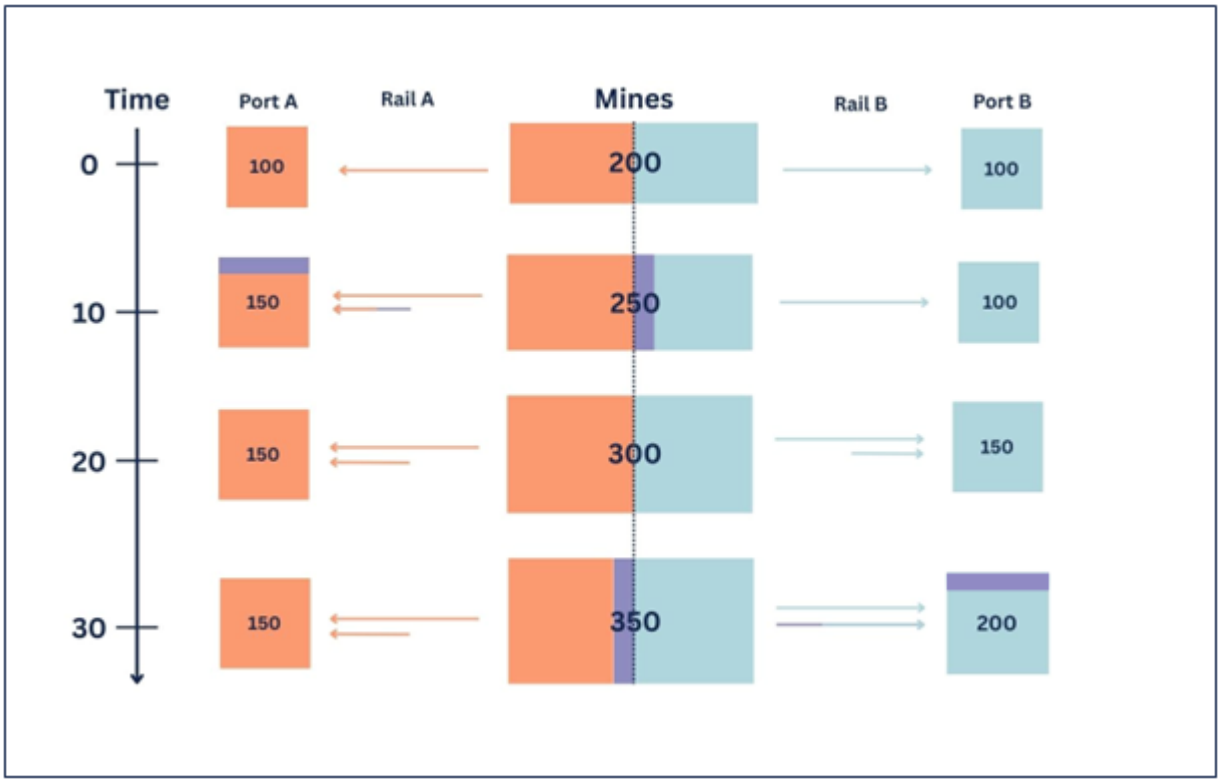
52. At demand growth of 5 mtpa per year, the 50 mtpa capacity will be soaked up after 10 years. At that time, it makes sense to expand the other port and rail capacity with all mines now sending their coal to their closest port. This cost efficiency is achieved by mines in the centre of the system switching the ports that they send their coal to - depending on which port(s) has available capacity.

53. The process of mines swinging from one port to the other is visualised in Figure 3-6 below.

10 In this illustration, we assume that the system will expand so there is no excess demand in any period.

11 Houston Kemp, paragraph 166.

Figure 3-6: Illustrative example of railway and port system expansion with staggering



54. In year T=0 total port and rail capacity is sufficient to allow all ports to export via their closest port. However, to serve demand in year T=1 there is a need for at least one minimum efficient port/rail export expansion of 50 mtpa. In this illustration, this takes place at Port A. This creates excess capacity at Port A and means that, at least for the next 10 years, some mines in the middle that are closer to Port B must export via Port A (illustrated via purple highlighted). These are the "swing mines".

55. At T=11 there is a need to expand system export capacity again and it makes economic sense to now expand Port B allowing the "swing mines" from the period T=1 to T=10, to export via their closer port (Port B). Between T=11 and T=20 there is excess capacity at both Port A and Port B and all mines export via their closest port.

56. However, this excess capacity is soaked up by T=20 and in T=21 there is a need for another 50 mtpa minimum efficient scale port/rail expansion. Just like in T=1, this could happen at Port A or Port B. In our illustration it is assumed to happen at Port B this time. Now, the swing mines are the mines closer to Port A who utilise the excess capacity at Port B to facilitate their growth in demand.

57. The ability for mines to swing between these ports means that the average excess export capacity for the system is only 25 mtpa (half the minimum efficient scale of a port/rail expansion).

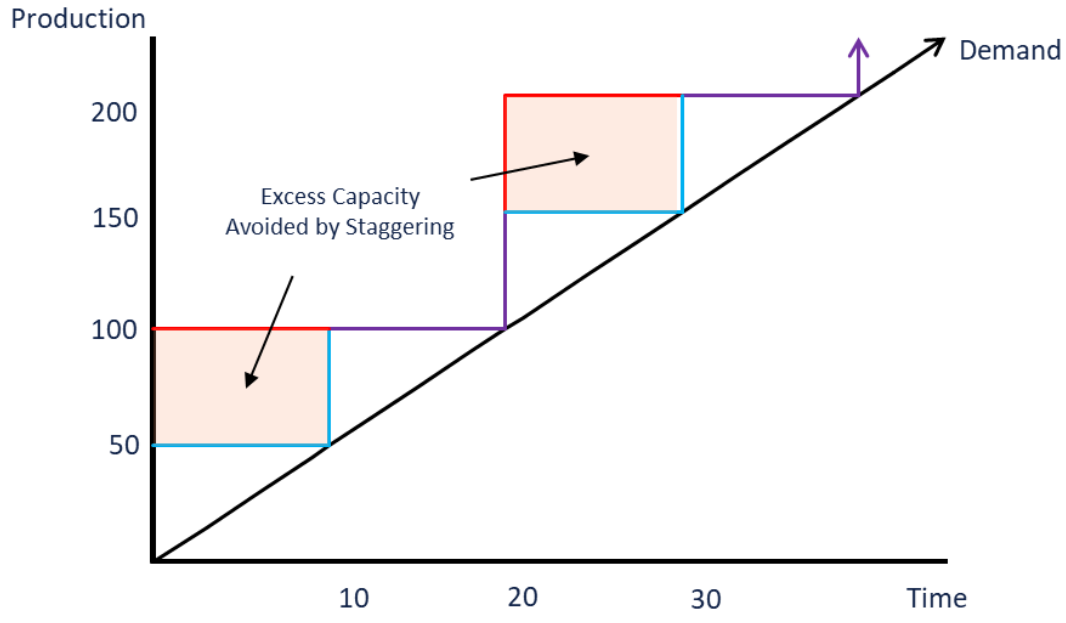
58. Without mines swinging between the ports, both Port A and Port B would need to expand their capacity by 50 mtpa in T=1 – creating excess capacity of 95 mtpa. It takes 20 years for this capacity to be fully utilised and the average excess capacity over that 20 years 50 mtpa.

59. The problem with organising the system so that all mines always export via the closest port is that port and rail capacity is overbuilt with growing demand and lumpy capacity investments.

60. Another way to visualise the same scenarios described above is presented in Figure 3-7 below. The staggered capacity expansions are illustrated by the blue line that jumps from zero to 50 mtpa at T=0 when Port A expands, stays at level for 10 years and then jumps to 100 mtpa when Port B expands. The red line represents an uncoordinated operation of the system where mines always export via their "home" (closest) port. In this scenario Port A and B both expand by 50 mtpa each (100 mtpa in total) and the associated over-capacity continues in operation for the next 20 years. The purple line represents the times at which the blue and red lines overlap.

61. The black line represents total system growth in coal exports of 5 mtpa per annum. It can be seen that excess capacity under the no coordination scenario is higher by the orange shaded square – representing a wasteful initial investment in two 50 mtpa (100 mtpa in total) capacity expansions at T=1 and T=21 when a single 50 mtpa expansion is sufficient to serve demand for the next 10 years.

Figure 3-7: Higher excess capacity if mines always export via the same port



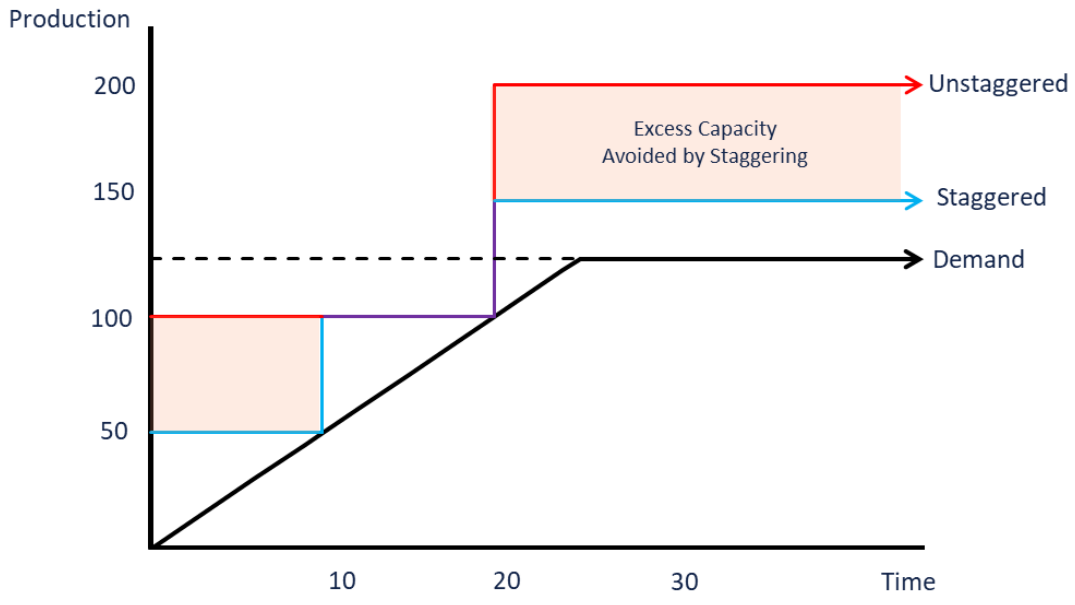
62. In the above illustration the higher excess capacity is eventually absorbed by growth in demand. However, the expected cost of expanding both ports simultaneously is even higher if there is a risk that demand ceases to grow – such that the second expansion lump is never utilised.

63. In Figure 3-8 we expand upon Figure 3-7 to illustrate this risk by assuming that demand ceases growing at a future point in time, let this be t = 25 in this example. Under this scenario there is only 25 years of 5 mtpa per annum growth such that there is 125 mtpa additional demand relative to t = 0.

- With staggered capacity expansion 50 mtpa capacity is created in t = 21;
- Without system coordination, 100 mtpa capacity expansions would take place; therefore
- With staggered capacity expansion 50 mtpa capacity expansion avoided forever – not simply delayed by 10 years.

64. The higher cost of unnecessary expansion under the staggered approach is illustrated by the orange shaded area of higher unutilised capacity.

Figure 3-8: Excess capacity with a demand plateau



65. The above is a stylised illustration of the benefits of running a coal system with multiple ports as a system rather than as isolated separate systems that are operated completely independently. Of course, the CQCN is a much more complex system than is being modelled in the above stylised illustration. However, the fundamental economic

considerations apply – where there are multiple ports in an interconnected railway system there are considerable economic cost savings from running that system as a system – not has isolated subsystems.

66. If this was not the case, then it would not be efficient to have interconnected railways allowing mines to switch from one port to another. That is, if mines switching from one port to another was inefficient (e.g. there was a natural monopoly) then we would expect to see no rail connections between the ports.

4 Market definition under Criterion b

67. We have been asked to provide our views on the appropriate economic approach to determining whether NQXT satisfies criterion b.

4.1 Background to Criterion b

68. The current Criterion b states:

> "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 first-mentioned facility)."

69. This represents an apparent adoption of words from the Australia Competition Tribunal in Duke Eastern which stated:

> We agree with the submissions of NCC that the "test is whether for a likely range of reasonably foreseeable demand for the services provided by means of the pipeline, it would be more efficient, in terms of costs and benefits to the community as a whole, for one pipeline to provide those services rather than more than one.

70. The current Criterion b was introduced following amendments to the QCA Act enacted in March 2018. The amendments were intended to reflect the October 2017 amendments to the declaration criteria under the national access regime in Pt IIIA of the Competition and Consumer Act 2010 (Cth).

71. The amendments changed the test from one of "private profitability" to a "natural monopoly" test (see explanation in paragraphs 12.22 and following of EM to amending Act). Paragraphs 12.22 and 12.24 of the EM explain:

- 12.22 Paragraph 44CA(1)(b) asks whether the facility that provides (or will provide) the service could meet the total foreseeable market demand at least cost over the declaration period. This is in comparison to a scenario where there are two or more facilities. The amendment to this paragraph is intended to refocus the test to a 'natural monopoly' test instead of a 'private profitability' test;
- 12.23 The approach under the new paragraph is market-based, requiring the market in which the infrastructure service under application is supplied to be defined. This includes any substitute services that serve or will serve the market;
- 12.24 Total foreseeable market demand is considered over the declaration period the decision-maker is considering for declaration of the service. 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.

72. The cost structure of an industry is characterised as a natural monopoly when it is lower cost for a single supplier to serve all demand than if there were multiple suppliers. When a service has these natural monopoly characteristics, competition between two or more suppliers is not feasible. As a result, a single supplier will be unconstrained by actual or potential substitution to an alternative supplier of the service.

73. In the following section we set out our economic approach to Criterion b. We formalise this approach in an economic model in Section 5.

4.2 Facility for the service

74. Criterion b asks whether the "facility for the service" could meet the foreseeable demand at lower cost than any 2 or mor facilities.

75. We understand that the "facility" for the service in this case is NQXT and the "service" is a coal handling service that is supplied by the facility, NQXT.

76. We consider that there is an important interaction between the service, which is to be declared and regulated, and the market defined for the purpose of assessing Criterion b (we discuss market definition below). Our view is that the service that is declared and regulated by the QCA would be defined in a manner that is consistent with the application of Criterion b. That is, if the service is considered to satisfy Criterion b in relation to a particular market demand, then the declared service would be limited to the delivery of services in this market.

77. Applied in this case, if the market in which NQXT was considered to satisfy Criterion b was defined to exclude demand from mines in the Goonyella system, then from an economic perspective this would imply that regulation should not apply to the delivery of services to those mines. It implies that, to the extent that NQXT is supplying services to mines in the Goonyella system this must be a separate service that is not in the same market as the proposed declared service.

78. In other words, regulation under Criterion b is only intended to apply to services that are supplied by a facility that is a natural monopoly. An approach which ultimately found, as Mr Houston does, that NQXT only operates as a natural monopoly in respect of *some* of its customers and services (i.e. because some of its current users are better served by DBCT), would mean that it should only be *declared* on this partial basis. However, Mr Houston appears to wish to have *all* of the services provided by NQXT declared regardless.

4.3 Market definition for Criterion b

79. Criterion b requires a market to be defined, for the purpose of assessing whether the facility can supply the foreseeable demand in that market at lower cost than any combination of multiple facilities. The relevant market demand being defined here is in units of output (e.g., mtpa of exported coal).

80. From the perspective of mine customers, the service supplied by NQXT is [redacted].[12]

81. The task of defining a market when products are differentiated by transport costs (or other characteristics, including consumer preferences) is well understood by economists. Formal models for defining markets are available to be applied by economists. In Section 5 of this report, we present a 'linear city' model and use it as the basis for determining the geographic scope of the market for the purpose of applying Criterion b. We apply this model in Section 6 of this report to define the geographic scope of the market for the service supplied by NQXT and estimate the foreseeable demand in that market.

82. The approach to defining a market depends on the purpose for which the market is being defined. In applying Criterion b, it is necessary to begin with a hypothetical that the facility for the service, NQXT in this case, is a monopoly. This is consistent with the purpose of Criterion b that it is a test of whether the facility has natural monopoly characteristics.

83. As we formalise in Section 5, our is view the geographic scope of the market should extend to include any mine customer that could profitably exchange with NQXT if there were no alternative for the mine than to trade with it. As such, the total foreseeable demand in the market refers to the sum of the demand from any customer that the facility could profitably serve over the period for which its service would be declared. Specifically, this includes demand from any customer where both parties could profitably trade (enjoy economic surplus) if they have no other alternative to trade.

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12 We note that Mr Smith refers to a range of [redacted] (at [126] to [130]). Mr Dederer refers to other [redacted] in his statement at [45] – [49]. He concludes,

> *Certainly, the operation of an export coal terminal is not a simple, one-sized-fits-all operation for all users. The ability of the Terminal to offer flexibility and target the specific needs of each customer improves the efficiency of the whole coal supply chain.*

84. This approach is consistent with markets being defined not only on actual exchanges, but on the potential for exchange.[13] That is, markets typically encompass all customers who could feasibly be served by the firm who is being assessed for natural monopoly characteristics and would derive a positive surplus from doing so. This includes not only customers currently using the firm's services, but also those currently served by rival suppliers — provided the firm in question exerts a constraint on the rival's ability to raise prices or reduce service quality.

85. This is reflected in the findings of the Productivity Commission,[14] the Explanatory Memorandum to the equivalent Part IIIA amendments[15] and the final wording of the statute itself, which refers to refers to assessing the supply at least cost *"compared to any 2 or more facilities (which could include the facility for the service …)"*.[16]

86. In applying Criterion b, it is relevant to recognise that the purpose of defining the market is to estimate the demand in the market, not to estimate sales likely to be made by a single supplier in the market. Defining a market based on estimating which customers *are likely to trade with the firm* is inconsistent with the purpose of Criterion b as it would result in the test being passed even when the firm operates in a highly competitive market –a firm may well be the least cost to serve those customers who strongly wish to trade with it, but would not be least cost to serve all customers if it had a monopoly over all customers that would have demand for its service.

87. Taking this approach is consistent with approaching criterion b as a true economic test of natural monopoly, and is consistent with the changes made to the test following the amendments to the QCA Act in March 2018 that reflected the amendments to the declaration criteria under Part IIIA of the Competition and Consumer Act 2010 (Cth) in late October 2017 to introduce this form of natural monopoly test in place of a more commercially oriented, private profitability approach to the criterion.

88. Put another way, the test focuses on the economic test of servicing *all* potential market demand for the service, not servicing firm specific demand given the prices and strategies of that firm's competitors. This is an important distinction and is worth emphasising by way of the following illustration.

89. Imagine a small restaurant in the inner city of a major capital city that might typically sell 150 meals per day. These sales depend on its prices (plus quality attributes) and the

13 *Queensland Wire Industries Pty Ltd v The Broken Hill Proprietary Co Ltd* (1989) 167 CLR 177 at 195.

14 https://www.pc.gov.au/inquiries/completed/access-regime/report

15 Paragraph 12.22 extracted at [71] above.

16 Section 76(b).

prices (plus quality attributes) of other restaurants in the local area. Defining foreseeable demand in the market within our small restaurant operates:

- **Is not** an exercise in forecasting demand for our target restaurant given the market equilibrium existence of 100 other local restaurants and their competitively determined prices; but
- **Is** an exercise in identifying the customers who would, if competing restaurants were unavailable, be willing to pay for a meal from our target restaurant at above the restaurant's cost of producing the meal.

90. The former is an estimate of firm specific sales within a market. The latter is an estimate of the demand in the market within which our target facility operates.

91. If a group of customers would reasonably consider using the facility in question given their inability to access alternative facilities, then they are in the market for the facility. This would be the case even if those customers did not direct any or all of their demand to the facility. That is, "foreseeable demand in the market" does not mean "likely sales by the facility being considered for declaration". That would be circular. The fact that those customers could use their ability to access the facility to secure better terms for using an alternative facility is a sufficient condition for the demand from those customers to be in the market for the facility.

92. This approach to determining demand in the market is consistent with Criterion b being a test for whether the facility is a natural monopoly. If the facility was a natural monopoly, then there would be no viable competition between it and another facility for demand in the market – competition would not be feasible because the facility could serve the demand from each and every customer in the market at lowest cost.

93. Equally, if the target facility is a natural monopoly then:

- The target facility exiting the market would have no impact on demand for other facilities – because those other facilities would be in different markets;
- The target facility expanding capacity would have no impact on demand for other facilities – because those other facilities would be in different markets; and
- Other facilities existing or expanding capacity would have no impact on demand for the target facility – because those other facilities would be in different markets.

94. An implication of this is that it is appropriate to assess the demand in the market on the basis that the facility has capacity to serve each customer. This will allow for an assessment of the facility's competitive reach over the declaration period without constraining it to service all demand within that reach. That is, the market a firm operates in is not constrained by how many customers a firm can service. The market within which our hypothetical small restaurant competes is not limited by the number of customers it can fit in its restaurant.

95. It is not a necessary condition that a facility serves or has the ability to serve all the demand for customers for which it can compete. Excluding a customer's demand from the market on the basis that the facility (or any other required facilities) does not have the capacity to serve that demand would imply many businesses in a competitive market are natural monopolies. That would be nonsensical and circular. The market within which a business competes does not "shrink" to reflect the number of customers the business has capacity to serve. In a competitive market, firms do not typically have the capacity to serve all demand.

5 Application of market definition where suppliers are differentiated by relative transport costs

96. In the CQCN there are geographically dispersed coal mines and export terminals, where all coal mines are closer to one or the other export terminal (no coal mine is "exactly" equidistant from two export terminals). If transport costs increase with distance, then every mine would prefer to use the closest export terminal (assuming the same price and quality of service at each export terminal).

97. This structure of spatial differentiation between suppliers is described by the "Hotelling model". Harold Hotelling was a pioneering economist whose 1929 paper[17] of spatial competition became a cornerstone of industrial organization and economic geography, In the Hotelling model each firms has location based advantages in serving some nearby customers. The Hotelling model is used analyse competitive dynamics in this situation.

98. While formalised as a spatial model, the application of this economic framework is widespread across all differentiated product markets of all kinds. For example, in modelling competition between the supplier of "Coke" and "Pepsi" a customer's "location" relatively closer to one or the other supplier can be thought of as representing their innate preference for that supplier over the other.

99. That is, "distance" and "transport costs" in the Hotelling model can be interpreted literally or figuratively – allowing the model to be used across all differentiated product markets. In this report we will be interpreting these parameters literally as distance and transport costs from a mining customer to each export terminal.

100. However, it is useful to keep in mind that the same logic applies more generally in all differentiated product markets – from restaurants to soft drinks. We will switch between these literal and figurative applications of the Hotelling model to make general observations about market definition in differentiated product markets.

5.1 Hotelling model of spatial competition

101. The Hotelling model is a foundational tool in industrial organization, modelling how firms compete when consumers are distributed across a spatial or preference dimension.

17 Hotelling, (1929), "Stability in Competition", The Economic Journal, Vol 39, No 153, pages 41-57

102. The simplest version of the Hotelling model typically assumes that customers are distributed along a line (which can be a railway line as is literally the case in the CQCN). This "linear city" model is amenable to application to the CQCN because every mine is a fixed distance from every export terminal. Even though these mines are not strictly distributed on a single straight line, they are distributed on a railway line and their relative position on this railway line defines their relative costs of reaching each export terminal.

103. This model provides clear insights as to the effect of spatial differentiation on competition. For example, when transport costs are low, firms aggressively compete for all customers (i.e., across the entire linear city), leading to low profit margins and outcomes similar to the undifferentiated Bertrand model.[18] As transport costs rise, firms become more insulated from each other, and pricing power increases.

104. In the extreme case of very high transport costs, each firm can effectively become a local monopoly that is entirely insulated by competition from the other firm. This "islanding" effect means that one firm's optimal price is unaffected by its rival and is an example of a situation where competition breaks down entirely due to geographical separation. That is, with high enough transport costs a supplier can become a monopoly such that their pricing decisions are unaffected by the pricing decisions of other, more distant, suppliers.

105. The Hotelling framework provides a powerful tool for analysing market definition, competitive pressure and pricing behaviour in markets with spatially separated suppliers and positive transport costs.

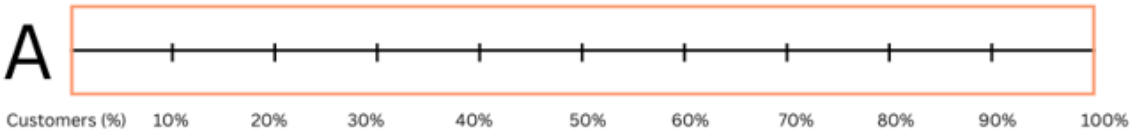
106. We now provide a series of step-by-step illustrations of this model and the resulting insights about market definition with spatially separated suppliers and different transport cost assumptions.

5.2 Estimating the market demand within which a specific supplier provides its services

107. Assume a train line stretching exactly 100 kilometres across. Imagine that there are 100 potential customers evenly spaced along the length of the train line. In our hypothetical illustration we are going to assume that a supplier is located at one end of the line (much as NQXT is in the CQCN). However, none of the following logic rests on that assumption.

18 Tirole, J. (1988). The Theory of Industrial Organization. MIT Press. Chapter 5.

Figure 5-1: Spatial illustration of the market



108. Each customer represents one unit of demand per period for a supplier's product and each customer values that product at "$V" before considering transport costs.

109. In the context of the CQCN, $V could be the maximum willingness to pay an export terminal to load its coal onto a ship assuming the miner had no transport costs of getting the coal to the export terminal. $V would be defined by:

- the FoB international export price per tonne of coal; net of
- any mine-site extraction cost per tonne;

110. For example, if FoB export price of coal was $300 and extraction costs were $100 then $V = $200 ($300-$100). That is, the maximum willingness to pay an export terminal to facilitate loading coal onto a ship would be $200 (before considering transport costs or potential rival offers from other export terminals).

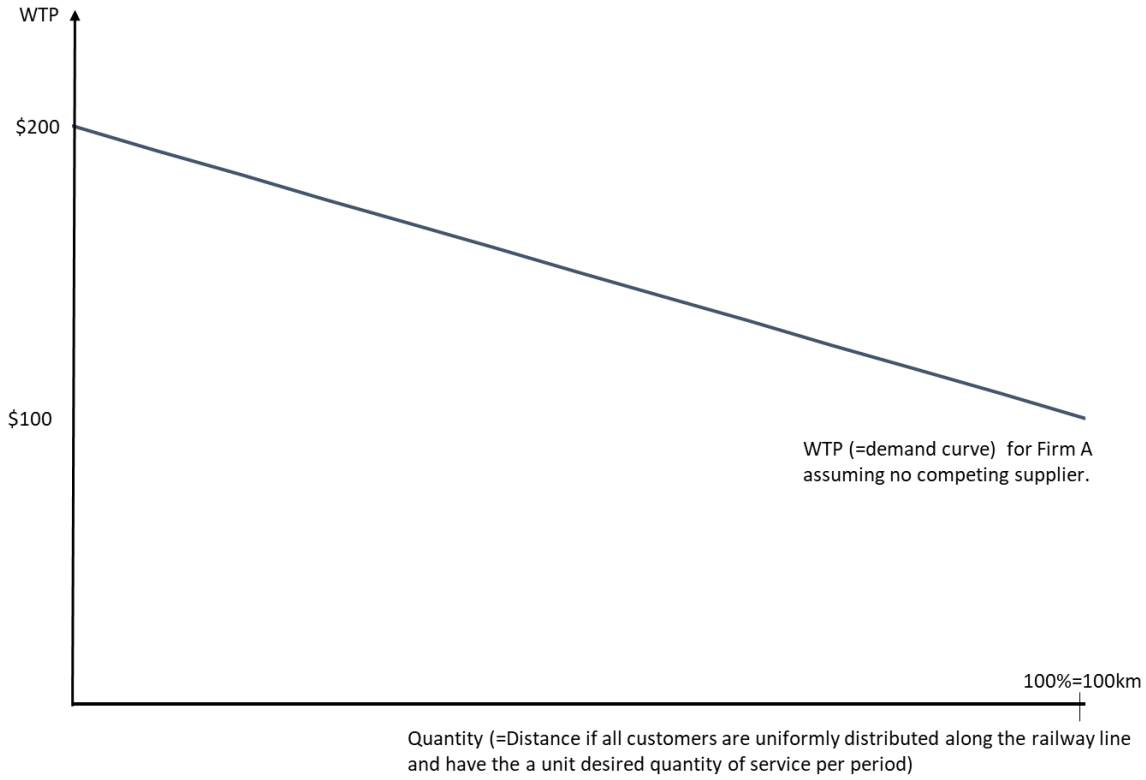
111. Of course, the miner's maximum willingness to pay will be reduced by the cost of transporting the coal to the export terminal – and this reduction will be larger the further away the customer is from export terminal. The market within which a supplier operates will only extend to customers who have a positive willingness to pay for their service. This means that the market within which a supplier operates will tend to shrink as transport costs increase.

112. The customer located right next to Firm A incurs no transport costs and their willingness to pay ($v) is $200. But a customer located one km away has a willingness to pay of $200 minus T – where T is the per km transport costs. A customer located 2 km away has a willingness to pay of $200 – 2T and so on. Any customer's maximum willingness to pay can be described mathematically as $V – D*T (where D is the customer's distance to the supplier and T is round trip transport costs expressed as a per km one way cost[19]).

113. This leads to a familiar downwards sloping demand curve for the services offered by supplier in the supplier's location assuming no competing supplier exists. This is illustrated in Figure 5-2 below assuming transport costs are 1.0 $/km.

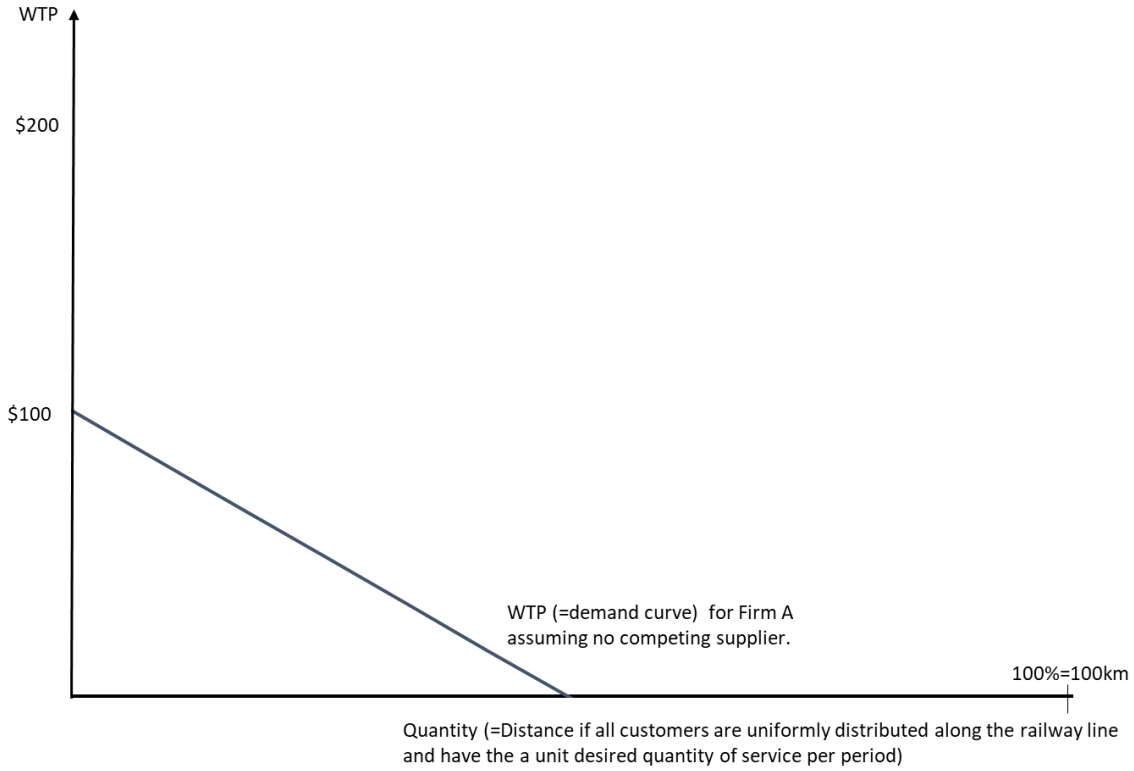
[19] That is, T equals the total transport costs for a round trip divided by the one way distance between the supplier and the customer.

Figure 5-2: Demand curve for Supplier A (assuming $V=200 and transport costs are 1.0 $/km and no competing supplier)



114. Under these assumptions, supplier A's demand curve extends to the end of the railway – covering all customers located anywhere on the railway. Of course, with higher transport costs (or lower $V) this need not be the case. For example, if $V was $100 and transport costs were 2.0 $/km then only half of the customers uniformly distributed along the railway line would have a positive valuation for Firm A. This is illustrated in Figure 5-3 below.

Figure 5-3: Demand curve for Supplier A (assuming $V=$100 and transport costs are 2.0 $/km and no competing supplier)



115. Figure 5-2 and Figure 5-3 illustrate two different demand curves that Firm A could serve - where the differences are driven by differences in both the valuation of the service by customers and the unit transport costs for the customers. In Figure 5-2 the market within which customers have a positive valuation for Firm A's service extends to all customers on the railway. However, with higher transport costs and lower valuation before transport costs, Firm A could only profitably serve half of all customers (and only then if it had zero costs itself).

5.3 Competition within the market

116. If Firm A was a monopolist (i.e., if there was no other supplier in the market) then firm A would set the monopoly price for each customer. If Firm A can price discriminate because they know the location of each customer that they deal with (as is the case in the CQCN) then, if they are a monopolist, they will set a different price for each customer based on that customer's maximum willingness to pay.

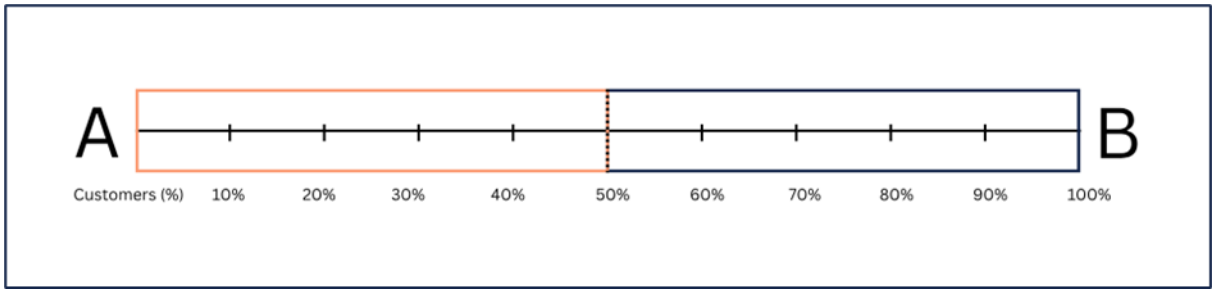
117. For example, facing the demand curve Figure 5-2 a monopoly Firm A would set a price equal to $200 for the closest mine and $100 for the most distant mine. As long as Firm

A's marginal cost of supplying the service is less than $100 (the lowest customer valuation) then Firm A will serve the entire market.

118. The same logic would apply if the market demand curve was as described in Figure 5-3. A monopolist Firm A would set the price equal to $100 for the closest customer and would lower this price for more distant customers to match their lower willingness to pay. A monopolist Firm A would stop serving demand when the willingness to pay of a customer fell below Firm A's marginal cost of serving that customer.

119. However, if we introduce a competing Firm B the pricing dynamics will change – at least if Firm B enters at a location such that there is an overlap between Firm A and Firm B's markets. To illustrate this, imagine that Firm B enters at the opposite end of the railway line to Firm A.

Figure 5-4: Duopoly illustration



120. Provided there is an overlap of customers who Firm A and Firm B can profitably serve, then Firm A and Firm B need to compete over those customers. No longer can Firm A simply offer a "take it or leave it" price equal to that customer's maximum willingness to pay (WTP) because that maximum WTP was calculated assuming no competing supplier. Now, any customer who could feasibly be served by Firm B will have a WTP for Firm A that is a function of the price offered by Firm B.

121. With two competing suppliers and positive transport costs, each customer must decide between three alternatives:

- Purchase nothing (when neither supplier is offering prices that leave that customer with any surplus);
- Purchase from A at a cost of $P_A + \mathrm{T}\cdot d_A$ where d_A is that customer's distance from Firm A; or
- Purchase from B $P_B + \cdot \mathrm{T}\cdot d_B$ where d_B is that customer's distance from Firm B;.

122. This decision rule, that is unique for each customer, can be formalised as follows:

$$Max(0, V - (P_A + \mathrm{T}\cdot d_A), \mathrm{V} - (P_B + \mathrm{T}\cdot d_B))$$

123. If each supplier knows each customer's location and knows the other supplier's marginal cost, then each supplier will offer a price to a customer that leaves that customer with slightly more surplus than would be available to them if they had instead used the other supplier.

124. By way of illustration, let us make the same assumptions that underpin Figure 5-2 above (e.g., V = $200 reflecting a $300 FoB coal price and $100 extraction cost and T=1.0 $/km). Let us also assume that both Firm A and Firm B have a marginal cost of $10 per unit.

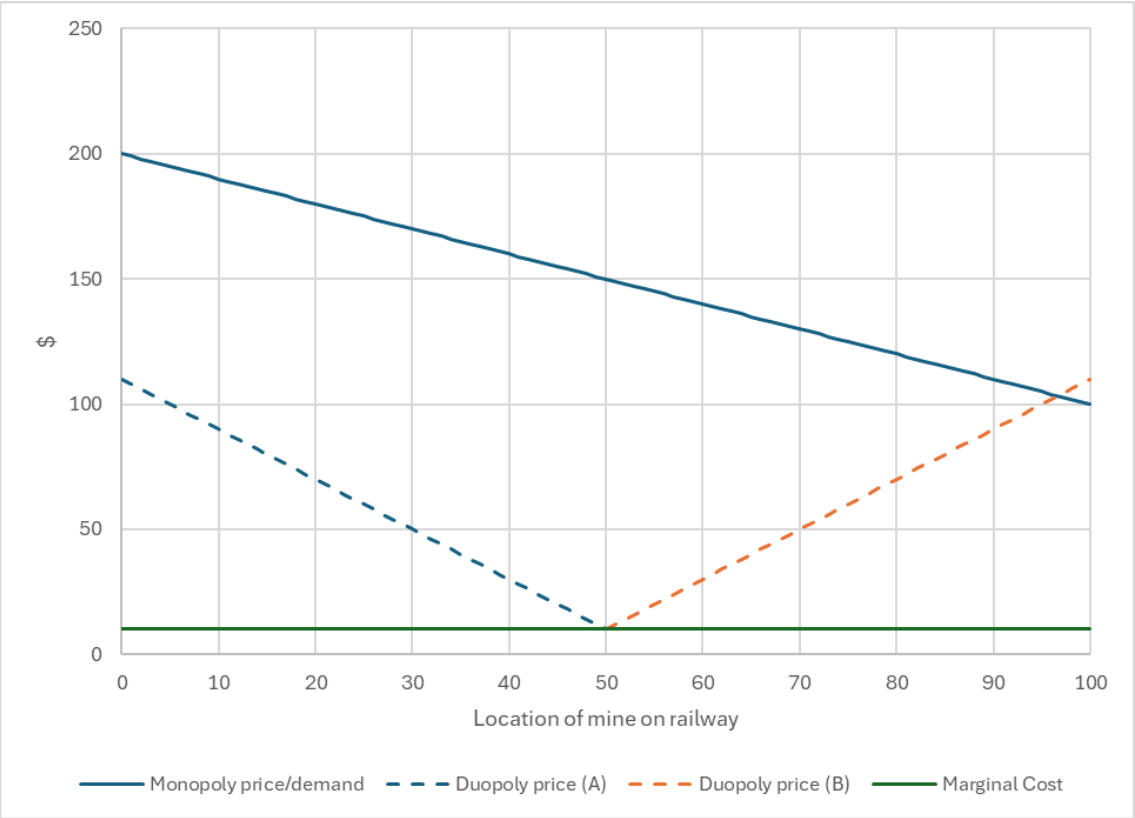
125. All customers have a valuation of $200 before transport costs. Transport costs for the customer at 0km using Firm A are zero and are $100 (=100km × 1.0 $/km) when using Firm B. If Firm B charges its lowest possible price (MC=$10) then that customer will have a total surplus exporting via Firm B of $90 (=$200 - $100 - $10).

126. Therefore, Firm A can offer a price to that customer of $110 and leave them with the same surplus of $90. In effect, Firm A takes advantage for the customers higher transport costs to nearest competitor and reflects this in its price the margin above its marginal cost. Firm B goes through the same logic when considering pricing to its nearest customer and, symmetrically, can also offer them a price of $110 without fear of losing that volume to Firm A.

127. However, as we move towards the middle of the railway line (the middle of the customer distribution) the difference in transport costs for each customer falls. Consequently, Firm A and Firm B are closer substitutes, such that each supplier must offer a price closer to marginal costs to be sure that the further away supplier will not "steal" that customer.

128. The difference between monopoly and duopoly pricing in this scenario is illustrated graphically in Figure 5-5 below.

Figure 5-5: Monopoly compared to duopoly



129. The solid blue line is the demand curve that Firm A faces if it is a monopoly. A monopolist would set a price for every customer equal to the height of this demand curve. However, once Firm B enters the market the maximum price that Firm A can extract from its nearby customers if Firm B offers to serve them at marginal cost is given by the dotted blue line. This has a maximum value of $110 for the closest customer (compared to $200 under monopoly).

130. The dotted blue line falls as we move to customers closer to the middle of the railway and reaches its lowest point (equal to marginal cost) in the centre of the railway. This is because the customer in the centre of the railway is indifferent between Firm A and Firm B (has the same transport costs to either facility). Therefore, the only price that cannot be undercut by the competing firm is a price equal to marginal cost (in this case $10 per unit).

131. Once we move beyond the middle customer the then Firm B begins to have pricing power over the customers (customers located closest to Firm B). This is illustrated by the change in colour of the dotted line from blue to orange. The orange dotted line is the mirror image of the blue dotted line (representing the maximum price that Firm B can charge without risk of losing that customer to Firm A).

132. This stylised illustration helps understand the following facts.

- The market that a firm operates in is at least as wide as the demand that it could profitably serve if it had not competitors. While adding competitors into that market will shrink the number of customers actually served, the wider market is unchanged;
- Even though customers tend to buy from their most preferred (closest) supplier, the price that supplier can charge is constrained by the existence of the competitor; and
- Customers are better off (customer costs are lower) with additional competitors – but only if the markets withing which the suppliers operate overlap. Otherwise, the firms are not actually competitors as each firm would be a local monopoly.

133. These conclusions are elaborated on in the following sections.

5.3.1 More competition results in the smaller market shares but not a smaller market

134. In our stylised illustration using Figure 5-2, the market that Firm A operates in includes all customers located along the railway line. If Firm A is a monopolist, then Firm A can profitably serve every customer (assuming a marginal cost of $10 per unit). If there were 100 customers uniformly distributed across the railway line, Firm A would serve all 100 customers.

135. If we introduce a competitor at the other end of the railway line then Firm A will only serve the 50 customers closest to Firm A – with Firm B serving the 50 customers closest to Firm B. While only serving half the market each, they both place a competitive constraint on the price the other can charge (as discussed further below).

136. It would be nonsensical to argue that, post entry by Firm B, the market in which Firm A operates shrinks to match its new share of customers. That would amount to assuming the "market demand" was synonymous with "firm sales" or "firm demand". This confuses competition within the market for defining a market.

137. Put another way, market demand must be defined without having regard to the individual pricing or other competitive strategies of suppliers within that market. This is critical in the context of applying Criterion b which is starts from the premise that there is a market demand and then asks whether it is least cost for a single facility to serve that market demand.

138. If "demand in the market" is interpreted as "demand at the target facility given the existence and pricing of other competing facilities" then Criterion b is being subverted by circular logic. By definition, demand for a supplier given its competitors' prices, will be demand that that the supplier is best placed (lowest cost) to serve. Interpreted this way, all facilities operating in highly competitive markets with some locational (or other) differentiation would pass Criterion b.

139. By way of illustration, the market demand for cola soft drinks exists independently of the pricing decisions of Coke and Pepsi. If one were considering applying Criterion b to Coke then it would be a grave error to estimate "demand in the market" within which Coke operates to be "demand for Coke given Coke charges $2.00 to can and Pepsi charges $1.80 per can". That is an estimate of demand for Coke and is a material underestimate of the true market demand within which both Coke and Pepsi operate.

140. In this case, one needs to attempt to define the market for cola soft drinks generally – not the demand for Pepsi given the existence of and pricing of Coke. If all cola drinks were the same (homogenous in the eyes of consumers) then, conceptually at least, it is relatively simple to estimate demand in the market as total demand for all cola drinks.

141. However, if there is product differentiation (either due to spatial differences between suppliers or other perceived quality differences) then there is no single uniform product. In that case, we would be applying Criterion b to a specific facility with a specific set of product differentiation characteristics. This requires that we define "demand in the market" to be demand for a single product with the same product differentiation characteristics as the facility subject to declaration proceedings (e.g., the same location and/or other differentiated characteristics) .

142. If applying Criterion b to:

- Pepsi, we would need define "demand in the market" to be demand for a cola soft drink with same product differentiation attributes to Pepsi if it was the only cola drink available;
- Firm A in the above stylised analysis then we would define "demand in the market" to be demand for the services of a firm in Firm A's location if it was the only service provider; or
- NQXT then we would define "demand in the market" to be demand for the services of a coal export terminal at Abbot Point if it were the only coal export terminal available to miners in the CQCN.

143. Under no circumstances would we define "demand in the market" to be:

- Demand for Pepsi at market prices for Pepsi and Coke;
- Demand for Firm A given market prices charged for Firm A and Firm B;
- Demand for NQXT given market prices charged by NQXT and other coal export terminals in the CQCN.

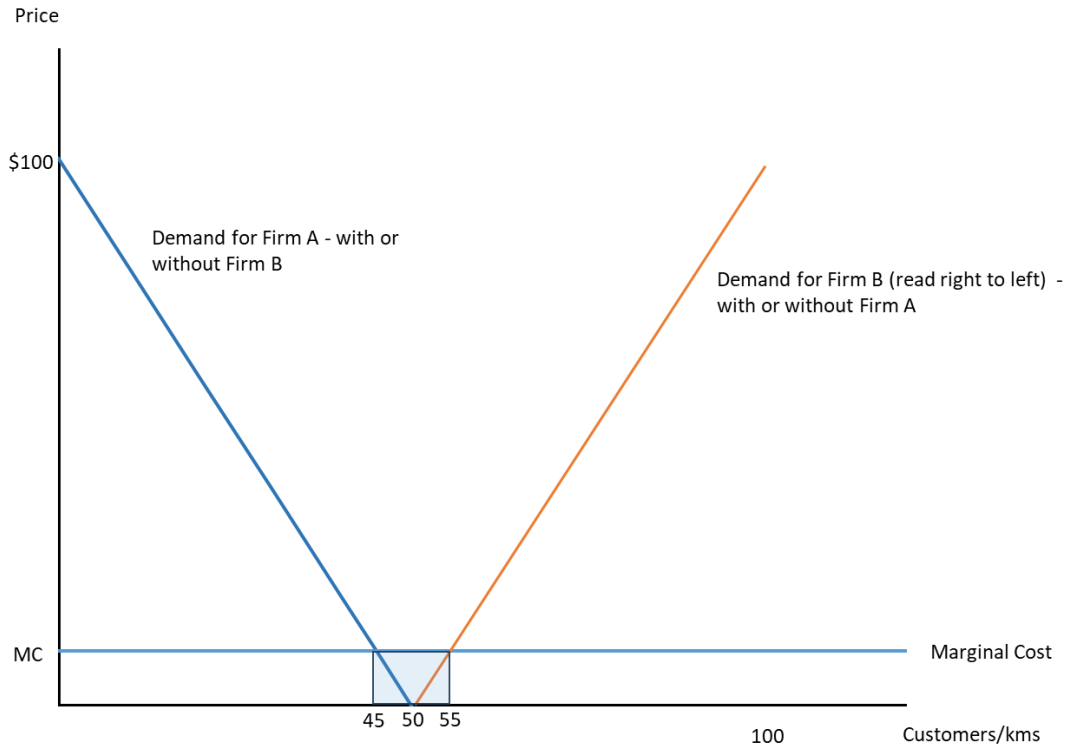
5.3.1.1 If the facility is a monopoly pricing by other suppliers is irrelevant

144. The wrong approach can yield the correct answer but only if the suppliers are, in fact, separate monopolies. In the Coke and Pepsi illustration, this would be the case if product

differentiation was so strong that demand for Pepsi was the same independent of the price of Coke (e.g., the same whether Coke's price was zero vs $10 per can). If this was the case, and assuming no other cola suppliers, then Pepsi would be a monopolist to customers in the "prefer Pepsi" product space.

145. In our stylised example of customers spread along a 100 km railway line this would be the case if transport costs were high relative to valuation (V) as is the case in Figure 5-3. In that scenario, even before the entry of Firm B, Firm A would only ever serve customers up to 45 km away. For customers further away, transport costs are too high to allow profitable trade (assuming a marginal cost for Firm A of $10 per unit).

Figure 5-6: Adaptation of Figure 5-3 (V=$100 and T= 2.0 $/km) adding Firm B at the opposite end of the railway



146. If we add Firm B at the opposite end of the railway then Firm B will have the same demand curve (illustrated above as the mirror image of Firm A's demand curve read from right to left).

147. Even with two firms, customers between 45 and 55 km from Firm A will not be served because their transport costs are greater than $90 (>=2.0 × 45). Given a valuation of

$100 and a $10 per unit marginal cost for each supplier this does not leave any surplus from trade for either the customer or the supplier.

148. The existence of this "dead zone" between suppliers is an indicator that they are operating in different markets. In this case, and only in this case, will the correct market definition yield the same definition as an approach that asks, "what is demand for Firm A given the existence and pricing of Firm B". That is, the problem with this incorrect approach is that it, by definition, presumes that Firm A is a monopoly. This presumption does not lead to a wrong market definition if Firm A is actually a monopoly.

5.3.2 Consumers are made better off from entry (if supplier's markets overlap)

149. Figure 5-7 below summarises the difference in average outcomes for customers under monopoly and duopoly under the assumptions set out in Figure 5-2 above. We also include a further case where a third firm (Firm C) located in the centre of the railway line (and, therefore, is closest to 50% of the customers).

Figure 5-7: Three firm oligopoly illustration

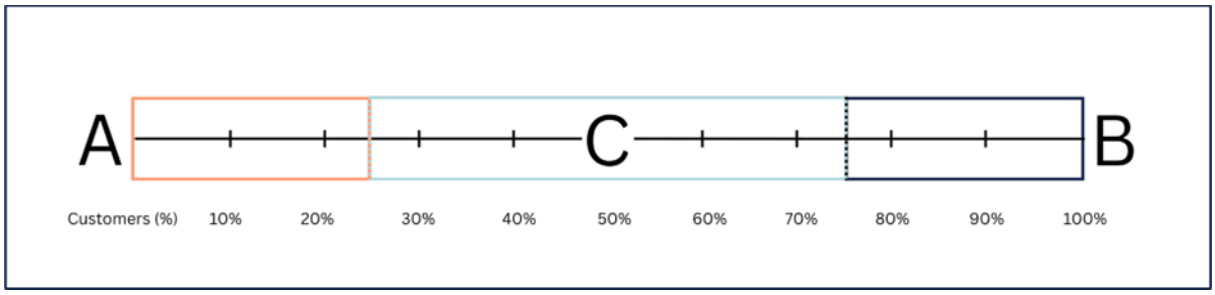


Table 5-1: Monopoly, duopoly, oligopoly modelling comparison, assuming V=$200, T= 1.0 $/km

Number of firms	Sales of firm A	Average price paid to all suppliers	Average transport costs all customers	Average total surplus across all customers
Monopoly	100%	$150.0	$50.0	$0.00
Duopoly	50%	$60.0	$25.0	$115.0
3 firm oligopoly	25%	$35.0	$12.5	$152.5

150. In summary:

- A monopolist will sell to 100% of customers at a high average price $150 per unit. Average transport costs are $50 leaving the average effective price inclusive of transport costs are $200 – leaving no surplus from the customers common valuation of $200.

- Adding a competitor at the opposite end of the railway reduces average prices dramatically from $150 to $60 per unit and also halves transport costs from $50 to $25. This leaves consumers with surplus of $115 (up from zero under monopoly and only $85 below their valuation of the service absent transport costs).
- Adding a further competitor in the centre of the railway reduces average prices more modestly from $60 to $35 per unit and, once more, halves transport costs from $25 to $12.5. This leaves consumers with surplus of $152.5 (up from $115 under duopoly and only $47.5 below their valuation of the service absent transport costs).

151. We note that a wrong market definition that asked "what would demand for Firm A be given the existence and prices of Firm B (and Firm C)" would find that the market Firm A operates is restricted to the customers that Firm A serves in both the duopoly and 3-firm oligopoly. In fact, adding additional firms into the market would simply "shrink" the estimate of "demand in the market" that Firm A operates in to be precisely the same as the demand that Firm A actually serves.

5.3.3 Competition benefits customers even if they do not switch supplier

152. It is important to note that customers benefit from competition even if, after entry, they never switch from their closest (preferred) supplier. Indeed, after a post entry reallocation of customers, customers will not tend to switch. That is, customers will tend to stay with the closest supplier because that is the least cost solution for them (and for the market as a whole) However, the prices that they can negotiate will be materially lower than if their non-preferred supplier did not exist (see Table 5-1 above).

6 Estimating foreseeable demand in the market within which NQXT operates

153. In this section we apply the principles outlined in Sections 4 and 5 to the factual situation of NQXT's location in the CQCN. In doing so we estimate foreseeable demand in the market in which NQXT operates to be in the vicinity of [redacted] over the envisioned declaration period.

154. This tonnage includes output from the Middlemount mine and all of the mines that have lower transport distances to NQXT (relative to DBCT) than Middlemount. We stop our analysis at Middlemount because [redacted]. Appendix A provides a list of these mines, their distance from NQXT and DBCT and their throughput.

155. If we extended our analysis to include other mines, we may also have included their output. However, given NQXT is clearly not least cost to serve [redacted] (see section 7) there is no need or utility to analyse any additional mines.

6.1 Estimating each mine's willingness to pay for NQXT service

156. Following the same logic from Section 5, a stylised model of a miner's maximum willingness to pay NQXT for facilitating loading of coal onto a ship is equal to:

- The FoB price of coal – this is the value/revenue per tonne once loaded on a ship; less
- Extraction costs – this is the cost incurred by firm to extract coal out of the ground and have it ready to be transported by rail;
- Rail transportation cost – This is the cost associated in the transportation of the coal from the mine to the port. It has two components;
  - The "above rail" cost of associated with the haulage operator; and
  - The "below rail" cost associated with the use of the rail track owner (Aurizon in the CQCN).

6.1.1 Price of coal

157. The future price of coal is a critical consideration for miners as this will determine their ability to recover their costs to supply coal. Importantly, if the price of coal is sufficiently low, some miners would prefer to leave the coal in the ground than transfer it to NQXT (even if NQXT offered its service for free).

158. Coal mines in the CQCN extract a combination of thermal and metallurgical coal of various quality. Each mine's unique coal mix is an important consideration due to the significant price differential between thermal and metallurgical coal. For example, mines on the Newland System tend to have a higher fraction of thermal coal while mines in the Goonyella system tend to have a higher fraction of metallurgical coal. We have relied on the prices forecasted by Wood Mackenzie based on both the quality and type of coal produced at each mine.

159. Wood Mackenzie categorise the coal produced from each mine into various streams based on the type of coal and in some cases the quality of coal. It produces annual volume and price forecasts for each of the streams. We calculate the average price for each mine based on the volume and price of each stream. We then convert the prices, which are in US dollars into Australian dollars based on FY24-25 average daily exchange rate (1USD=1.54AUD).

160. [redacted] shows the average price at each mine over the period 2025 to 2030. There is a large discrepancy in prices across mines depending on the production mix of each mine. Mines that produce a higher share of metallurgical coal enjoys a higher price. The black line shows the average price mines.

[redacted]

Source: Wood Mackenzie. Only mines forecasted with positive production over 2025-2030 are shown. Wood Mackenzie forecasts in USD, we have used the average FY25 daily AUD to USD exchange rate to convert to AUD

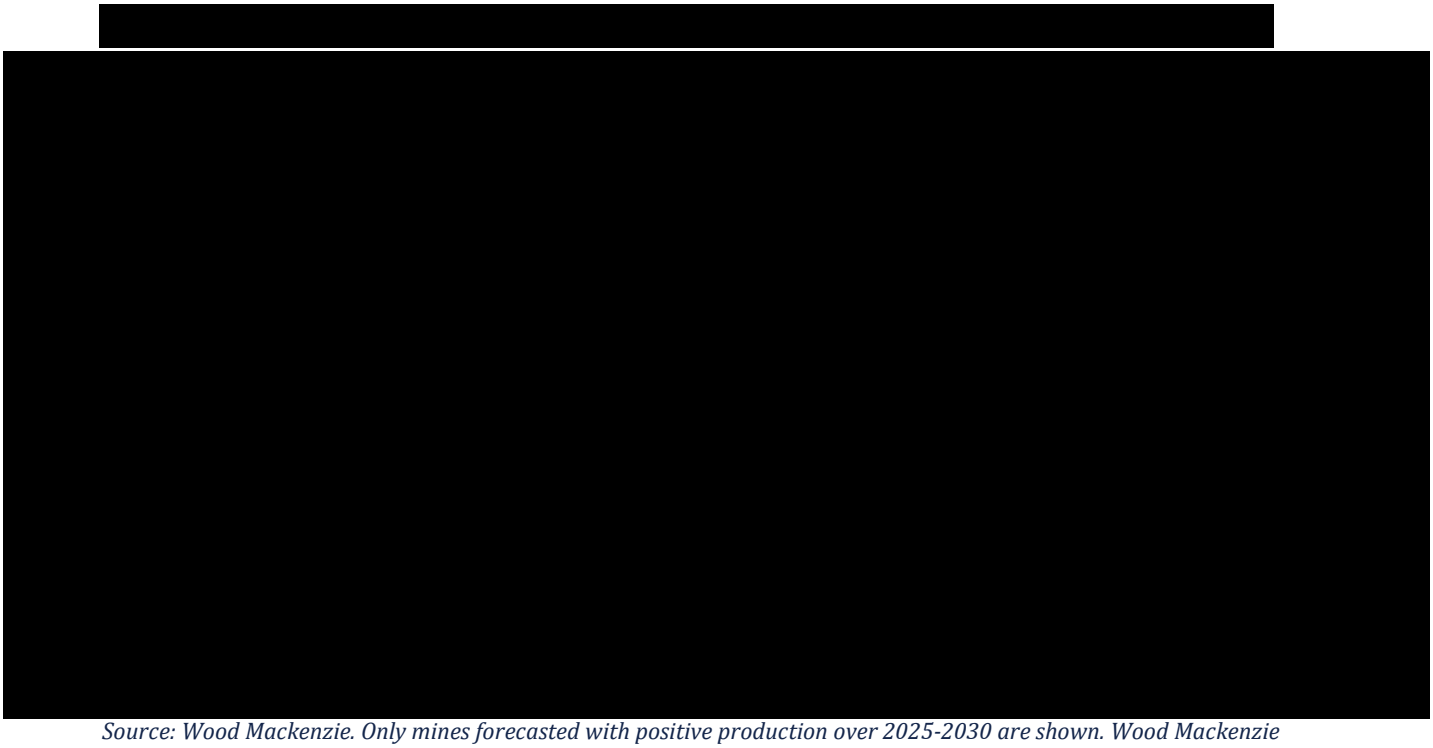
6.1.2 Extraction costs

161. Mining cost is the cost incurred by firm to extract the coal out of the ground and have it ready to be transported by rail. We estimate the cost to coal sales using Wood Mackenzie data. Wood Mackenzie break the cost into three categories, cash costs, sustaining capital and capital costs (development)[20].

- Capital costs is the infrastructure cost associated with the construction, expansion and closing of the mine. It is generally sunk and not tied to the incremental cost associated with production of coal from an existing mine.
- Sustaining capital is the ongoing capital investment that a mine must make to continue to operate. This includes maintenance capital and investment required to adapt to regulatory changes.
- Cash costs are the direct operating cost of extracting the coal. These include:
  - Mining – includes labour, the direct costs incurred in bringing coal from the pit to the run of mine (ROM) stockpile (such as fuel, explosives, electricity etc) and indirect costs such as rehabilitation;
  - Preparation – includes the direct costs of washing the coal and the yield or volume loss;
  - Overhead - charges imposed on the mine from the mine's owner, typically based on coal marketing that is undertaken at a group level;
  - Royalties and taxes – royalties include those imposed by the government and vendor royalties which are made by private agreement;
  - Transport and Port – this is the transportation cost incurred by the mine.

162. [redacted] shows the breakdown of costs across the mines.

20 Wood and Mackenzie, (2023), "NSW domestic coal pricing study – Prepared for the Australian Energy Regulator", March 2023 Page 18



Source: Wood Mackenzie. Only mines forecasted with positive production over 2025-2030 are shown. Wood Mackenzie reports this in AUD.

163. The relevant cost categories for us are the incremental costs associated with the extraction of the coal and work carried out before the haulage of the coal by rail. This is the cost that can be avoided if the tonne of coal is not extracted. We make the following assumptions on the following costs that are considered to be incremental per additional tonne extracted.

164. For a conservative analysis, we assume 100% of the cost for mining, preparation and royalties are variable; and 50% of the cost for overheads and sustaining capital are variable.[21]

[21] Noting that the higher the variable extraction costs the lower the miner's willingness of to pay for the service offered by an export terminal.

Table 6-1: Incremental cost of coal production

Cash cost categories	% of cost assumed to be variable
Mining	100%
Preparation	100%
Overheads	50%
Royalties and taxes	100%
Sustaining capital	50%

165. [redacted] below shows the share of variable cost by mine. The blue portion is the variable cost per tonne and the orange portion is the fixed cost per tonne. The percentage of cost that is variable varies between 91% to 98% across the mines.

[redacted]

Source: Wood Mackenzie. Only mines forecasted with positive production over 2025-2030 are shown. Wood Mackenzie reports in AUD

6.1.3 Above and below rail transportation costs

6.1.3.1 Above rail charges

166. The QCA has declared Aurizon's below-rail service for third-party access allowing competition between operators in the above-rail haulage market (e.g., Aurizon Operations, Pacific National).

167. We have adopted the QCA's above-rail cost estimate of $4.21,[22] uplifted to $5.35 (2024 dollars) using CPI, for the average Goonyella mine to access DBCT. We have similarly adopted HoustonKemp's methodology to adjust the QCA's system average above-rail cost to estimate a mine specific above rail cost to access either DBCT or NQXT:[23]

    - We apply a distance factor adjustment that is based on each mine's location relative to the North Goonyella Junction and halve this to reflect the QCA's 50% weighting for variable costs;
    - We apply a payload factor adjustment to account for Goonyella payloads being 50.5% higher than those on the Newlands/GAPE systems (10,236 compared to 6,800). This means that exporting via Newlands/GAPE requires more trains per tonne. Effectively, above rail costs are 1.5 times higher per tonne for exporting via NQXT or originating on Newlands/GAPE (no adjustment is made for Goonyella to DBCT); and
    - We take the product of these adjustments to account for the interaction between the payload and distance factor.

168. For example, we estimate the cost of transporting coal from the North Goonyella junction to be [redacted] to NQXT and [redacted] to DBCT and the maximum above-rail cost from NQXT to DBCT to be [redacted] both ways. See Appendix A for details of the calculations for each mine.

6.1.3.2 Below rail charges

169. Below-rail cost is the cost of using Aurizon Network's below-rail infrastructure for coal haulage.

170. Below-rail cost per tonne of coal transported to a terminal depends on the exact location of a mine, because a portion of the below-rail reference tariff is distance-based. The further a mine is away from a terminal, the greater the below-rail cost per tonne (all other things being equal).

171. HoustonKemp has adopted an average below-rail cost approach, calculated by dividing the maximum allowable revenue for each system by the system forecast of net tonnes.

22 DBCT declaration (2020), https://www.qca.org.au/wp-content/uploads/2019/05/declaration-reviews-final-recommendations-part-c_-dbct-service.pdf, page 254.

23 HoustonKemp (2025), paragraph 346-353.

HoustonKemp's estimates are shown in the table below. We adopt these for simplicity and none of our key conclusions turn on adopting these assumptions. [24]

Table 6-2: Average below-rail cost by rail system calculated by HoustonKemp

	Newlands	GAPE	Goonyella
Average below rail cost	$2.87	$8.27	$4.20

Source: HoustonKemp (2025) Table A.1

172. HoustonKemp then adopted a lower bound and upper bound estimate based on the QCA's approach when considering declaration of DBCT. When coal is transported to an alternative Aurizon system, the QCA has defined the bounds as follows:[25]

- Lower bound – the QCA has defined the lower bound estimate as the *"'within system' costs associated with the destination system"* only; and
- Upper bound – the QCA has defined the upper bound as the sum of the 'within system' costs associated the system the mine is in and the destination system.

173. As an example, the QCA has calculate that the lower bound for a coal originating in mines in the Goonyella system being only average 'within system' cost of the GAPE at $2.48 and the upper bound based on the sum of the average 'within system' cost of the GAPE and Goonyella system at $4.60 ($2.48 for GAPE+2.11 for Goonyella)[26].

174. Based on the QCA's principles and HoustonKemp's calculated average below-rail cost for each system, we calculate the below-rail cost of a mine transporting coal to NQXT as follows:

- Newlands mines- average cost in the Newlands system.
- NML mines the GAPE tariff to access NQXT.
- For mines in the Goonyella system:
  - Lower bound is the average cost on the destination system which is the GAPE tariff only.[27]

24 While we accept Mr Houston's approach the purposes of comparison, we note that it is not clear to us whether this takes into account, amongst other things, additional amounts payable on an unregulated basis under GAPE Deeds that may not be otherwise reflected in the regulatory maximum allowable revenue.

25 QCA (2020) Page 249

26 QCA (2020) Table A.1

27 The Newlands tariff is not applicable to customers that uses the NML to access NQXT.

- Upper bound adds the Goonyella average cost to the GAPE tariff. Note that even though the Goonyella tariff is included in the upper bound, under the GAPE DAAU in the 2010 access undertaking, customers that are located in the Goonyella system are currently not required to pay the Goonyella system tariff when hauling coal from Goonyella to NQXT.[28]

175. The resulting below rail costs are summarised in Table 6-3 below.

Table 6-3: Average below-rail cost by rail system

Origin	To NQXT (no upper/lower bound)	To NQXT lower bound	To NQXT upper bound
Newlands	$2.87 (Newlands)	NA	NA
NML	$8.27 (GAPE)	NA	NA
Goonyella	NA	$8.27 (GAPE)	$12.47 (GAPE+Goonyella)

6.2 Foreseeable demand in the market

176. With the preceding estimates of the value of coal (FoB) and the costs of extracting and transporting coal to NQXT, we are able to estimate the maximum willingness of each mine to pay NQXT to facilitate loading its coal onto a ship.

177. As explained in sections 4 and 5, total foreseeable demand in the market in which NQXT operates is simply the sum of all coal volumes where a miner's willingness to pay exceeds NQXT's costs of serving that miner's demand.

178. If miners incurred no mining or transportation costs, their maximum willingness to pay to export through NQXT would fall between the FoB price for thermal and metallurgical coal depending on the exact mix of coal and quality from that mine. We have adopted each mine's average forecast price from 2025 to 2030 based on Wood Mackenzie data (the prices vary between [redacted] depending on the output of the mine. See Section 6.1.1 and Appendix A).

179. We have also relied on Wood Mackenzie estimates of mining costs and our own estimates of the incremental component of these. (The incremental cost between 2025 and 2030 varies between [redacted] per tonne, making up [redacted] of total operating cost - see Section 6.1.2).

[28] https://www.qca.org.au/wp-content/uploads/2019/06/9720_r-qca-gape-summaryofgapedaaukeyelements-0313-1.pdf

180. For rail transport costs from the mine to NQXT we use:

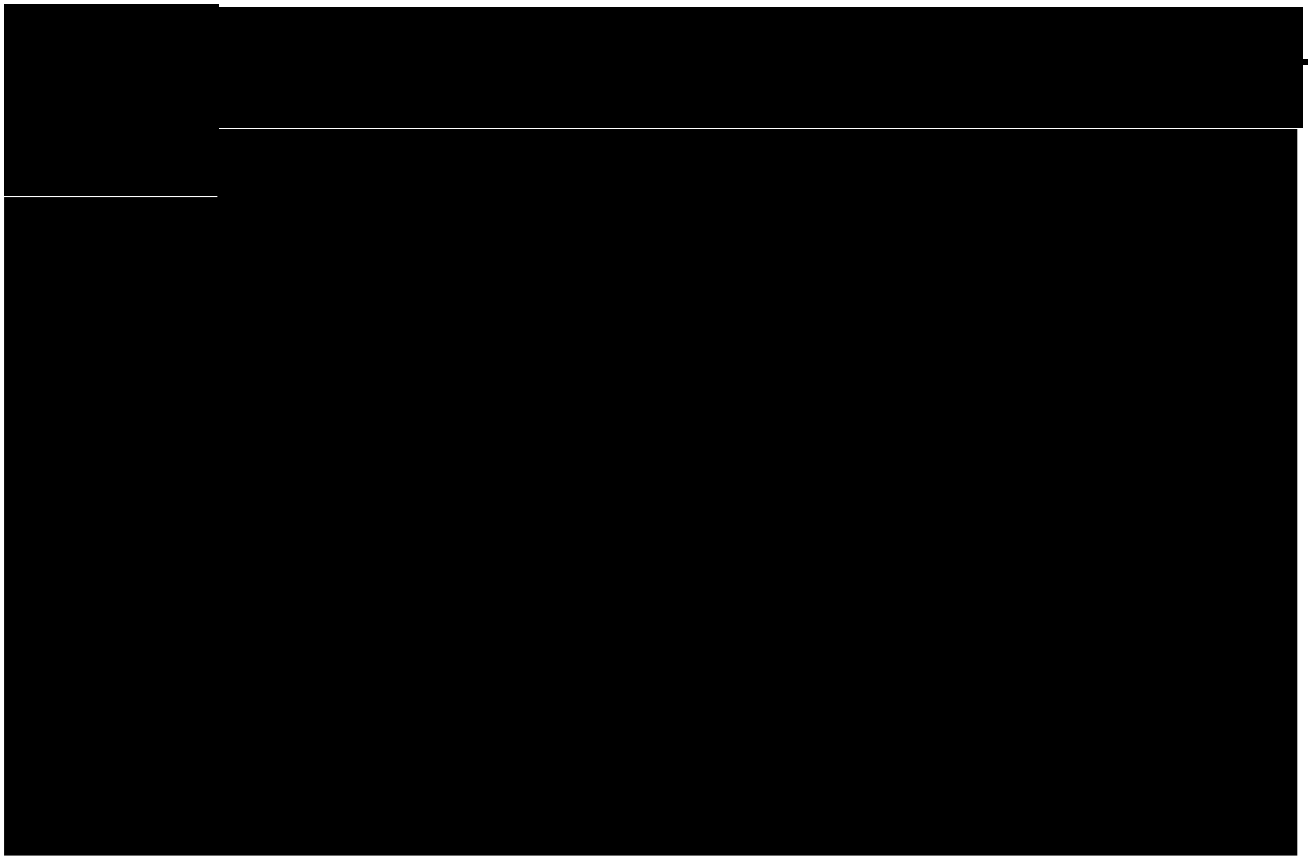
[redacted]

- Below rail costs of (see Section 6.1.3.2):
  - $2.87 per km for mines located in the Newlands system;
  - $8.27 per km for mines located on the Northern Missing Link; and
  - $12.47 (upper bound) per km for mines located in the Goonyella system.

181. In [redacted] we subtract these costs from each FoB value of production to derive the demand curve for NQXT absent any competition from other export terminals in the CQCN. This is simply each mine's willingness to pay ordered from highest to lowest and with the volume of each mine (including an allowance for contracting capacity at NQXT above throughput) representing each flat portion of the curve. That is, volumes from large mines, like Goonyella Riverside and Carmichael represent long flat portions of the demand curve.

29 We combine the payload factor as we are modelling all mines going to NQXT [redacted]

30 Goonyella Junction to DBCT is 212.9km whereas Goonyella Junction to NQXT is 232.2km. As the distance to NQXT is 9% further, we assume 50% are variable costs and uplift the above rail cost by 4.5%, which gives an above rail estimate of [redacted]



Source: Wood Mackenzie. Figure shown is based on below rail upper bound for cross-system haulage costs.

182. The demand curve in Figure 6-4 is derived using the upper bound estimate of below rail transport costs. If the lower bound estimates were used the willingness to pay from Goonyella miners would be slightly higher.

183. It may be useful to note that the ordering of mines in Figure 6-4 is not solely based on their distance from NQXT. In particular, the mine with the second highest willingness to pay [redacted] is [redacted] km from Abbot Point and is in the Goonyella System.

184. We estimate average annual throughput from the mines identified in Figure 6-4 to be [redacted] To calculate the average annual contracted capacity, we've assumed that the throughput is equal [redacted] of the contracted capacity. This scaling factor captures the fact that actual throughput over a year is volatile and in order to achieve a given average throughput one needs a higher capacity. This follows the methodology used by the QCA and Mr Houston[31] and is consistent with the analysis of Mr Smith.[32]

185. On this basis we conservatively estimate foreseeable demand in the market in which NQXT operates to be [redacted] contracted capacity over 2025 to 2030. However, this is

31 HoustonKemp (2025), paragraph 192.

32 Witness statement of Mark Bradley Smith dated 22 August 2025, Table 2.

expected to be increasing overtime such that the maximum annual output from these mines is [redacted] in 2030 which corresponds to [redacted] committed contract capacity using our 1.1 scaling factor.

7 Is NQXT least cost to serve foreseeable demand in the market in which NQXT operates?

186. We conservatively estimate foreseeable demand in the market in which NQXT operates to be [redacted] contracted capacity over 2025 to 2030 for the mines identified in Figure 6-4.

187. This includes output from mines in the Goonyella system that are closer to DBCT and HPCT and which have higher transport costs to NQXT than DBCT/HPCT. [redacted] is also greater than NQXT's current capacity (50 mtpa, see Appendix B.3) and greater than the rail system's current capacity to deliver coal to NQXT.

188. For these reasons it is clear that NQXT is not least cost to serve foreseeable demand in the market within which it operates. [redacted]

189. The least cost solution is for the CQCN to be run as a system – precisely as it is currently run. This allows:

- Most mines sending most of their coal export volumes most of the time to the closest export terminal and with rail and port capacity optimised to support that outcome; with
- The ability to divert volumes to more distant export terminals where this is efficient and/or pro-competitive. Examples of this include sending coal from the Goonyella system to NQXT when the effective price of accessing DBCT/HPCT is high. This can be because:
  - capacity constraints (rail and/or port) create a high effective (secondary capacity market) price of mines exporting via DBCT/HPCT; or
  - DBCT/HPCT offers unattractive terms miners – where unattractive terms include not just price terms but non-price terms (including in relation to the timing that capacity is made available.

190. The benefits to coal miners of having this substitution between DBCT/HPCT and NQXT are precisely why the GAPE investment was funded by Goonyella miners – including miners like Lake Vermont and Middlemount who are distant from NQXT.

8 Competition in the market

191. In the previous section, we found that foreseeable demand in the market for NQXT to be [redacted] As a monopolist (with perfect information), NQXT could extract all of the surplus from mines by price discriminating up to each mine's willingness to pay. In this section, we present and contrast Hotelling duopoly model from Section 5, where NQXT competes directly with DBCT/HPCT, to the outcomes in the monopoly model.

192. We illustrate that duopoly competition results in materially lower prices and a more efficient sharing of volumes between the terminals. This analysis is the real-world application of our stylised duopoly example in Section 5.3. We note that this analysis is not required to reach our conclusions regarding criterion b, but rather, it is included for completeness. We note that our application of this duopoly model is stylised. In Section 8.3 we discuss complexities around System constraints in the CQCN and the timing issues associated with capacity additions that likely also play a role in observed market sharing between NQXT, DBCT and HPCT.

8.1 The nature of unregulated price competition between NQXT and DBCT

193. [redacted].[33] This price discrimination allows NQXT to expand its competitive reach. For the purposes of this analysis, we similarly assume that DBCT can engage in price discrimination to expand their competitive reach. Of course, and as explained below, the degree of price discrimination given competition between the terminals is relatively limited compared to if NQXT was a monopoly.

194. In the below model of competition, we assume that both NQXT and DBCT can serve a mine if the fee charged allows it to recovery the incremental costs of serving the demand from that mine. The incremental costs of serving a mine are different in the short run and the long run:

    - An estimate of the short run marginal costs at each terminal is variable handling charge, which is [redacted] at NQXT[34] and $1.78 at DBCT[35] (note 2026 vs 2020 dollars);

33 [redacted].

34 In FY2026, NQXT charged a coal handling fee that comprises [redacted]

35 DBCT declaration (2020), https://www.qca.org.au/wp-content/uploads/2019/05/declaration-reviews-final-recommendations-part-c_-dbct-service.pdf, page 254.

and

- An estimate of the long run marginal cost at DBCT is the total regulated coal handling charge of $9.32 and the current charges at NQXT of $8.94 as reported by HoustonKemp.[36]

195. In the analysis that follows, we have adopted our estimates of long run marginal costs at each export terminal. That is, we assume that export terminals will compete by price discriminating down to their long run marginal costs.

8.2 Competitive duopoly prices between NQXT and DBCT without regulation

196. In our analysis we assume that all parties have perfect knowledge and there are no regulatory or other barriers that prevent timely expansions to capacity at long run marginal cost.

197. As was the case in our illustrative duopoly model (see section 5.3), we assume that each export terminal serves the customers that it has a long run marginal cost advantage over. That is, the market shares are determined by the lowest-cost provider for each mine.

198. These assumptions are stylised as the real world is more complicated. For example, in the real world we observe that Lake Vermont and Middlemount are both foundational customers of the GAPE and [redacted] We discuss why this is likely the case in Section 8.3 we below.

199. Our modelling suggests that NQXT would serve [redacted] of the [redacted] foreseeable demand in the market NQXT operates in. However, as explained in Section 5, having NQXT as a competitor will lower the competitive equilibrium price that is charged to miners served by DBCT (and vice versa).

200. The following figure presents the upper bound results of this competitive duopoly model (based on upper bound transport costs and terminal long run marginal cost).

[36] For simplicity we have adopted the total handling charges for DBCT and NQXT that are reported by HoustonKemp, Table A.3 (FY2025). The price for NQXT that is reported by HoustonKemp [redacted]

[redacted]

Source: Wood Mackenzie. [redacted]

201. It is notable that the upper bound duopoly prices modelled above, [redacted] This suggests that actual competition is more intense that our stylised model assumes.[37] An alternative estimate of duopoly prices is based on the midpoint between the upper and lower bound "below rail" transport costs and estimates of terminal short run marginal cost (rather than long run marginal cost). Applying these assumptions duopoly prices are as per [redacted]

37 For example, our stylised model assumes that all parties have the same access to information and that miners have no alternatives but to export via DBCT or NQXT. This ignores the potential to export via other terminals (such as HPCT or Gladstone terminals). Similarly, our estimates of rail transport costs are upper bound costs (as per the note to the figure). Lower transport costs imply stronger competitive constraints for any given miner's relative difference to terminals. Similarly, our modelling using terminal long run marginal cost as the relevant measure of marginal cost. [redacted] We also assume that the mines output is fixed. In reality, miners always have the option to threaten not to export or export lower volumes in order to negotiate lower prices. Another simplification is abstracting from potential cost differences that affect a coal producer based on differences in the operational modes of one terminal compared with another, that impact upon the relative overall cost of using a terminal. For example, whether differences in stockpiling, loading arrangements or vessel management impact on a coal producer's costs of using that terminal.

[redacted]

[redacted]

202. As was the case in the illustrative Hotelling model, duopoly competition is the fiercest for mines in the "middle" (e.g. [redacted] where transport to each export terminal is similar (the terminals are the closest substitutes for each other). The colour coding represents, as was the case in Section 5, which terminal would serve the mine (which terminal has the run rail/port marginal cost for that mine). Note that if there was a mine perfectly in the middle, it would enjoy an export terminal price equal to DBCT's (slightly higher) marginal cost (and be served by NQXT).

203. As we move away from the middle, the prices that the export terminals can charge increase as the transport costs of using a more distant terminal increase, such that the highest potential prices charged by NQXT are at the far left and for DBCT the far right. This is because for these customers, the higher cost terminal provides a lesser competitive constraint due to transportation costs.

204. These are obviously hypothetical prices based solely on our stylised duopoly modelling. However, they help to demonstrate the relativities that exist between coal producers in relation to potential terminal prices, including based on transport costs – where both terminals nonetheless operate in the same market.

205. We contrast these competitive duopoly prices with the monopoly prices in the following figure. The mines are ordered in this figure such that the monopoly demand curve for NQXT is downward sloping. The duopoly prices are unchanged relative to the previous

figure. However, they are re-ordered to match with the location of the same mine in the NQXT demand curve.

[redacted]

Source: Wood Mackenzie. [redacted]

206. As expected, the introduction of duopoly competition divides the market such that one supplier does not service all demand. Transitioning from a monopoly to a duopoly results in the incumbent firm's sales falling. This reflects a sharing of the market that the former incumbent operated in, rather than the market shrinking to match the incumbent's new market share.

207. Also as expected, competition is good for coal producers (i.e., consumers) as it results in considerably lower prices and positive consumer surplus, noting that there is zero consumer surplus under a monopoly. Notably, [redacted]. The competitive duopoly prices are [redacted] than the monopoly prices by between [redacted] per tonne (for [redacted] – at the far right of Figure 8-3 (not named in the chart) and [redacted] at the far left of Figure 8-3. The weighted average (by contracted volume) duopoly costs is below the monopoly price by [redacted]

208. An additional benefit of a duopoly over a monopoly is both lower terminal prices and lower transportation costs for coal miners.

209. We have separately quantified the price reductions that customers enjoy as a result from duopoly competition and transport cost savings in the [redacted] below.

[redacted]

The figure shown is based on below rail upper bound for cross-system haulage and assumes long run marginal cost for NQXT and DBCT.

210. Except for [redacted] the transition from a monopoly NQXT to a duopoly results in all mines enjoying cost reductions of at least [redacted] For most mines, the cost reduction exceeds [redacted] receives a [redacted] because of the smaller difference in forecast revenue per tonne (and, therefore, lower monopoly price) for these mines and the greater distance that they are from DBCT (higher duopoly price).

211. We observe that there are no transportation cost savings for the mines between [redacted] This is because these mines minimise transportation costs in both a NQXT monopoly and duopoly by being served at NQXT. All other mines [redacted] benefit from significant transportation costs savings when they are able to export through DBCT instead of NQXT.

8.3 Complexities not captured by duopoly model

212. The duopoly model presented in the previous section provides a useful stylised framework for illustrating the benefits of competition between NQXT and DBCT for miners. However, this simplified model does not fully explain the observed market behaviour.

213. Our model assumes that mines will always use the lowest long run marginal cost ("closest") export terminal. However, [redacted], despite our model predicting that these mines should be served exclusively by DBCT as exporting via DBCT is the lower long run marginal cost option for these mines.

214. Our simple duopoly model does not account for the coordination of capacity expansions or the commercial constraints that miners face when securing access at their preferred export terminal. This was discussed using a stylised model in section 3.4. For reasons set out there, coal producers won't always transport to the terminal that lowers transport. Depending on where the capacity constraint / expansion cycle is, you are likely to see divergences from what the equilibrium model would predict. For example, mines effectively face several options:

- Pay to accelerate expansions at their "preferred" export terminal (including expansions to associated rail paths) to secure capacity;
- Purchase existing rights at their "preferred" export terminal (plus rail paths) from another user;
- Defer production (leave coal in the ground); or
- Pay to expand capacity (including rail paths) at the "less preferred" export terminal.

215. This model also does not account for other non-price factors such as service quality, reliability or flexibility that may influence a coal producer to 'swing' to another terminal. [redacted].[38]

216. The fact that Goonyella miners have paid to expand NQXT and the GAPE/Newlands system demonstrates that the perceived cost of using DBCT has exceeded the perceived cost of using NQXT for those contracted volumes. This likely reflects elevated implicit secondary market prices for rail and port capacity at DBCT and high perceived costs of deferring production (leaving coal in the ground) until rail and port capacity at DBCT could be expanded.

38 See Mark Smith statement at [126] to [130].

217. Substitution from Goonyella miners to NQXT is not a necessary fact that we rely on demonstrate that output from Goonyella miners is included in the market within which NQXT operates. Our primary modelling does not rely on such substitution to conclude that the market NQXT operates in extends deep into the Goonyella system. However, the fact that [redacted] confirms our conclusion and, indeed, is a sufficient (but not necessary) fact to sustain our conclusion.

9 Critique of Mr Houston's analysis

218. Mr Houston's approach to market definition is inconsistent with both standard market definition procedures for mergers and also the Criterion b market definition approach we have applied in this report. Specifically, in the context of defining markets for the purpose of assessing mergers it is standard to apply the Hypothetical Monopolist Test – which Mr Houston has not done.

9.1 Section 50 vs Criterion b market definition

219. As noted above, market definition is understood to be a purposive exercise. This means that the market, and the approach to the market definition exercise, may well be different depending on the commercial and legal context in which the market is being defined.

220. Markets are commonly defined in the context of merger proceedings under section 50 of the CCA and are required to be defined in the assessment of Criterion b. There are two key principles which differentiate the approach to market definition in each context.

221. First, in **defining a market in the context of Criterion b,** our purpose is to test whether a firm, or the facility of a firm, is lower cost to serve all of the demand in the relevant market than multiple facilities. This is why Criterion b is sometimes referred to as the natural monopoly test. In this context, the necessary approach is to consider a state of the world in which that firm, or the facility of that firm subject to the declaration proceedings, was a true monopoly. To do otherwise would exclude from the market demand that would otherwise be served by the firm's facility but for competition from another firm. The presence of a natural monopoly excludes the potential for competition.

222. In many merger cases and in the context of Criterion b, markets are defined to have a geographic dimension. In defining the geographic dimension of the market for applying the Criterion b it is necessary to consider a state of the world in which the facility was the only supplier. In this hypothetical, the geographic scope of the market extends to the location of customers that currently actually choose to use the facility *plus* customers that would choose to use the facility if alternative facilities were not available. It would not be consistent with the purpose of Criterion b to limit the market to only those customers that choose the facility in preference to other facilities. This would amount to identifying *demand for the facility*, based on the prices of that facility's competitors. If this is (wrongly) done, what is being estimated is not market demand but the facility's share of market demand. That is, what is being estimated is firm specific demand within the market – not market demand within which that firm operates.

223. Second, **in defining a market in merger proceedings**, the purpose is to identify the potential consumer harm arising from two firms making joint pricing and capacity decisions. In this context, the appropriate approach is to start with the pre-merger pricing strategies of all firms and ask whether a hypothetical monopolist over the products supplied by the merging firms could profitably raise prices by 5-10% (a SSNIP[39]). If they could not profitably increase prices, then the products that constrain such an increase should be included in the market. This approach is what economists refer to as the Hypothetical Monopolist Test:[40]

> *The hypothetical monopolist test requires that a product market contain enough substitute products so that it could be subject to post-merger exercise of market power significantly exceeding that existing absent the merger. Specifically, the test requires that a hypothetical profit-maximizing firm, not subject to price regulation, that was the only present and future seller of those products ("hypothetical monopolist") likely would impose at least a small but significant and non-transitory increase in price ("SSNIP") on at least one product in the market, including at least one product sold by one of the merging firms. For the purpose of analyzing this issue, the terms of sale of products outside the candidate market are held constant. The SSNIP is employed solely as a methodological tool for performing the hypothetical monopolist test; it is not a tolerance level for price increases resulting from a merger.*

224. This approach to market definition has a purpose consistent with the intention of the merger assessment as it allows one to focus on the impact of the merger on quality adjusted prices relative to the *status quo.*

225. Fundamentally, a Section 50 market definition is focussed on identifying the closest competitors to one or both of the merging parties. A competitor is "in the market" if competition from them is necessary to maintain prices at, or near to (i.e., within 5% or 10%), current levels.

226. Whilst a Section 50 market definition has another purpose it can nevertheless be informative as to the market relevant in the context of Criterion b. As set out below, a Section 50 market definition would define NQXT to be in competition with (in the same market as) DBCT. This is consistent with the correct Criterion b market definition which defines a market that includes mines served by both NQXT and DBCT.

227. Specifically, if a Section 50 market definition identifies a second firm as a competitor in the market to the first firm then the first firm is likely to fail Criterion b. A proportion of the demand served by the second firm should be considered in the market for the firm subject to the declaration inquiry – the fact that there is sustainable competition

39 Significant and non-transitory increase in price ("SSNIP")

40 U.S. Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines, 2010, section 4.1.1

between firms over a set of customers implies that neither is a natural monopoly in the market.

228. To see this, we can consider how a market may be defined for the purpose of considering a merger between NQXT and another CQCN export terminal. If NQXT were proposing to merge with another CQCN export terminal then, applying a SSNIP methodology one would:

- Start with NQXT. Clearly, NQXT is an actual "monopolist" of the NQXT facility and, therefore, assuming it is rational, can be expected to be already charging profit maximising prices;[41]
- Next, ask whether a hypothetical monopolist of both NQXT and its closest competitor, say, DBCT, would raise prices by more than 5% to 10% relative to current levels?
  - If the answer is "**Yes**", then the Section 50 market definition ends by defining DBCT and NQXT to be in the same market.
- If the answer is "**No**", then the Section 50 market definition process needs to be expanded beyond DBCT (e.g., to HPCT or Gladstone terminals) until the boundaries of the market are established:
  - When the answer is eventually "**Yes**" the market definition stops when the last export terminal was added to the hypothetical monopoly;
- If the answer is always "**No**" then this means that NQXT is already a natural monopoly (charging natural monopoly profit maximising prices) that does not compete with any of the other terminals on the CQCN. That is, this would imply that even if NQXT merged with every other export terminal it would not raise prices for NQXT customers by a SSNIP because the independent operation of those other export terminals fundamentally does not constrain NQXT's pricing or capacity decisions.

229. Taking into account the facts on the ground within the CQCN, the smallest possible Section 50 market definition in this context would include at least DBCT unless one were

41 European Commission, Notice on the Definition of Relevant Market for the Purposes of Community Competition Law (1997)

> *In general, when the candidate market (essentially) consists of the product(s) of a single undertaking, the SSNIP test applied at the prevailing market price will always suggest that the relevant market must be wider than the candidate market, because a profit-maximising undertaking, by definition, will not find it profitable to raise price above its prevailing (profit-maximising) price. [Footnote 55]*

to form the extreme view that NQXT would set the same prices irrespective of whether or not it monopolised all CQCN export terminals. In other words, whilst a Section 50 market definition approach should not be used in the context of Criterion b, it nevertheless has didactic value.

230. The above logic also applies when suppliers can set different prices to customers based on the cost to the customer of using one terminal over another. In this context, the Section 50 market can be defined to be a set of customers "in between" DBCT and NQXT for whom a combined DBCT and NQXT could profitability raise prices by more than 5% to 10% above the levels charged when DBCT and NQXT act independently. [42] Notably, this market:

- Would exclude the set of customers which have strong preferences for NQXT or DBCT such that the merged business could not raise prices;
- Would not, if a line were drawn around these customers on a map, physically include either NQXT or DBCT.[43]

231. Our modelling in Section 8 suggests that NQXT would set prices for some mines at over [redacted] per tonne if they had economic control over all CQCN export terminals. For example, as can be seen in [redacted] the profit maximising price for [redacted] would be over [redacted] per tonne absent competition from other terminals. In the same figure we show our estimate of the duopoly price, factoring in competition from DBCT, of around [redacted] per tonne [redacted] [44]

42 U.S. Department of Justice and the Federal Trade Commission, Horizontal Merger Guidelines, 2010, section 4.14 including the following passage"

"The Agencies also often consider markets for targeted customers when prices are individually negotiated and suppliers have information about customers that would allow a hypothetical monopolist to identify customers that are likely to pay a higher price for the relevant product. If prices are negotiated individually with customers, ***the hypothetical monopolist test may suggest relevant markets that are as narrow as individual customers*** *(see also Section 6.2 on bargaining and auctions). Nonetheless, the Agencies often define markets for groups of targeted customers, i.e., by type of customer, rather than by individual customer. By so doing, the Agencies are able to rely on aggregated market shares that can be more helpful in predicting the competitive effects of the merger."*

43 Ibid, section 4.2.2 includes the following passage:

"When the hypothetical monopolist could discriminate based on customer location, the Agencies may define geographic markets based on the locations of targeted customers. Geographic markets of this type often apply when suppliers deliver their products or services to customers' locations. Geographic markets of this type encompass the region into which sales are made. Competitors in the market are firms that sell to customers in the specified region. **Some suppliers that sell into the relevant market may be located outside the boundaries of the geographic market**"

44 NQXT contract profile spreadsheet.

232. The fact that NQXT would, if it were a monopoly, charge [redacted] is a clear indication that a Section 50 "SSNIP" market definition would include at least NQXT's closest competitor (DBCT).

233. Another way to make this clear is to imagine that NQXT was proposing to merge with DBCT. Would CQCN miners be in favour of such a merger on the basis that NQXT and DBCT are in different markets and do not compete? In our view that is an extremely unlikely, if not fanciful, suggestion. We would expect CQCN miners to strongly oppose such a merger on the basis that a combined NQXT and DBCT would:

- Seek to raise prices above current levels (subject to regulatory controls); and
- Seek to slow capacity expansions to raise the scarcity of their combined offering (e.g., delay expansions and DBCT in order to direct Goonyella miners to NQXT and, at the same time, raise prices at NQXT).

234. On any sensible assessment of a Section 50 market definition DBCT and NQXT would be close competitors.

235. But it does not follow that just because DBCT and NQXT are in the same market that output from all mines served by DBCT are also output in the market NQXT operates in. It is possible that there may be some mines served by DBCT that would not be willing to export via NQXT – even if DBCT did not exist.

236. For this reason, we do not include all mines in the Goonyella system in our estimate of foreseeable demand in the market. Rather, we only include mines where we estimate that it would be commercially profitable for both parties (NQXT and the mine in question) to contract and where there is evidence of commercial transactions between NQXT and a mine with similar (or more favourable) relative transport distance to NQXT vs DBCT.

9.2 Mr Houston's market definition methodology is non-standard and flawed

237. Mr Houston's approach to market definition purports to be a SSNIP, but is not applied in a conventional or economically sensible way.

238. At paragraph 86 of his report, Mr Houston states that the hypothetical monopolist (SSNIP) test is applied when defining both the product and geographic dimensions of the market:

> *86. The generally accepted framework[57] for defining the product and geographic dimensions of markets is that given by the 'hypothetical monopolist test,' which involves the systematic application of a process that:*

a. *commences with the candidate market being the narrowest reasonable market definition, taking into account the purpose at hand;*

b. *assesses whether a hypothetical monopolist in the candidate market would be closely constrained by products or services from outside the market, by contemplating the effect of imposing a small but significant non-transitory increase in price (SSNIP) from the competitive level –* ***if the hypothetical monopolist would profitably be able to impose such a price rise, then the next step is applied*** *or, otherwise, the candidate market is appropriate; and*

c. ***expands the market to include the closest constraints*** *on the hypothetical monopolist and goes back to the previous step. [emphasis added]*

239. No reference is provided for the basis of the opinion expressed in this paragraph and in our view it is plainly incorrect. That this is non-sensical market definition methodology is clear as soon as one attempts to apply it. There are only two options that Mr Houston's market definition can arrive at:

- Any firm that currently prices materially above "the competitive level" will be found **not to be** a monopoly and will have additional competitors added to its market;
- Any firm that currently prices at "the competitive level" (presumably because it faces fierce competition) will be found **to be** a monopolist (the product market will not be expanded any further than them).

240. This gives the absurd result that all firms operating in highly competitive markets are monopolists (single suppliers in their market) and all firms with pricing power (such that their current prices are above the "the competitive level" will end up being in an ever expanding market that can never stop expanding.

241. By way of illustration, consider a suburb with a single cinema that can price above "the competitive level". Mr Houston's methodology would say that you cannot define the geographic/product market to only include the local Cinema - given that it can price "above the competitive level". Instead, you need to expand the geographic/product market to include the "closest constraints". In this illustration this would include other cinemas in nearby locations or other substitute leisure activities (e.g., streaming services).

242. But, of course, creating a hypothetical monopolist of the local cinema and all nearby cinemas (and/or streaming services) isn't going to cause prices to fall to the "competitive level". This can only cause prices to stay the same or rise. Thus, according to Mr Houston's logic, the market must continue to be expanded – creating a hypothetical monopolist of all cinemas in the region (not just nearby towns) and all potentially substitute leisure activities. The market expansion under Mr Houston's methodology will keep expanding forever.

243. If we started with NQXT and believed that NQXT could raise prices above the competitive level then we would, by the same logic, define the market to include every export terminal in the CQCN. Only if we believed that NQXT was currently constrained by competition to charge the competitive level would we find NQXT to be a monopoly supplier in a market with no competing services. This paradoxical result is non-sensical.

244. What if we reversed Mr Houston's method? Would it make any sense in that case?

245. Instead of expanding the market when a monopolist could charge above "the competitive level" what if we started with the narrowest candidate market and only expanded until a hypothetical monopolist could charge above "the competitive level"? This would avoid the non-sensical result that:

- Firms in super competitive markets are defined as monopolists; and
- Firms in less competitive markets have their markets expanded to include an even expanding number of products as competitors.

246. But having avoided one nonsensical result, the reverse of Mr Houston's method has an equally nonsensical result. Namely, whenever any individual firm has some pricing power such that it can price above "the competitive level" then the market is never expanded to include its closest competitor.

247. For example, if Coke and Pepsi could price above "the competitive level" then Pepsi would not be defined to be in the same market as Coke and *vice versa*. This would imply that Coke and Pepsi could merge without any impact on price – because they operate in different markets. That would be an equally absurd conclusion.

248. The reverse of Mr Houston's described methodology is just as nonsensical as his described method. His described method creates too large (ever expanding) market definition while the reverse creates artificially small market definitions such that any firm that has some market power is assumed to be a monopolist with no competitors in its market (implying that they face no binding competitive constraints).

249. The above critiques apply even if there was clear agreement on what constitutes "the competitive level" of price. But, of course, this is a phrase that has no well understood and agreed method of implementation. Competition comes in many forms and delivers many different levels of prices. The Section 50 market definition is based on a SSNIP relative to current (status quo) pricing absent the merger. Perhaps this is what Mr Houston means by "the competitive level" but it is impossible to say given he offers no definition of this concept let alone a practical application.

250. As described by the US Horizontal Merger Guidelines (quoted in Section 9.1 above) hypothetical monopolist test is only sensibly applied asking whether mergers between suppliers would result in a SSNIP relative to the actual prices absent the merger. When performed correctly, the hypothetical monopolist test never defines a single supplier as

a monopolist – unless they actually are a monopolist already charging the monopoly price. Otherwise, the market is extended until a hypothetical monopolist would raise prices by a SSNIP relative to current market prices.

9.3 Mr Houston does not apply the methodology he sets out

251. Mr Houston's actual methodology applied to arrive at his market definition bears no relation to the methodology he described nor any other rational methodology.

252. Mr Houston's actually implemented methodology is to start with a geographic candidate market that includes all "northern mines" (being mines in that connect directly to the Goonyella to Abbot Point extension (GAPE), Carmichael rail line or the Newlands system). Mr Houston then determines that these mines would find it 63 percent[45] more costly to export via DBCT than NQXT (based on some assumptions Mr Houston made about the prices that NQXT and DBCT would charge).

253. Mr Houston then performs a sensitivity in which he assumes that the Byerwen mine also had to pay the cost of the GAPE system and he estimates that, even if this was the case, Byerwen would incur 15 percent[46] higher costs to export via DBCT than NQXT.

254. On this basis Mr Houston does not enlarge his market definition any further than his smallest candidate market of "northern mines".

255. The first point to note is that this approach is not consistent with Mr Houston's stated methodology. Mr Houston has not sought to ask whether NQXT could charge above "the competitive level". At no point does Mr Houston attempt to define the competitive level for prices. Mr Houston has simply asked whether a set of mines would have materially higher costs using DBCT than NQXT – given his assumed prices at DBCT and NQXT.

256. Perhaps Mr Houston seeks to treat his assumed prices as "the competitive level". However, he at no stage attempts to justify his estimates of prices for NQXT and DBCT (which have simply been taken from QCA estimates) as the "competitive level" of prices.

257. However, even if we treat Mr Houston's assumed prices as "the competitive level" then what Mr Houston's analysis shows is that NQXT could increase prices by 63% to 15% (for Byerwen) before those mines would switch to DBCT. On this basis, according to Mr Houston's stated methodology he should expand his market definition. Mr Houston did expand his market definition and, consequently, his actual method cannot be said to be based on his stated method (at least not assuming that his assumed prices for NQXT and DBCT were "competitive levels").

45 Houston Kemp report, paragraph 151.

46 Houston Kemp report, paragraph 150.

258. Turning to Mr Houston's actual method, the fact that this is a nonsensical approach to market definition can be illustrated by asking:

> *"What if these mines had a very similar cost difference for accessing DBCT vs NQXT? How would Mr Houston's market definition change?"*

259. For example, imagine that Mr Houston found that Byerwen had the same cost of accessing DBCT and NQXT? Would Mr Houston:

- shrink his market definition to exclude Byerwen?
- expand his market definition to include the next closest mine to DBCT (e.g., Goonyella Riverside)?
- expand "the market to include the closest competitive constraint" as per his stated methodology, which in this case is DBCT?
- do nothing?

260. None of these approaches would make any sense in the context of market definition for the purpose of applying Criterion b or, indeed, Section 50 or any other purpose. Take the idea that Mr Houston would shrink the market to exclude Byerwen. If that was the case then Mr Houston's market definition approach would be very clear. Mr Houston would be attempting to only include in his market definition the customers how have a preference for NQXT over DBCT.

261. If applied to the cola industry, Mr Houston's methodology would define a market of customers who had a strong preference for Pepsi over Coke – excluding all other customers (including customers who see the two as substitutes and customers who have a strong preference for Coke). This is a nonsensical approach to market definition for the purpose of both Criterion b and Section 50.

262. Now imagine that Mr Houston, having found Byerwen is approximately indifferent between NQXT and DBCT would expand his market definition to consider the inclusion of Goonyella Riverside. At that point Mr Houston would presumably perform the same test – asking whether Goonyella Riverside was approximately indifferent (would swing between NQXT and DBCT for 5-10% changes in prices). If it was, then, at least in this speculative version of Mr Houston's methodology, he would include Goonyella Riverside. Mr Houston would, presumably, keep adding mines until all mines that were approximately indifferent between NQXT and DBCT were added but would stop at that point – where the only mines left had a preference for DBCT (at Mr Houston's speculated prices for NQXT and DBCT).

263. This would then define a market to include all mines that preferred NQXT plus all mines that were approximately indifferent to NQXT and DBCT. In doing this analysis, Mr Houston would not have defined a market for NQXT. Rather, Mr Houston would have determined NQXT's market share if DBCT raised its prices by 5-10%. This is not a

market definition - it amounts to estimating market shares within a market – not defining the market itself. In terms of methodology, Mr Houston's approach is inconsistent with his stated methodology:

a. He is not asking whether NQXT could apply a SSNIP; rather,

b. He is asking what customers NQXT would win if DBCT raised prices by 5-10% - this is not a SSNIP analysis in any conventional or meaningful sense.

264. Applied to the cola industry this methodology would define a market of customers who would buy Pepsi at the assumed prices plus those that would switch from Coke to Pepsi if Coke raised its prices by 5% to 10%. In doing so, it would exclude all other customers (including customers who would only switch to Pepsi in response to a 6+%/11+% price increase for Coke). Once more, this is a nonsensical approach to market definition for the purpose of both Criterion b and Section 50. It guarantees that the market is defined as a subset of the true market and guarantees that Pepsi has a dominant market share in that "market".

265. Moreover, and critically, if this were Mr Houston's proposed methodology then he would have no basis to stop at Byerwen just because Byerwen had a preference to NQXT. That is, if Mr Houston's theoretical objective was to find customers who had a preference for NQXT plus those that were approximately indifferent then Mr Houston cannot sensibly stop his market definition at the last customer who had a preference for NQXT. He would need to test whether the next customer (Goonyella Riverside) was approximately indifferent and, if it was, include that customer in his market definition.

266. The fact that Mr Houston did not perform this analysis suggests that whatever methodology he did seek to apply (that differs from his stated methodology) was not one that attempted to include approximately indifferent customers.

267. A separate criticism of Mr Houston's analysis is that he estimates the costs of transporting coal from a mine to DBCT and/or NQXT including the cost of terminal charges and rail costs but only ever considers a 5% to 10% change in terminal costs as a relevant threshold. In reality, competition between terminals in the CQCN is as much about capacity constraints in the terminal and the associated rail networks. If there are capacity constraints effective prices of transporting via an export terminal can vary in the hundreds of percent range – making the 5% to 10% estimate from a single price assumed by Mr Houston trivial. This is a point that Mr Houston has himself made in the past,[47] but seems to have neglected for the purpose of preparing his current report.

268. For completeness, we apply Mr Houston's analysis to Goonyella Riverside. This is not because there is any sound economic basis for a "market definition" that only seeks to include NQXT customers plus customers who would prefer NQXT at a 5% to 10% price

47 HoustonKemp, Does DBCT's coal handling service satisfy criterion (b)?, 28 May 2018.

change. This is not a correct approach to market definition and the following analysis should not be seen as endorsing in any way Mr Houston's analysis.

269. Rather, examining the circumstances in which Goonyella Riverside (and other Goonyella miners) might prefer to export via NQXT can be used to illustrate of the competitive dynamics between NQXT and DBCT and the effective integration of the Goonyella and Newlands-GAPE systems.

270. Applying Mr Houston's assumptions, Goonyella Riverside would have a minimum cost of transporting coal via NQXT of $25.88 per tonne versus $18.69 (or 28% lower costs for export via DBCT). These estimates are based on Aurizon charging $8.27 per tonne below rail costs for Goonyella Riverside to export via the GAPE and Newlands system to reach NQXT (all values and calculations are reported in Table 9-1 below).

271. One problem with this analysis is, in part, the assumption that there is available rail and port capacity for Goonyella Riverside to export via DBCT. If Goonyella Riverside did not have access to that capacity for its entire output then the true price that Goonyella Riverside would face for a marginal tonne of export via DBCT could easily be double or triple Mr Houston's assumptions or, indeed, infinite if there was no miners with capacity rights to rail and port facilities willing to sell those rights to Goonyella Riverside.

272. But even if we put that problem aside, Mr Houston's approach to pricing the GAPE involves an economic paradox. Mr Houston simultaneously assumes that:

- Aurizon will charge at least $8.27 per tonne to use the GAPE; and
- That no miners will wish to use the GAPE given those prices.

273. This is an economic paradox because it implies that the GAPE will be priced at an inefficiently high level – one that not only discourages its use but that totally eliminates all demand for the GAPE other than from Byerwen (which is located 2/3rds[48] of the way along the GAPE from the Goonyella end).

274. That is, Mr Houston is assuming that prices for using the GAPE will result in the top 2/3rds of the GAPE being completely unutilised and the bottom third will be operating at less than one third its capacity (given that [redacted] and the GAPE has Deliverable Network Capacity of 22.1 mtpa).

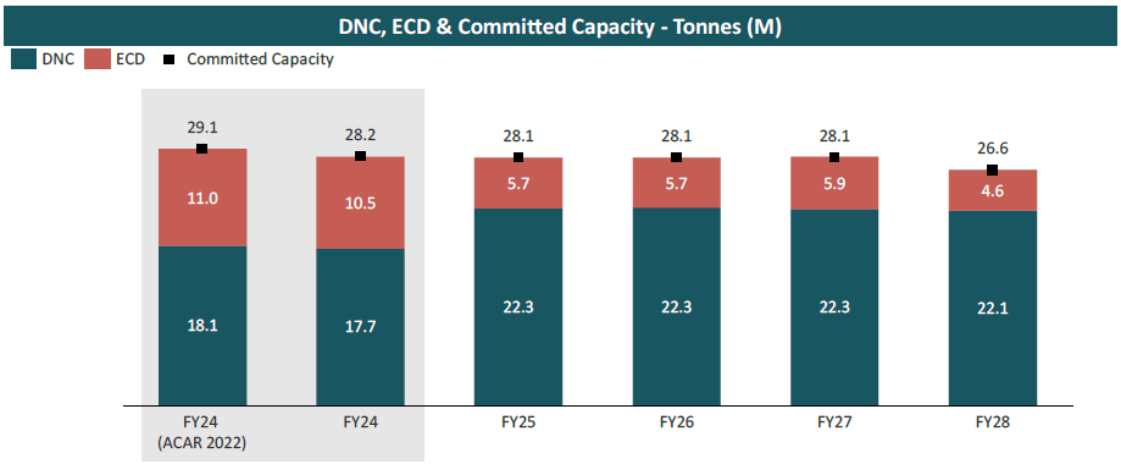
275. Aurizon's UT5, as approved by the Queensland Competition Authority ("QCA"), requires Capacity Assessments to be performed by the Independent Expert ("IE") for of each of the Central Queensland Coal Network's coal systems, as detailed in *Part 7A: Capacity*.

48 22.3 km used by Byerwen vs 66.7 km total length.

Their conclusions are summarised in Figure 9-1 below which extracts Figure 31 from the IE's 2023 Annual Capacity Assessment Report.

Figure 9-1: Capacity assessment by the Independent Expert

Figure 31 - GAPE summary for FY24 to FY28 (Tonnes)



276. This analysis estimates committed capacity to be around 26.6 mtpa in 2028 and Deliverable Network Capacity (DNC) to be 22.1 mtpa leading to an Existing Capacity Deficit (ECD) of 4.6 mtpa.

277. By contrast, according to Mr Houston's analysis, no Goonyella mines can be expected to export through NQXT via the GAPE. Therefore, the only coal travelling (one third of) the GAPE would be the Byerwen coal [redacted].

278. It may well be that some existing customers using the GAPE choose not to renew contracts and, if they do, then their volumes on the GAPE will be reduced. Let us take the extreme assumption, which is Mr Houston's implicit assumption, that all existing Goonyella GAPE customers (i.e., customers other than Byerwen) cease to use the GAPE and that there are no new customers from the Goonyella System. In that case, we essentially have 22 mtpa of rail capacity that has a utilisation rate of around [redacted][49]

279. In any normal market we would assume that the price of this infrastructure be lowered to encourage its use. However, Mr Houston proceeds to assume that the GAPE continues to be charged at $8.27 per tonne irrespective of its utilisation. Instead, faced with the effective stranding of the GAPE due to lack of utilisation, Aurizon might offer access at, say, $3.25 per tonne. This is equal to Mr Houston's estimate of $2.87 for the Newlands system plus $0.38 per tonne utilising the otherwise wasted capacity on the GAPE. If so,

[49] [redacted] being [redacted] divided by the GAPE deliverable capacity multiplied by the length of the fraction of the GAPE that Byerwen uses when exporting via NQXT.

based on the rest of Mr Houston's estimates the cost difference to Goonyella Riverside from exporting via NQXT vs DBCT would only be 10%.

280. Moreover, if the GAPE were empty then NQXT may also be incentivised to offer prices closer to marginal cost to win tonnage from the Goonyella System. In this regard, we note that Mr Houston assumes NQXT charges a price for coal handling of $8.91 per tonne. NQXT, might plausibly charge only a fraction of this if it had spare capacity and low marginal cost.

281. If, in the circumstance that the Mr Houston envisions where the top two thirds of the GAPE has zero utilisation:

- NQXT might offer a price of, say, $5.00 per tonne; and
- Aurizon might offer a price of, say, $3.25 per tonne.

282. Then it would be 10% cheaper for Goonyella Riverside to export via NQXT than DBCT (holding the rest of Mr Houston's assumptions constant).

283. Based on Wood Mackenzie forecasts, Goonyella Riverside has average expected export contracted (actual) volumes of [redacted] with a maximum of [redacted]

284. We also note Goonyella North (Centurion) is closer to NQXT than Goonyella Riverside and is expected to begin exports in [redacted] with a peak expected export contracted (actual) volumes of [redacted] Adding Goonyella Riverside and North Goonyella contracted volumes in [redacted] gives [redacted] Adding this tonnage to Mr Houston's estimate for "northern mines" of 44 mtpa in 2030[50] gives a total contracted volumes of [redacted]

285. This exceeds Mr Houston's estimate of 50 mtpa nameplate capacity at NQXT. Thus, even if we applied an erroneous approach to estimating "foreseeable demand in the market" to be equal to mines with a preference for NQXT plus mines who could foreseeably be approximately indifferent, then we would result at an estimate that exceeded NQXT's nameplate capacity.

286. These results are summarised in the table below.

50 See Table 4.5 in Mr Houston's report.

Table 9-1: Relative cost estimates for Goonyella Riverside

	DBCT	NQXT (HK)	NQXT if Aurizon charges $3.5	NQXT if Aurizon charges $3.5 and NQXT charges $5.0
Below rail	4.2	8.27	3.25	3.25
Above rail	5.17	8.70	8.70	8.70
Coal handling	9.32	8.91	8.91	5.00
Total	18.69	25.88	20.86	16.95
DBCT cost as of NQXT cost		-28%	-10%	+10%

287. Of course, the sensitivity in this table is just one of the myriad foreseeable circumstances in which mines in the Goonyella system would want to export via NQXT. Other circumstances involve capacity constraints in the Goonyella rail and port infrastructure that mean exports for some mines are not possible at any price (let alone the prices assumed by Houston Kemp).

288. The key point is that the CQCN is efficiently run as a system. If the GAPE was seriously underutilised then it would be economically rational (least cost) not to automatically incur expensive capital costs expanding Goonyella rail and port capacity to facilitate higher exports. Rather, regard would be had to whether it was lower cost to use the available capacity on the GAPE and at NQXT to facilitate those exports. This can be achieved by mines in the Goonyella system (such as Goonyella Riverside) swinging from DBCT to NQXT (and later, when export via NQXT is constrained, swinging back) just as was theoretically described in Section 3.5

Appendix A Mines in the CQCN

289. The 2025 to 2030 average throughput is the forecast output reported by Wood Mackenzie [51].

290. To calculate the contracted capacity, we've assumed that the throughput is equal to 90% of the contracted capacity. This follows the methodology used by HoustonKemp.

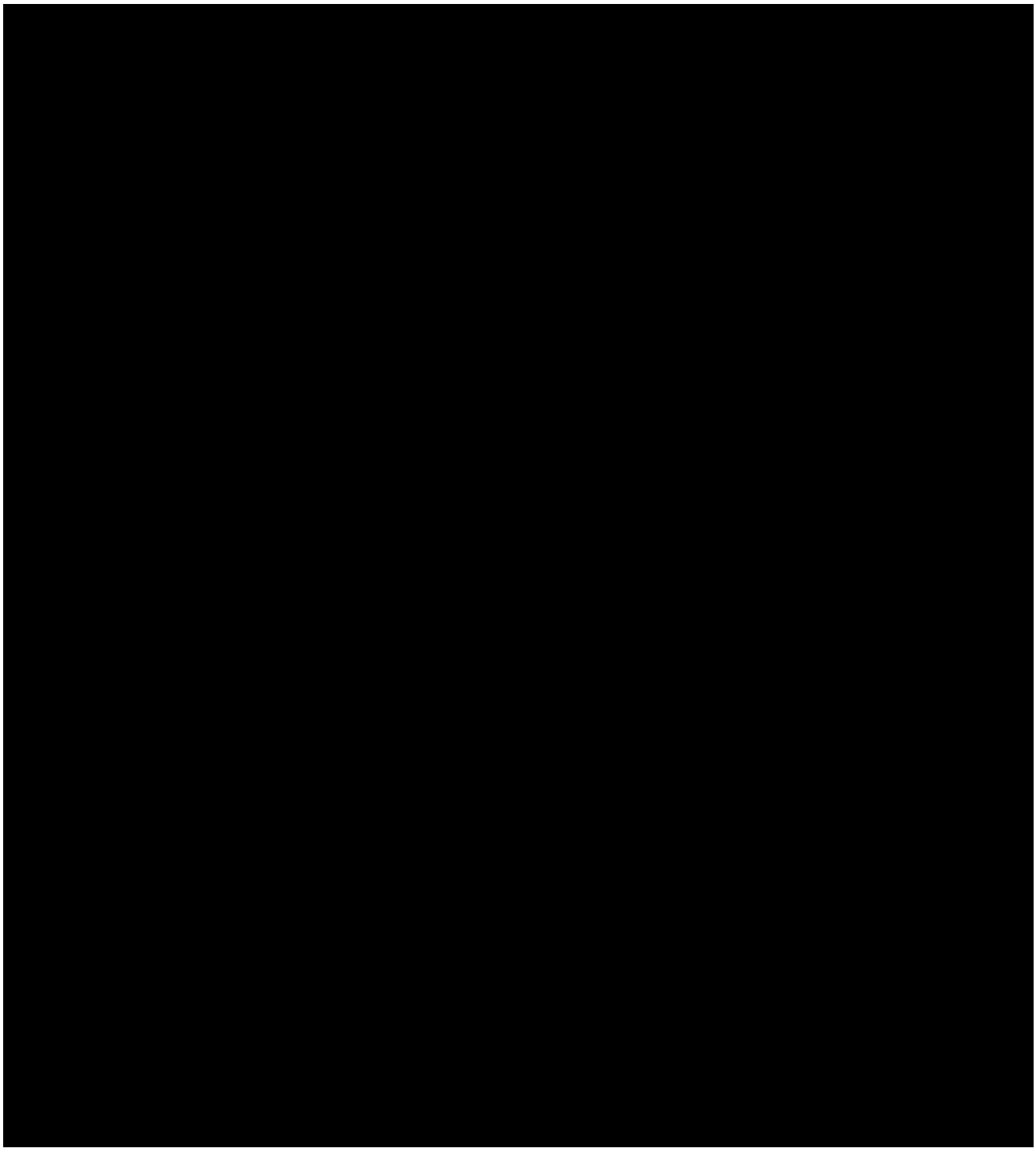
[51] As provided to us with our instructions.

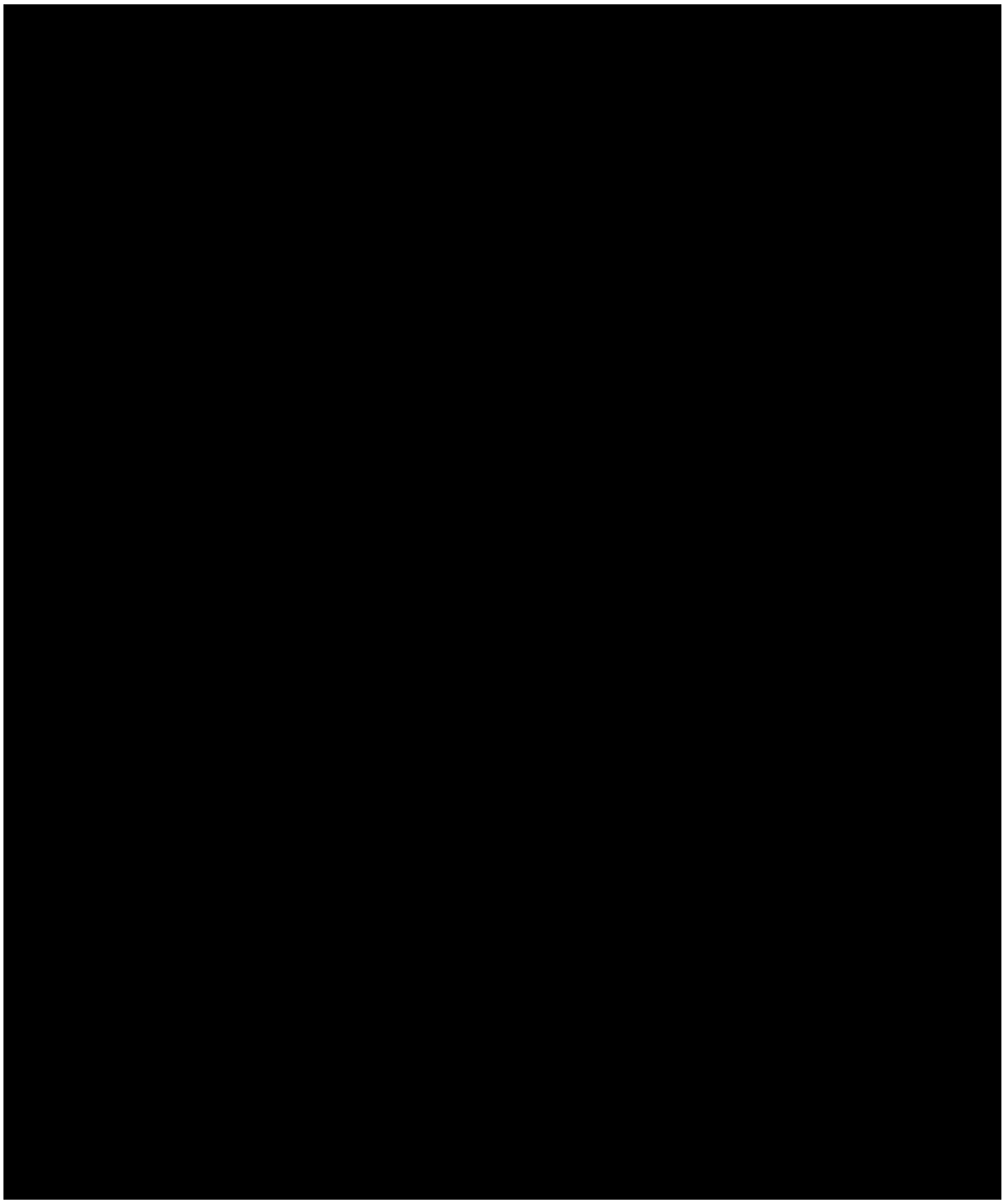
[redacted]

[redacted]

291. We have used the following revenue and extraction cost data also sourced from Wood Mckenzie. The revenue per tonne is a weighted average per tonne across all types of coal quality. We have also applied our own assumption on variable and fixed costs as outlined in section 6. Rail transport costs per mine are reported based on the methodology set out in Section 6 and the distances set out in [redacted] below.

[redacted]





292. Rail transport costs per mine are reported based on the methodology set out in Section 6 and the distances set out in Table 9-2.

Appendix B Terminals in the CQCN

293. In this section we describe the two export terminals in the CQCN that we focus our analysis on, DBCT and NQXT.

B.1 DBCT

294. DBCT currently has a nameplate capacity of 84.2 (often rounded to 85) mtpa,[52] with historic expansions summarised in the following table.

Table 9-4: History of expansions at DBCT[53]

Name	Capacity (mtpa)	Date
Inception	14.55	1983
Stage 1	22.55	1990
Stage 2	26.55	1995
Stage 2A	28.55	1997
Stage 3	33.55	1999
Stage 4	37.55	1999
Stage 5	45.50	2002
Stage 6	54.50	2003
Stage 7X	84.20	2009

295. DBCT has proposed an 8X expansion to increase capacity from 84.2 to 99.1 mtpa in four incremental expansions to be commissioned between 2024 and 2028.[54]

52 https://www.qca.org.au/wp-content/uploads/2021/11/dbct-price-ruling-the-8x-expansion-ruling-notice-and-determination-final14590371.pdf

53 https://dbinfrastructure.com.au/sustainability/business-performance/.

54 https://www.qca.org.au/wp-content/uploads/2021/11/dbct-price-ruling-the-8x-expansion-ruling-notice-and-determination-final14590371.pdf, page 7.

Table 9-5: DBCT 8X expansions[55]

Name	Capacity (mtpa)	System increment (mtpa)	Capital cost ($m 2020 dollars)	Commission date
Stage 8X phase 1	87.3	3.1	246	2027
Stage 8X phase 2	91.2	3.9	229	2027
Stage 8X phase 3	96.7	5.5	461	2028
Stage 8X phase 4	99.1	2.4	340	2029
Total	-	14.9	1,276	-

296. The DBCT declaration discussed a 3 phase 9X expansion that would see DBCT expanding by an additional 34 mtpa.[56]

B.2 HPCT

297. There are two export terminals at Hay Point, DBCT and HPCT. In our modelling we have effectively assumed that DBCT and HPCT are one entity.

298. HPCT has a nameplate capacity of 55 mtpa.[57]

B.3 NQXT

299. We understand that NQXT currently has a nameplate capacity of 50 mtpa.[58]

300. We also understand that:[59]

- In 1984 NQXT opened[60] with 15 mtpa and has undertaken two expansion projects in response to growing demand;
- In 2007-2008, NQXT expanded to 25 mtpa (the X21 Expansion); and
- Around 2009, the state government entered into long-term agreements (until 2029) with a group of [redacted] to underwrite a further expansion to 50 mtpa, which was completed in 2012 (the X50 Expansion).

55 https://www.qca.org.au/wp-content/uploads/2021/11/dbct-price-ruling-the-8x-expansion-ruling-notice-and-determination-final14590371.pdf

56 DBCT declaration (2020), https://www.qca.org.au/wp-content/uploads/2019/05/declaration-reviews-final-recommendations-part-c_-dbct-service.pdf, page 55.

57 DBCT declaration (2020), https://www.qca.org.au/wp-content/uploads/2019/05/declaration-reviews-final-recommendations-part-c_-dbct-service.pdf, page 10.

58 https://www.abbotpointoperations.com.au/.

59 Witness statement of Mark Bradley Smith dated 22 August 2025, section C.2.

60 https://www.abbotpointoperations.com.au/.

301. In his witness statement, Mr Smith describes that there is a potential expansion to NQXT, referred to as the X60 Expansion that would increase the terminals capacity to 60 mtpa with a cost of ~300 million. Mr Smith's evidence is that while there is a theoretical pathway to increase the export capacity at the Port of Abbot Point to over 120 mtpa with T0, T2 and T3 developments, [redacted]. [61]

302. A 2014 press release explained that the 50 mtpa T0 development was expected to cost $4 billion and a rail upgrade of $2 billion. [62]

B.4 Product differentiation

303. We understand that "DBCT is able to blend coal into 58 registered coal products",[63] and that "DBCT predominantly handles metallurgical coal, and the geographic proximity of metallurgical producers to one another in the Goonyella system allows them to exploit co-shipment opportunities available at DBCT for metallurgical coal".[64]

304. In our view, these non-price characteristics are not a significant deterrent for a mine for using an alternative port facility. This position appears to be shared by the QCA:[65]

> *While co-shipping and blending opportunities are important to meet the specifications of particular end users, the extent to which these opportunities will affect an individual user's preference for contracting to an alternative terminal is not evident to the QCA—as the attractiveness of these opportunities may vary according to the user and the particular circumstances in the market.*

61 Witness statement of Mark Bradley Smith dated 22 August 2025, [204]-[209].

62 https://ieefa.org/wp-content/uploads/2014/07/press-release-140724-Aurizon-multi-billion-dollar-gamble.pdf

63 DBCT declaration (2020), https://www.qca.org.au/wp-content/uploads/2019/05/declaration-reviews-final-recommendations-part-c_-dbct-service.pdf, page 26.

64 DBCT declaration (2020), https://www.qca.org.au/wp-content/uploads/2019/05/declaration-reviews-final-recommendations-part-c_-dbct-service.pdf, page 25.

65 DBCT declaration (2020), https://www.qca.org.au/wp-content/uploads/2019/05/declaration-reviews-final-recommendations-part-c_-dbct-service.pdf, page 31.

Appendix C NQXT historical and future contracted volumes

C.1 Historical contracts

305. NQXT negotiates long term contracts with miners in the CQCN for annual tonnage at the NQXT terminal. For example, the following table summarises the legacy agreements between NQXT and its [redacted]

[redacted][66]

[redacted]

306. We also observe that NQXT has entered into short term agreements, the most recent [redacted] being the following: [67]

[redacted]

66 Witness statement of Mark Bradley Smith dated 22 August 2025, Table 3 and Table 4.

67 [redacted].

68 Witness statement of Mark Bradley Smith dated 22 August 2025, [197].

C.2 Overlap between NQXT and DBCT customers

307. We observe that in FY2025, [redacted] [69]

308. Furthermore, we observe from the witness statement of Mark Smith that NQXT is [redacted].[70]

[redacted]

C.3 Current negotiations with existing NQXT users

309. We observe from the witness statement of Mark Smith that the following [redacted].[71]

- [redacted];
- [redacted];
- [redacted];
- [redacted]

69 [redacted]

70 Witness statement of Mark Bradley Smith dated 22 August 2025,[122]-[124].

71 Witness statement of Mark Bradley Smith dated 22 August 2025, [121].

[redacted]

COMPETITION ECONOMISTS GROUP

Economics of competition, regulation and damages

Curriculum Vitae

Dr Tom Hird / Director

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Key Practice Areas

Tom Hird is a founding Director of CEG's Australian operations. Tom has a Ph.D. in Economics from Monash University. Tom has also been named by GCR in its list of top individual competition economists globally. Tom's area of practice has a focus on financial economics both in regulatory settings and commercial strategy and commercial disputes.

Tom has given expert witness testimony to the Federal Court of Australia, the Australian Competition Tribunal, the Supreme Court of Victoria, and the Supreme Court of Western Australia in addition to numerous regulatory proceedings in Australia, the UK and New Zealand.

Selected recent projects

2025 Retained by Quinn Emanuel to advise on pricing for a major unregulated infrastructure provider;

2025 Retained by KWM to advise on the competition impacts of a merger in the agricultural sector;

2025 Retained by Allens to advice on cost of capital for nbn;

2025 Retained to advise on the appropriate discount rate to apply to modelled future equity cash-flow for a rail operator

2025 Retained by the Jemena to advise of the correct discount rate to apply to equity cash-flows for an unregulated gas pipeline.

2025 Retained by G&T to advise on the potential declaration of NQXT (the coal terminal at Abbot Point in the Central Queensland Coal Net).

2025 Retained by the NZ Electricity Authority to advise on potential reforms relating to the liquidity and pricing of wholesale market hedge products.

2024 Retained by Energy Networks Australia to advise on the relationship between the cost of debt, credit ratings and tenor of debts within the debt portfolios of energy networks regulated by the Australian Energy Regulator (ongoing annual assignment for the last decade).

2024 Retained by Jemena to advise on the optimal hedging strategy for its debt portfolio.

2024 Retained by Gilbert and Tobin to provide expert testimony in relation to litigation over the use of "flex commissions" in the sale of car loans by Macquarie Bank.

2024 Retained by Airports NZ and Russell McVeagh (for Auckland Airport) to advise on an appeal of the New Zealand Commerce Commission's 2023 Input Methodologies.

2024 Retained by Echo Law to provide expert testimony on the opportunity cost of funds alleged to have been withheld by Qantas from customers after COVID-19 related flight cancellations.

2024 Retained by Gilbert and Tobin to advise on the historical returns on the South West Queensland Pipeline (currently owned by APA).

2024 Retained by Auckland Airport to advise on a response to the New Zealand Commerce Commission's review of Auckland Airport's price setting event 4 (PSE4) for the period 1 July 2022 to 30 June 2027.

2024 Retained by Energy Networks Australia to advise on the appropriate method for discounting equity returns for its members having regard to international evidence.

2024 Retained by Jemena to advise on the cost of debt raising to be recovered in regulated prices.

2024 Retained by Transgrid to advise on discounting returns for new large new electricity interconnection assets.

2023 Retained by Auckland International Airport Limited (AIAL) on what constituted a discount rate to apply to its future profits in the specific context of the COVID19 pandemic and proposed risk sharing mechanisms with airlines. This advice was relied on by AIAL to set its prices for PSE4 (covering the five years ending June 2027);

2023 Retained by DLA Piper to advise on the cost of capital for a large infrastructure provider in the context of potential legal proceedings with a major customer;

2022 Retained by nbn to provide advice on the discount rate to apply to its profits;

2021 Retained by DLA Piper to provide expert testimony on the cost of capital for Perth Airport in the context of legal proceedings by Perth Airport against QANTAS Airways and others.

2021 Retained by Vector to advise on the potential utility of funding itself with inflation indexed debt instruments and/or engaging in the inflation derivative markets to achieve similar exposure.

Selected court judgements

In 2021 Tom was retained by DLA Piper, on behalf of Perth Airport, in the context of pricing dispute with Qantas. Qantas had failed to pay Perth Airport's proposed landing charges. The key issue addressed by Tom was what was the risk adjusted time value of money for the services that Perth Airport provided to Qantas and for which Qantas had failed to pay.[1]

> *It is preferable to start from Dr Hird's and the NZCC's sample set of 26 comparator airports for which asset beta estimates are available.*
>
> *As to questions of estimation technique pertaining to data frequencies and estimation windows, I prefer the methodological choices adopted by Dr Hird…*

[1] http://www.austlii.edu.au/cgi-bin/viewdoc/au/cases/wa/WASC/2022/51.html

I consider there is merit in Dr Hird's measurement of demand risk based on income elasticity of demand, assessing the sensitivity of demand in passenger numbers to GDP. Dr Hird employs various methods to apply that measure, in order to position PAPL within the range of the estimated asset betas for the comparator airports.

Having preferred the methodological choices adopted by Dr Hird and arrived at a final comparator set of 19 airports, this results in a range of estimated asset betas from 0.34 to 1.01, with an average of 0.72;

Dr Hird's views … in relation to estimating WACC are more persuasive than Dr Hern's.

Dr Hird's evidence has been pivotal in a number of other courts in previous years. Three examples are:

- The Australian Competition Tribunal found, based on Dr Hird's evidence, that the AER had made an error that allowed its decision to be revoked.[2]

  Counsel for EA submitted calculations prepared by its expert, Dr Hird, *of the ten-year CGS expected, as at June (and alternatively May) 2008, to apply on 25 February 2009. …*

  …

  For these reasons, we consider that the AER's decision, as expressed in its letter of 8 July 2008, to withhold agreement with the averaging periods proposed to it was unreasonable. *The AER's submissions in support of its decision all fail because it did not have sufficient reason to believe that the proposed averaging periods were unlikely to produce an unbiased estimate of CGS rates in the regulatory control period, once it is properly understood how those rates are applied under the Transitional Rules*

  This decision triggered a major upheaval in the Australian regulatory landscape. The Australian Energy Market Commission (AEMC) revised the national electricity rules (NER) to require consideration of internal consistency between the risk free rate and the MRP.[3] It also triggered a major change in the NSW regulator's (IPART) approach to estimating the cost of equity which referenced Dr Hird's analysis when explaining its policy change.[4]

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2 http://classic.austlii.edu.au/au/cases/cth/ACompT/2009/8.html

3 AEMC, RULE DETERMINATION National Electricity Amendment (Economic Regulation of Network Service Providers) Rule 2012 National Gas Amendment (Price and Revenue Regulation of Gas Services) Rule 2012, 29n November 2012.

4 IPART WACC methodology Research — Interim Report June 2013 p.28 and IPART, Review of method for determining the WACC: Dealing with uncertainty and changing market conditions Other Industries — Discussion Paper, December 2012, page 58

- The Australian Competition Tribunal relied heavily on Dr Hird's analysis of a fair market value for debt interest costs. Indeed, at paragraph 102 the Tribunal defines the error made by the Australian energy regulator as "*…the failure to have sufficient regard to the expert report of CEG*".[5]

5 http://www.austlii.edu.au/cgi-bin/viewdoc/au/cases/cth/ACompT/2012/3.html

COMPETITION ECONOMISTS GROUP

Economics of competition, regulation and damages

Curriculum Vitae

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Practice Areas

Jason Ockerby is a founding Director of CEG - Asia Pacific. CEG has been selected for the Economics 21 section of the Global Competition Review's guide to the world's leading competition law and economic practices – the GCR 100, 17th Edition. Jason appears in the Who's Who Legal: Competition Economists 20th edition.

Jason has over 25 years' experience as a professional economist in competition and regulatory matters and has specialised in the areas of communications, broadcasting, mining, energy, and transport.

Jason has been involved in matters before the Federal Court of Australia, the Australian Competition Tribunal and in hearings held by regulatory and competition authorities. Jason has been retained as an economist on numerous mergers and acquisitions, competition matters, copyright and damages cases.

Jason has advised clients across a wide range of industries including electricity and gas production and transmission, building products, mining, aviation, communications, broadcasting, forest products, payment networks, retailing, e-commerce, rail access and port services. In terms of geographical coverage, Jason's clients have included businesses and government agencies in Australia, Europe, New Zealand, Hong Kong and Singapore.

Jason holds a Master of Economics from the University of Sydney and a Bachelor of Economics (Honours) from the University of Queensland.

Jason is a member of the Law Council of Australia, Business Law Section.

Select Projects

- Merger in laboratory testing services – Engaged to provide an economic opinion in relation to the Mérieux NutriSciences' acquisition of a 51% interest in Bureau Veritas AsureQuality Holdings Pty Ltd. Cleared by ACCC. Engaged by Clayton Utz.
- Access to coal terminal declaration – Engaged to provide an expert report on the proposed declaration of the North Queensland Expert Terminal at Abbott Point. Engaged by Gilbert and Tobin.
- Copyright valuation – Engaged to provide an economic opinion in relation to a reasonable fee for the licensing of communication and reproduction rights by streaming services. Appeared before the Copyright Tribunal. Engaged by Simpsons Solicitors.
- Damages claim – Engaged by to provide expert economic opinion in relation to losses arising from a delay in the delivery of civil works on the opening of the North West Rail Project, including the direct losses to Sydney Metro and the public losses. Engaged by Thomson Geer.

- Private Section 46 matter pharmaceuticals – Engaged to provide economic advice in relation to whether alleged exclusive dealing in the pharmaceutical industry involved the exercise of market power with the effect of lessening competition in the supply of treatments of advanced stage cancer. Engaged by King Wood Mallesons

- Private Section 46 matter Ports – Engaged to provide advice in relation to whether conduct by the at the Port of Melbourne was involved the exercise of market power with the effect of lessening of competition in stevedoring services. Engaged by Gilbert and Tobin

- Misleading and deceptive conduct – Retained by port operator to consider the damage from alleged misleading conduct at the Port of Melbourne. Engaged by Gilbert and Tobin.

- Termination of Enterprise Agreement – Expert testimony before the Fair Work Commission on whether the termination of the Enterprise Agreement between Svitzer and the AMOU was in the public interest. Retained by Hall Payne.

- Damages - Quantifying damages to access seekers caused by non-availability of a service. Engaged by Chapman Tripp.

- Telecommunications alleged Section 46 breach – Engaged to provide advice in relation to alleged anticompetitive conduct by Telstra in registering sites in the 900MHz spectrum band following the 5G auction and prior to the release of spectrum. Engaged by Gilbert and Tobin.

- Port privatisation – Expert testimony to the Federal Court as part of proceeding brought by the ACCC alleging anticompetitive effects of deeds entered into as part of the $5 billion privatisation of Port Botany and Port of Newcastle. Engaged by Minter Ellison acting for the NSW Government.

- FIFO services to mining companies – modelling and analysis of the competitive effects of a Joint venture between Alliance Airline and Virgin Australia Regional Airlines. Engaged by Gilbert + Tobin.

- Telecommunications public benefits of merger – Engaged to provide advice in relation to the public benefits of the proposed transaction between Telstra and TPG in respect of regional mobile infrastructure.

- Media Bargaining Code – Advice to Seven West Media in relation to a Media Bargaining Code for Digital Platforms for dealing with New and Media Businesses. Engaged by Herbert Smith Freehills.

- Ride sharing – engaged to provide economic opinion on the nature of services supplied by drivers to Uber. Retained by Crown Solicitor.

- Broadcasting merger - Advice to the ACCC in relation to the competition implications of an acquisition of equity in Channel 10 by parties with an interest in Foxtel (a potential competitor of Channel 10). Advised the ACCC.

- Transport - Provided Virgin Australia with economic advice for modelling of landing charges proposed by a number of Australian airports (Sydney, Melbourne, Brisbane and Townsville). Advised Virgin Australia.

- Gaming – Advice in relation to the authorisation on public benefits grounds of the proposed merger between Tattersalls and Tabcorp.

- Advertising markets – Advice in relation to merger of Ooh! Media acquisition of APN Outdoor on competitive effects in outdoor advertising. Engaged by Clayton Utz.
- Finance – Merger of Macquarie Group acquisition of Esanda Dealer Finance from ANZ Bank as to whether it would result in a lessening of competition between in markets for the provision of car financing. Engaged by Clayton Utz.
- Petrol station merger – Advice to the ACCC on proposed acquisition of retail petrol stations in Adelaide. Engaged by ACCC.
- Qube /Brookfield acquisition Asciano stevedoring assets. Retained by Clayton Utz advising Asciano
- Car parking acquisition – action against Wilson parking for the acquisition of car park in Wellington before New Zealand High Court. Engaged by Bell Gully advising New Zealand Commerce Commission
- Spectrum competitive effects – Expert report for the New Zealand Commerce Commission on proposed acquisition of unauctioned spectrum in the 700MHz frequency band. Analysis and modelling of competition implications for the deployment of LTE networks. Advised the Commerce Commission.
- Home shopping – engaged to provide advice and expert reports on the competitive effects of exclusive dealing type conduct notified by TVSN to the ACCC. Engaged by Gilbert and Tobin.
- Coal haulage - Glencore sale of rail coal haulage operation. Engaged by Clayton Utz.
- FIFO services to mining companies – modelling and analysis of the competitive effects of a Joint venture between Alliance Airline and Virgin Australia Regional Airlines. Engaged by Gilbert + Tobin.
- Digital Platforms Inquiry – Advice to Nine Entertainment in relation to a Code of Conduct for Digital Platforms for dealing with New and Media Businesses. Engaged by Bird and Bird.
- Petrol price information sharing proceedings brought by the ACCC against Informed Sources and BP Australia, Caltex, Woolworths and 7-Eleven. Engaged by the Australian Government Solicitor.
- Mobile operator merger – A series of expert reports in relation to the proposed merger between TPG Telecom and Vodafone Hutchison Australia – Advised Macquarie Telecom.
- Coking coal – South32 acquisition of Peabody, competition effects on supplies to BlueScope. Engaged Confidential.
- Advice in relation QCA's Declaration Review of Dalrymple Bay Coal Terminal. Engaged by Confidential.
- Econometric modelling – Prepared a series of reports for Optus on econometric methods to benchmark the price of the Domestic Transmission Service (fibre backhaul).
- Market analysis - advice to the Australian Government Solicitor in relation to the economic impact of plain paper packaging regulations for cigarettes and other tobacco products. Engaged by AGS.
- Telecommunications dispute – Advised on interconnect pricing disputes in relation to MVNO pricing. Engaged by Baker and McKenzie.

- Margin squeeze - Prepared an report for Chorus that reviewed the operation and potential consequences of the "efficient rival test" that Chorus had designed to screen and identify potential "price squeezes" that might give rise to competition concerns under the Commerce Act. Engaged by Chapman Tripp.

- Infrastructure access - Assisting NBN Co in preparing economic aspects of its proposed Special Access Undertaking for its bitstream service. Advised NBN CO.

- Public private partnerships - Lead economic advisor to Telecom New Zealand on regulatory matters relating to the tender for the UFB contract. Retained by Chapman Trip

- Valuation of musical recordings - Provided advice on the appropriate economic methodology for setting the fees payable to a collection society for simulcasting radio broadcasts – including copyright protected musical recordings – on the internet. Engaged by Ashurst.

- Collective licensing – Report for the Copyright Agency on the economics of collective licensing in the context of the Government's review of the Code of Conduct for Copyright Collecting Societies. Engaged by Banki Haddock Fiora.

- Fair Use – Report for the Copyright Agency in relation to the Productivity Commission (recommendation to amend the Copyright Act 1968 to adopt a fair use regime in place of the existing fair dealing exemptions. Advised Copyright Agency.

- Media monitoring operator licence fees – Retained to advise on the valuation of licences for media monitoring companies in Australia to copy and distribute literary works. Engaged by Minter Ellison. Application by Isentia Pty Limited [2020] ACopyT 1 (22 April 2020)

- Content regulation –report for Commercial Radio Australia on the economic benefits and costs of regulating advertising and disclosing commercial arrangements for radio stations in Australia.

- Statutory licence for copying– Advice in relation to 'equitable remuneration' for standard and digital copying. Engaged by Banki Haddock Fiora.

- Price Transparency – Report for the ACCC in relation to the role of Price Transparency on efficient market operation and in reaching collusive outcomes. Advised the ACCC.

- Spectrum – Advice in relation to mechanisms for the renewal of spectrum licences. Engaged by Baker and McKenzie Hong Kong.

- Liquified Natural Gas - APLNG royalty dispute with the Queensland Treasurer. Engaged by Clayton Utz.

- Subscription television – Advice to the ACCC on the proposed acquisition by Foxtel of Austar. Advised the ACCC.

- Mining merger – competition impact of the then proposed iron ore joint venture between BHPB and Rio Tinto. Retained by Gilbert and Tobin acting for the Japanese steel mills. CEG, along with other parties retained by the Japanese steel mills, received the GCR award for M&A Transaction of the Year -- Asia-Pacific, Middle East and Africa.

- Broadcasting - report that evaluated the analysis and conclusions contained in the ACCC's Statement of Issues that led it to conclude that the proposed acquisition by Seven Group Holdings of 50% of Fox Sports Australia would substantially lessen competition in the supply of free-to-air television services. Engaged by Clayton Utz for Seven.

- Trade practices advice –opinion on the competitive effects of minimum licence fees for new entrant media monitoring operators. Retained by Confidential Client.

- Cost of capital - Expert testimony to the Federal Court of Australia on alleged errors made by the Australian Competition and Consumer Commission (ACCC) in estimating the cost of capital for Telstra. Engaged by Minter Ellison.

- Ultra-Fast Broadband regulation – advising Chorus on the New Regulatory Framework for fibre access pricing in New Zealand, including advice in relation to access valuation, cost allocation and cost of capital. Advised Chorus

- Econometric modelling – Prepared a series of reports for Optus on econometric methods to benchmark the price of the Domestic Transmission Service (fibre backhaul).

- Input price trends - Prepared an report on the long-term trends in cost inputs for fibre to the premise networks in New Zealand. This report considered a range of publicly available price indices. Engaged by Chapman Tripp.

- Cost modelling - Prepared a report in relation to uncertainty in cost modelling for local loop services and whether a higher or lower price would be to the Long-Term Benefit of End-users.

- Wholesale energy bidding conduct - report on re-bidding in the national electricity market, the international survey including the United States, New Zealand, Singapore, France and Alberta, Canada. Advised Australian Energy Markets Commission.

- Input costs – Expert report on benchmarking labour costs of electricity distribution networks in Australia. This work included a detailed assessment of Enterprise Bargaining Agreements for distribution businesses to ensure a like-for-like comparison. Advised Networks New South Wales.

- Asset valuation - Expert evidence to Vector on appeal of the New Zealand Commerce Commission decision on setting the value of the regulatory asset base under Part 4. Engaged by Russell McVeigh.

- Transport - Provided Virgin Australia with economic advice for modelling of landing charges proposed by a number of Australian airports (Sydney, Melbourne, Brisbane and Townsville). Advised Virgin Australia.

- Contractual terms – Provided advice to the ABC on the renegotiation of Analogue services contract, including advice on potential regulatory outcomes under Part XIC.

- Econometric benchmarking - Advice to the ENA on issues arising out of the PC inquiry into the use of benchmarking to set cost allowances for regulated electricity transport companies.

- Digital radio - Provided advice to Webb Henderson, in relation to the appropriate reserve price for the November 2009 auction of digital radio spectrum across Australia. Engaged by Webb Henderson.

- Financial services – Prepared report for AMP for submission to the Cooper Review into the governance, efficiency, structure and operations of Australia's superannuation system.

- Competition analysis – Prepared report for Minter Ellison on the economic interpretation of 'promotion of economically efficient use of infrastructure' before the Australian Competition Tribunal. Retained by Minter Ellison

- Universal service – report on Universal Service for NBN Co.

Case highlights

*The relevant point is that **the work Mr Ockerby has done in relation to freight shares is far more convincing** than any analysis by or on behalf of PON. As he explained, his modelling included the relationship between population and freight share and distance from the largest (not merely the nearest) port across every postcode in Australia. In creating his model he had also tested other variables.*

*Mr Ockerby's explanations of **his approach were clear and convincing**. There is no comparison which can be drawn between the work which Mr Ockerby and Mr Balchin have done in estimating the volume of containers that a container terminal at the Port of Newcastle (while Port Botany has capacity) would be likely to capture and the work which PON and its consultants have done. The work of Mr Balchin and Mr Ockerby about container volumes is **detailed, well-reasoned, and based on real-life circumstances**. The work of PON and its consultants about container volumes is based on numerous assumptions favourable to PON which appear to be unjustifiable.*

*If I had concluded that there was any real chance or real possibility of PON entering the market while Port Botany has capacity, these and the other propositions of **Mr Ockerby would have persuaded me in any event that the impugned provisions do not involve any real chance or real possibility of a substantial lessening of competition***

Australian Competition and Consumer Commission v NSW Ports Operations Hold Co Pty Ltd [2021] FCA 720 (29 June 2021)

*Much of the capital invested in the ULLS network is sunk. Accordingly, Mr **Ockerby argued that the effect of an additional return on capital in the regulated WACC would not affect the decision** whether to invest, because this decision is irreversible, and that the only relevant risk to investment would be that which related to maintaining and incrementally expanding the existing network. From this he concluded that Telstra would not fail to maintain its CAN asset base because of a small error in the WACC, and that to do otherwise would put at risk billions of dollars of revenue.*

Re Telstra Corporation Ltd (No 3) [2007] ACompT 3 (17 May 2007)

*In giving evidence at the interlocutory hearing, Mr Ockerby was careful to stay in his lane and refer only to why, in his expert view, certain categories of documents were required so that he could properly have the opportunity to prepare a report that would be relied on as evidence at the final hearing. Mr Ockerby gave evidence for several hours over two days and fielded many questions from AMOU's counsel as well as Svitzer's counsel. Mr Ockerby's **evidence was significant** in determining the current interlocutory dispute between the parties and I am grateful for his assistance.*

Svitzer Australia Pty Ltd [2022] FWC 1438 (8 June 2022)

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25 August 2025

By email: jason.ockerby@ceg-ap.com, tom.hird@ceg-ap.com

Mr Jason Ockerby and Dr Tom Hird
Competition Economists Group
234 George Street
NSW 2000 Sydney
Australia

Dear Mr Ockerby and Dr Hird

Declaration request to the Queensland Competition Authority – coal handing service at the North Queensland Export Terminal

1 We act for North Queensland Export Terminal Pty Ltd (**NQXT**) in respect of the Queensland Competition Authority's (**QCA**) investigation into whether or not it should recommend that the coal handling service at the North Queensland Export Terminal (**Terminal**) be declared under Part 5 of the *Queensland Competition Authority Act 1997* (Qld) (the **QCA Act**).

2 We wish to engage you as an economic expert in relation to the QCA's investigation. As part of this engagement, we are seeking an expert report in relation to certain economic matters relevant to the QCA's investigation.

Background

3 The Terminal is a deep-water export terminal located within the Port of Abbot Point, approximately 25 kilometres north of Bowen in Queensland. The Terminal is a multi-user, open access facility used to export metallurgical and thermal coal extracted from around central Queensland. The Terminal has a current nameplate capacity of 50 million tonnes per annum.

4 NQXT is the lessee of the Terminal. The Terminal is owned by the Queensland Government and is leased to NQXT under a 99-year lease acquired in 2011. The Terminal is operated independently from NQXT by Abbot Point Operations Pty Ltd (**APO**). APO manages the day-to-day running the Terminal under an Operating and Maintenance Contract.

5 On 13 June 2025, QCoal Pty Limited and Byerwen Coal Pty Limited (the **QCoal Users**) applied to the QCA to request that it recommend that the coal handling service at the Terminal be declared a service under Part 5 of the QCA Act. The requested declaration date is 1 July 2027 with a declaration period of 10 years.

6 NQXT's submission in response to the QCoal Users' application is due to filed with the QCA by 5pm on 26 August 2025.

Instructions

7 We seek a report setting out your expert opinion on whether the coal handling service provided at the Terminal satisfies the criteria in section 76(2)(b) of the QCA Act ('criterion (b)'). Criterion (b) is as follows:

> *…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)*

8 In providing your opinion, please consider the documents set out in **Annexure A** to these instructions. This includes:

(a) witness statements addressing certain factual matters; and

(b) an expert report of Mr Greg Houston on criterion (b) to (d) dated 13 June 2025, which was filed in support of the QCoal Users' application.

9 For the purpose of your report, you should assume that any proposed declaration of the coal handling service at the Terminal will take effect from 1 July 2027, with a declaration period of 10 years.

Expert independence

10 Although your report is not being prepared for use in court proceedings, we request that in undertaking this engagement you comply with the duties and requirements of an expert for court proceedings as set out in rules 429F and 429H of the *Uniform Civil Procedure Rules 1999* (Qld) (**UCPR**), as if those duties and requirements applied to these instructions. A copy of rules 429F and 429H and Schedule 1C of the UCPR (**Experts' Code of Conduct**) is attached as **Annexure B** to these instructions.

11 Your duties under the Experts' Code of Conduct duties provide that your obligation to act independently in assisting the QCA overrides any other obligations that you may have to any party or to any person who is liable for your fees and expenses.

12 Consistent with these requirements, we request that your report include written confirmation that:

(a) you have read, and agree to be bound by, the Experts' Code of Conduct to the extent that it imposes duties and obligations on you relevant to your role as an expert in your assistance of the QCA;

(b) the factual matters stated in the report are, as far as you know, true;

(c) you have made all inquiries considered appropriate;

(d) the opinions stated in the report are genuinely held by you;

(e) the report contains references to all matters you consider significant; and

(f) you understand your duty to the QCA and you have complied with that duty.

13 In addition, please enclose or include in your report the following:

(a) your curriculum vitae and any other relevant training, education and experience;

(b) a statement of the questions you have been asked to consider as set out in this letter;

(c) the factual premise(s) upon which your report proceeds; and

(d) the documents and other materials which you have been provided with and instructed to consider in the preparation of your report.

Confidentiality

14 You must not disclose or discuss any of our correspondence or instructions, or any of your work products, with any third parties. This duty of confidentiality will continue beyond the conclusion of your instructions.

15 Please ensure that you keep all documents (including electronic documents) relating to these instructions confidential and separate from your other files.

Yours faithfully
Gilbert + Tobin

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Annexure A Documents for your consideration

1 Witness statement of Mr Mark Smith, General Manager of NQXT dated 22 August 2025.

2 Witness statement of Mr Brendan Lane, General Manager of Bowen Rail Company and Carmichael Rail Network dated 22 August 2025.

3 Witness statement of Mr Damien Dederer, General Manager of Abbot Point Operations dated 25 August 2025.

4 Expert report of Mr Greg Houston on criteria (b) to (d) dated 13 June 2025.

5 NQXT contract profile spreadsheet.

6 Mine production forecasts and asset reports for the following mines as published by Wood Mackenzie:

(a) Collinsville

(b) Sonoma

(c) Drake

(d) Jax

(e) Carmichael

(f) Eastern Creek North

(g) Eastern Creek

(h) Newlands

(i) Byerwen

(j) Wollombi

(k) North Goonyella

(l) Goonyella Riverside

(m) Broadmeadow UG

(n) Red Hill

(o) Ironbark

(p) Moranbah North

(q) Moranbah South

(r) Grosvenor

(s) Caval Ridge

(t) Blair Athol

(u) Clermont

(v) Isaac Plains

(w) Carborough Downs

(x) Coppabella

(y) Moorvale

(z) Millennium

(aa) Poitrel

(bb) Daunia

(cc) Olive Downs

(dd) Eagle Downs

(ee) Peak Downs

(ff) Saraji

(gg) Lake Vermont

(hh) Middlemount

(ii) South Walker Creek

(jj) Hail Creek

(kk) Burton

Annexure B Experts' Code of Conduct

429F Duty of expert

(1) The expert has a duty to assist the court.

(2) The expert—

(a) is not an advocate for a party to the proceeding; and

(b) must not accept instructions from any person to adopt or reject a particular opinion.

(3) The expert must comply with the requirements under the code of conduct.

(4) However, subrule (3) does not limit any provision of this part.

(5) The expert's duties under this rule override any obligation the expert may have to—

(a) any party to the proceeding; or

(b) any person who is liable for the expert's fees or expenses.

…

429H Requirements for report

(1) A report prepared by the expert must be addressed to the court and signed by the expert.

(2) The report must include the following information—

(a) the expert's qualifications;

(b) all material facts, whether written or oral, on which the report is based;

(c) the expert's reasons for each opinion expressed in the report;

(d) references to any literature or other material relied on by the expert to prepare the report;

(e) for any inspection, examination or experiment conducted, initiated, or relied on by the expert to prepare the report—

(i) a description of what was done; and

(ii) whether the inspection, examination or experiment was done by the expert or under the expert's supervision; and

(iii) the name and qualifications of any other person involved; and

(iv) the result;

(f) if there is a range of opinion on matters dealt with in the report—a summary of the range of opinion, and the reasons why the expert adopted a particular opinion;

(g) if the expert believes the report may be incomplete or inaccurate without a qualification—the qualification;

(h) a summary of the conclusions reached by the expert;

(i) a statement about whether access to any readily ascertainable additional facts would assist the expert in reaching a more reliable conclusion.

(3) If the expert believes an opinion expressed in the report is not a concluded opinion, the report must state, where the opinion is expressed, the reason for the expert's belief.

Examples of reasons why an expert may believe an opinion is not a concluded opinion—

- insufficient research
- insufficient data

(4) The expert must confirm in the report that—

(a) the expert has read, and agrees to be bound by, the code of conduct; and

(b) the factual matters stated in the report are, as far as the expert knows, true; and

(c) the expert has made all inquiries considered appropriate; and

(d) the opinions stated in the report are genuinely held by the expert; and

(e) the report contains reference to all matters the expert considers significant; and

(f) the expert understands the expert's duty to the court and has complied with the duty.

Schedule 1C Code of conduct for experts

Part 1 Preliminary

1 Purpose of code

(1) The purpose of this code of conduct is—

(a) to state an expert's obligations under the following provisions of chapter 11, part 5—

(i) rule 429A;

(ii) rule 429B(1), (2), (5) and (6);

(iii) rule 429F;

(iv) rule 429H;

(v) rule 429K(1) and (2); and

(b) otherwise to state an expert's obligations in relation to an order made, or a direction given, by the court.

(2) In this code of conduct, the information included in square brackets after a rule heading is a reference to the comparable rule under chapter 11, part 5.

(3) The brackets and information do not form part of these rules.

2 Application of code

(1) This code of conduct applies to an expert who is appointed to give opinion evidence, whether orally or in a report, in a proceeding.

Note— Rule 429F requires the expert to comply with the requirements under this code of conduct.

(2) In a provision of this code of conduct that refers to a direction given under rule 428 requiring 2 or more experts to hold a conference and prepare a joint report, a reference to a joint report is a reference to a report about the conference that states—

(a) the matters, if any, on which the experts agree; and

(b) the matters, if any, on which the experts disagree and the reasons for any disagreement.

Part 2 Duty to comply with orders and directions

3 Duty to comply with court's orders and directions

(1) An expert must comply with an order made, or a direction given, by the court.

(2) Without limiting subrule (1), if the court gives a direction under rule 428 requiring 2 or more experts to hold a conference and prepare a joint report, the experts must hold the conference, and prepare the joint report, in compliance with the direction.

Part 3 Experts' conferences and joint reports

4 Application of part

This part applies if the court gives a direction under rule 428 requiring 2 or more experts to hold a conference and prepare a joint report.

5 Experts' conference and joint report

(1) In holding the conference and preparing the joint report, the experts—

(a) must exercise independent judgement; and

(b) must endeavour to reach an agreement on any matter on which they disagree; and

(c) must not act on any instruction or request to withhold or avoid reaching an agreement.

(2) Unless the court directs otherwise, the experts must—

(a) hold the conference in the absence of the parties or their agents; and

(b) prepare the joint report without reference to, or instructions from, the parties or their agents.

(3) The experts must give the joint report to the parties—

(a) if the court has given a direction about the period within which the report is to be given—as directed by the court; or

(b) otherwise—as soon as practicable after the conference has concluded.

(4) This rule is subject to rule 6.

6 Permitted communications between experts and parties

(1) Any of the experts may, in writing—

(a) ask the parties for information that may assist the proper and timely conduct or conclusion of the conference or preparation of the joint report; or

(b) inform the parties of any matter adversely affecting the proper and timely conduct or conclusion of the conference or preparation of the joint report.

(2) A communication mentioned in subrule (1) must—

(a) be made jointly to all of the parties; and

(b) state—

(i) whether or not all of the experts agree on the terms of the communication; and

(ii) if all of the experts do not agree on the terms of the communication—the matters on which the experts disagree.

(3) The experts must, within 2 business days after a request is made under rule 429B(4), give a progress report about the progress of the conference or the joint report.

(4) The progress report must state—

(a) whether or not all of the experts agree on the terms of the report; and

(b) if all of the experts do not agree on the terms of the report—the matters on which the experts disagree.

Part 4 Giving of evidence by experts and related matters

7 Duty of expert

(1) The expert has a duty to assist the court.

(2) The expert—

(a) is not an advocate for a party to the proceeding; and

(b) must not accept instructions from any person to adopt or reject a particular opinion.

(3) The expert's duties under this rule override any obligation the expert may have to—

(a) any party to the proceeding; or

(b) any person who is liable for the expert's fees or expenses.

8 Requirements for report

(1) A report prepared by the expert must be addressed to the court and signed by the expert.

(2) The report must include the following information—

(a) the expert's qualifications;

(b) all material facts, whether written or oral, on which the report is based;

(c) the expert's reasons for each opinion expressed in the report;

(d) references to any literature or other material relied on by the expert to prepare the report;

(e) for any inspection, examination or experiment conducted, initiated, or relied on by the expert to prepare the report—

(i) a description of what was done; and

(ii) whether the inspection, examination or experiment was done by the expert or under the expert's supervision; and

(iii) the name and qualifications of any other person involved; and

(iv) the result;

(f) if there is a range of opinion on matters dealt with in the report—a summary of the range of opinion, and the reasons why the expert adopted a particular opinion;

(g) if the expert believes the report may be incomplete or inaccurate without a qualification—the qualification;

(h) a summary of the conclusions reached by the expert;

(i) a statement about whether access to any readily ascertainable additional facts would assist the expert in reaching a more reliable conclusion.

(3) If the expert believes an opinion expressed in the report is not a concluded opinion, the report must state, where the opinion is expressed, the reason for the expert's belief.

Examples of reasons why an expert may believe an opinion is not a concluded opinion—

- insufficient research
- insufficient data

(4) The expert must confirm in the report that—

(a) the expert has read, and agrees to be bound by, the code of conduct; and

(b) the factual matters stated in the report are, as far as the expert knows, true; and

(c) the expert has made all inquiries considered appropriate; and

(d) the opinions stated in the report are genuinely held by the expert; and

(e) the report contains reference to all matters the expert considers significant; and

(f) the expert understands the expert's duty to the court and has complied with the duty.

9 Supplementary report following change of opinion

(1) Subrule (2) applies if the expert changes, in a material way, an opinion in a report prepared by the expert under chapter 11, part 5 (an earlier report).

(2) Unless the expert knows the proceeding has ended, the expert must, as soon as practicable after the change of opinion, give written notice of the change of opinion, and the reason for the change, to—

(a) if the expert is a court-appointed expert—the registrar; or

(b) otherwise—the party who appointed the expert.