



HOUSTONKEMP
Economists

Assessment of the QCA's draft recommendation to declare the DBCT service – criterion (b)

A report for DLA Piper

March 2019

Report authors

Greg Houston

Daniel Young

Contact Us

Sydney

Level 40
161 Castlereagh Street
Sydney NSW 2000

Phone: +61 2 8880 4800

Singapore

8 Marina View
#15-10 Asia Square Tower 1
Singapore 018960

Phone: +65 6817 5010

Disclaimer

This report is for the exclusive use of the HoustonKemp client named herein. There are no third party beneficiaries with respect to this report, and HoustonKemp does not accept any liability to any third party. Information furnished by others, upon which all or portions of this report are based, is believed to be reliable but has not been independently verified, unless otherwise expressly indicated. Public information and industry and statistical data are from sources we deem to be reliable; however, we make no representation as to the accuracy or completeness of such information. The opinions expressed in this report are valid only for the purpose stated herein and as of the date of this report. No obligation is assumed to revise this report to reflect changes, events or conditions, which occur subsequent to the date hereof. All decisions in connection with the implementation or use of advice or recommendations contained in this report are the sole responsibility of the client.

Contents

1.	Introduction	1
1.1	Scope of this report	1
1.2	Structure of this report	2
2.	Defining the relevant market	3
2.1	We and the QCA apply different approaches to market definition	4
2.2	QCA assumes that demand is equal to the use of DBCT	5
2.3	Evidence that demand in the market exceeds DBCT's capacity	8
2.4	Regulated TIC at DBCT is not the market clearing price	9
2.5	Substitutability should be assessed on a mine by mine basis	12
2.6	Substitutability of terminal services for mines without contracts	17
3.	Estimating total foreseeable demand	20
3.1	QCA estimates demand for the DBCT service, not demand in the market	20
3.2	QCA underestimates the number of customers in the market	22
4.	Assessing the least cost facility or facilities	24
4.1	Incremental and total cost standards are equivalent	25
4.2	QCA's approach is neither the total cost or incremental cost standard	26
4.3	Criterion (b) is not satisfied under an appropriate least cost assessment	30
4.4	QCA's assessment is conducted on the basis of costs to society	32
4.5	DBCT is unable to meet total foreseeable demand in 2021	34
5.	Declaration	36
A1.	Foundations of the reverse cellophane fallacy	37
A2.	Outcomes of workably competitive markets	39
A2.1	Economic foundations of workable competition	39
A2.2	Prices recover forward-looking efficient costs	41

Figures

Figure 2.1: Market for coal terminal services provided to Goonyella mines (HoustonKemp market)	7
Figure 2.2: Market for coal terminal services provided to Goonyella mines (QCA assumptions)	8
Figure 2.3: The purpose for market definition	14
Figure 2.4: Starting point for geographic market dimension using DBCT's current and recent customers	16

Tables

Table 2.1: QCA's assessment of average supply chain cost to Goonyella system users (\$ per tonne)	12
Table 3.1: Estimates of total foreseeable demand with the QCA's market definition	22
Table 3.2: Estimates of total foreseeable demand in the market	23
Table 4.1: Comparison of the total, incremental and QCA cost standards	28
Table 4.2: QCA's assessment of supply chain cost, cost to society (\$ per tonne)	30
Table 4.3: An incremental cost assessment of supply chain cost, cost to society (\$ per tonne)	32
Table 4.4: An incremental cost assessment of supply chain cost, production cost (\$ per tonne)	33

Executive Summary

We have been asked by DLA Piper (DLA), on behalf of DBCT Management Pty Limited (DBCTM), to review whether the coal handling service provided by the Dalrymple Bay Coal Terminal (DBCT) is likely to satisfy criterion (b) of section 76(2) of the *Queensland Competition Authority Act 1997* (QCA Act). The focus of our review is the draft recommendation published by the Queensland Competition Authority (QCA) on 18 December 2018 and the expert advice upon which it relies. Our report should be read in conjunction with two previous reports we have prepared similarly addressing whether the coal handling service provided by DBCT (the DBCT service) satisfies criterion (b).

The principal economic elements of criterion (b) are:

- ∂ the definition of the market within which the DBCT service is supplied;
- ∂ the estimation of total foreseeable demand in the market; and
- ∂ the assessment of whether total foreseeable demand in the market can be met at least cost by DBCT or by two or more facilities.

In relation to each of these elements, there are substantive differences between the approach applied to assess criterion (b) by the QCA in its draft recommendation as compared to our earlier advice.

Defining the relevant market

There are important differences between the way in which we and the QCA assess the substitutability of services that are material to our conclusions in relation to the scope of the relevant market. In contrast to our views:

- ∂ the QCA considers that only substitution due to changes in price or quality is relevant to defining the boundaries of the market and in implementing this approach:
 - > considers only the price and quality of the *existing* capacity at DBCT in this assessment, rather than the price and quality of *expanded* capacity at DBCT; and
 - > considers substitutability of coal handling services in very coarse terms by reference to representative users in the Goonyella system and elsewhere, rather than by reference to the costs and incentives faced by each mine;
- ∂ the QCA considers that only transactions involving long term contracts are relevant to defining the boundaries of the market, and that transactions for throughput can be discounted from this assessment.

Underpinning the QCA's analysis is a conflation of the distinct concepts of 'demand for' and 'use of' a service. The QCA's approach assumes that demand in the market cannot include volumes that are served by other terminals.

These assumptions draw the QCA to the incorrect conclusion that DBCT is the only supplier in the relevant market. In other words, the QCA assumes what it sets out to show. This leads it to discount evidence that there has been, and continues to be, close competition between the supply of the DBCT service from *expanded* capacity and other coal handling services for Goonyella system users.

Our approach to defining the market differs from that of the QCA because we consider substitutability by reference to what miners have revealed in their choice of coal handling services, either at the present time or in the recent past. This is consistent with the standard approach to market definition as described in economic literature and Australian case law.

Under this framework, any factor that drives value to users is relevant to substitution. Importantly, this approach allows for the prospect that demand arising from customers in the market may exceed the capacity of DBCT to meet that demand either now or at any time in the future. If demand in the market meets or exceeds the capacity of DBCT, then it is relevant to consider the degree of substitutability between the *expanded* capacity of DBCT and coal handling services provided by other facilities. The QCA does not consider this substitutability question.

Estimating total foreseeable demand in the market

The QCA's disallowance of demand in the market that exceeds the amount that can be supplied by DBCT causes it to underestimate total foreseeable demand in the market for the service.

Total foreseeable demand in the market is the total demand arising from customers who are in the market. The fact that some of these volumes may currently, or in the future, be served by a facility that is not DBCT is irrelevant to the calculation of total foreseeable demand in the market.

The QCA's approach appears to conflate the concepts of 'demand in the market' and 'use of the DBCT service'. Demand by an individual for a product reflects the maximum quantity that he or she is willing to consume at any given price. Demand in the market may exceed use of the DBCT service if DBCT is at capacity such that other suppliers are meeting some of the demand of consumers in the market.

The QCA's error manifests itself as:

- ∅ for customers that the QCA considers are in the market, the estimation of those customers' use of the DBCT service, rather than their total demand; and
- ∅ the understatement by the QCA of the number of customers in that market because it underestimates the scope of the market for the service.

The table below compares the QCA's estimates of total foreseeable demand to estimates of total foreseeable demand in the market, using MMI Advisory data where possible. The table shows that total demand in the market is higher than 93 mt, amounting to 103 mt using the QCA's proposed market and 175 mt with the corrections to this approach set out above.

Estimates of total foreseeable demand with the QCA's market definition

Year	Total demand for the service (QCA's approach)	Total demand in the market (QCA's market definition)	Total demand in the market (HoustonKemp's market definition)
2021	92.99	102.99	164.67
2022	89.14	99.14	163.04
2023	89.10	99.10	163.94
2024	84.68	94.68	161.17
2025	87.14	97.14	168.71
2026	91.71	101.71	174.94
2027	91.71	101.71	174.94
2028	91.71	101.71	174.94
2029	91.71	101.71	174.94
2030	91.71	101.71	174.94

Source: MMI Advisory, AME

Assessing the least cost facility or facilities

The QCA's approach to the assessment of least cost is undertaken by reference to total charges for coal handling, rail access and rail haulage. The rationale for this approach appears to be that the QCA:

- ∂ adopts a 'total cost' standard, which includes sunk costs;
- ∂ equates this to a 'average unit cost' standard; and
- ∂ concludes that price is a suitable proxy for this measure of cost.

We agree that the QCA's 'total cost' standard is a reasonable and appropriate basis to assess least cost. Our own analysis is conducted on the same basis since, as we explain below, properly considered, there is no difference between an assessment of least cost on a 'total cost' basis as compared to an assessment of least cost on an 'incremental cost' basis.

However, the QCA makes a fundamental error in assuming that an 'average cost' standard is the same as a 'total cost' standard. This assumption causes the QCA's assessment of least cost to be distorted, because it:

- ∂ ignores the sunk costs associated with other terminals when considering scenarios under which DBCT meets all foreseeable demand – even though the sunk costs of those other terminals will continue to be incurred in these scenarios; but
- ∂ takes into account these same sunk costs when considering scenarios under which some foreseeable demand is met at those other terminals.

The result of this distortion is to *understate the total costs* of meeting all foreseeable demand at DBCT, or to *overstate the incremental costs* of meeting some of this demand at the alternative terminal. Put another way, the QCA's preferred total cost standard must be applied with a consistent approach to costs, so that costs incurred in each scenario are counted in each scenario.

Alternatively, if the QCA's assessment of least cost is corrected so as to be expressed on an incremental cost basis (or, equivalently, a consistent total cost basis) then its conclusion that criterion (b) is satisfied is reversed.

Table 9 in Part C of the QCA's draft recommendation sets out its assessment of least cost. The table below corrects the QCA's analysis in table 9 by presenting it on a consistent incremental cost basis. These results indicate meeting total foreseeable demand in excess of the existing capacity of DBCT is substantially more costly at DBCT than it is at either AAPT, RGTCT or WICET. It follows that it is not least cost for total foreseeable demand in the market to be met at DBCT.

An incremental cost assessment of supply chain cost, cost to society (\$ per tonne)

Cost components	Expanded capacity at DBCT	Existing capacity at AAPT	Existing capacity at RGTCT	Existing capacity at WICET
Below-rail cost	\$0.62	\$1.82	\$1.23	\$1.23
Above-rail cost	\$1.63	\$2.52	\$2.27	\$2.27
Coal handling cost	\$8.50	\$1.54	\$1.14	\$1.23
Supply chain cost	\$10.74	\$5.87	\$4.64	\$6.73
<i>Cost difference relative to accessing DBCT</i>		<i>\$4.87 less (45%)</i>	<i>\$6.10 less (57%)</i>	<i>\$4.01 less (37%)</i>

Source: QCA, HoustonKemp analysis

Further, even adopting the QCA's approach to assessing least cost, it would not be possible for DBCT to meet estimated total foreseeable demand of 93 mt in 2021. This is because, even if actions commenced now to provide the expansions required to meet this level of demand:

- o the Zone 4 expansion could only be placed into service in 2023; and
- o the 8X Phase 1 expansion could only be placed into service in 2025.

DBCT cannot meet total foreseeable demand in the market at least cost in 2021, compared to any two or more facilities, if it is unable to meet all demand at any cost.

Conclusion

We find that the coal handling service provided at DBCT does not satisfy criterion (b) under Part 5, Division 2 of the QCA Act. We draw this conclusion because, on our assessment:

- o the relevant market contains customers that have the demonstrated ability to substitute between DBCT and other suppliers including AAPT, RGTCT and HPCT;
- o total foreseeable demand in the market is 175 mt and is underestimated by the QCA because it excludes demand from customers in the market and it assumes that BMA mines are not in the relevant market; and
- o the entirety of this demand cannot be met at least cost (or at all) by DBCT and it is least cost for at least some of this demand to be met at one of AAPT, RGTCT or WICET instead of at DBCT.

1. Introduction

The Queensland Competition Authority (QCA) is reviewing whether the declared services specified in section 250 of the *Queensland Competition Authority Act 1997* (QCA Act) should be declared following the expiry of the existing declarations on 8 September 2020.

1.1 Scope of this report

We have been asked by DLA Piper (DLA), on behalf of DBCT Management Pty Limited (DBCTM), to review whether the coal handling service provided by the Dalrymple Bay Coal Terminal (DBCT) is likely to satisfy criterion (b) of section 76(2) of the *Queensland Competition Authority Act 1997* (QCA Act).

Criterion (b) reads:¹

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);

This report should be read in conjunction with two previous reports addressing whether the coal handling service provided by DBCT (the DBCT service) satisfies criterion (b), ie:

- ∅ in our first report, dated 28 May 2018,² we assessed the market for the DBCT service, estimated total foreseeable demand in that market and found that this would be met at least cost by two or more facilities, such that the DBCT service does not satisfy criterion (b); and
- ∅ in our second report, dated 13 July 2018,³ we revisited this advice in light of submissions from the DBCT User Group and Peabody Energy, and expert advice prepared by PricewaterhouseCoopers (PwC), but did not revise our earlier conclusions.

On 18 December 2018, the QCA published its draft recommendation. At this time, it also published reply submissions made by parties in response to our first report.

The QCA concludes in respect of the DBCT service that:⁴

Criterion (b) is satisfied

The relevant market for criterion (b) is the market for DBCT's coal handling services in the Goonyella system

In this market, there are no viable substitutes to DBCT

DBCT is able to meet total foreseeable demand in the market at the least cost compared to any two or more facilities

¹ QCA Act, section 76(2)(b).

² HoustonKemp, *Does DBCT's coal handling service satisfy criterion (b)?*, 28 May 2018 ('HoustonKemp first criterion (b) report').

³ HoustonKemp, *A review of the economic issues raised in relation to criterion (b)*, 13 July 2018 ('HoustonKemp second criterion (b) report').

⁴ QCA, *Draft recommendation | Part C: DBCT declaration review*, December 2018, p 5 ('QCA draft recommendation').

DLA has asked us to revisit our earlier conclusions in relation to whether the DBCT service satisfies criterion (b), or otherwise, in light of the draft recommendation made by the QCA and the expert advice upon which it relies.

1.2 Structure of this report

The remainder of this report is structured as follows:

- o section 2 describes the differences that underpin the diverging conclusions that we and the QCA draw on market definition and explain why our approach is consistent with well-accepted economic literature and case law;
- o section 3 estimates total foreseeable demand in the market, highlighting that the QCA's approach is to estimate demand for the existing DBCT service rather than demand in the market in which the service is provided;
- o section 4 assesses the least cost means of meeting total foreseeable demand in the market and explains how the QCA's approach diverges from the total cost standard that it purports to adopt, leading it to the incorrect conclusion that criterion (b) is satisfied; and
- o section 5 contains our declaration as to the basis on which we have prepared this report.



2. Defining the relevant market

In this section, we review the QCA's approach to defining the market in which the DBCT service is provided and consider whether it causes us to change the views we formed in our previous criterion (b) reports.

We note at the outset that there are significant differences between the approach that the QCA takes to defining the market in which the DBCT service is provided and the approach that we implemented in our previous criterion (b) reports. For instance:

- ∅ we separately identify the product, geographic, functional and time dimensions of the market using the conventional approach;⁵ whereas
- ∅ the QCA focuses on substitutability between the DBCT service and other coal handling services without explicit reference to the dimensions of the market.⁶

Some of these are differences of style, rather than of substance. However, there are important differences between the way in which we and the QCA assess the substitutability of services that are highly material to our respective conclusions in relation to the scope of the relevant market. In contrast to our views:

- ∅ the QCA considers that only substitution due to changes in price or quality is relevant to defining the boundaries of the market⁷ and in implementing this approach:⁸
 - > considers only the price and quality of the *existing* capacity at DBCT in this assessment, rather than the price and quality of *expanded* capacity at DBCT; and
 - > considers substitutability of coal handling services in very coarse terms by reference to representative users in the Goonyella system and elsewhere, rather than by reference to the costs and incentives faced by each mine;
- ∅ the QCA considers that only transactions involving long term contracts are relevant to defining the boundaries of the market, and that transactions for throughput can be discounted from this assessment.

Underpinning the QCA's analysis is a conflation of the distinct concepts of 'demand for' and 'use of' a service. The QCA's approach assumes that demand in the market cannot include volumes that are served by other terminals.

These assumptions draw the QCA to the incorrect conclusion that DBCT is the only supplier in the relevant market. In other words, the QCA assumes what it sets out to show. This leads it to discount evidence that there has been, and continues to be, close competition between the supply of the DBCT service from *expanded* capacity and other coal handling services for Goonyella system users.

Our approach to defining the market differs from that of the QCA because we consider substitutability by reference to what miners have revealed in their choice of coal handling services, either at the present time or in the recent past. This is consistent with the standard approach to market definition as described in economic literature and Australian case law.

Under this framework, any factor that drives value to users is relevant to substitution. Importantly, this approach allows for the prospect that demand arising from customers in the market may exceed the capacity of DBCT to meet that demand either now or at any time in the future. If demand in the market meets or exceeds the capacity of DBCT, then it is relevant to consider the degree of substitutability between the

⁵ HoustonKemp first criterion (b) report, pp 16-19.

⁶ QCA draft recommendation, pp C9-C35.

⁷ QCA draft recommendation, p 12.

⁸ QCA draft recommendation, pp C15-C17.

expanded capacity of DBCT and coal handling services provided by other facilities. The QCA does not consider this substitutability question.

The consequence of these fundamental differences in approach is that the QCA's draft recommendation finds that:

- ∅ the relevant market is 'the market for DBCT's coal handling service in the Goonyella system', in which DBCT is the only supplier,⁹ whereas we identify more than one supplier in the relevant market;
- ∅ coal mines in the Goonyella system that use coal handling services outside the Goonyella system are in the market, but their use of other coal handling services is not in the market,¹⁰ whereas we do not assume that demand in the market is capped at the existing capacity of DBCT;
- ∅ coal mines in the Goonyella system operated by BMA and BMC are either not in the market, or only in the market to the extent of their use of the DBCT service,¹¹ whereas we include these mines in the market and do not assume that their demand is capped at the existing capacity of DBCT; and
- ∅ coal mines outside the Goonyella system are not in the market,¹² whereas we assess this on an individualised basis for each mine based on its current and recent use of DBCT and the relative charges that it faces for using the DBCT service as against potential alternatives.

2.1 We and the QCA apply different approaches to market definition

In our first criterion (b) report, we identified that the relevant product was coal handling services and so the geographic dimension was the issue of greatest consequence to defining the market within which the DBCT service was provided. Our approach to defining the market is to use the hypothetical monopolist test, starting with a candidate market defined by the area over which the relevant service is currently being or will be supplied.¹³

This is the standard approach to market definition as set out in the economic literature and Australian case law. Our report identified evidence from Professor Maureen Brunt, the Australian Competition and Consumer Commission (ACCC) and the Australian Competition Tribunal (the Tribunal), all of which all note that the starting point for market definition is to examine the area over which the good or service under analysis is supplied.¹⁴ This approach considers substitutability by reference to the observed actions of suppliers and customers.

Using this approach, we found that the geographic market extends across the Goonyella system and into the northern extremes of the Blackwater system – the region 'proximate' to the Port of Hay Point. We observed that customers located within the boundaries of this market either currently use, or have recently used, coal handling services provided by other coal terminals. On this basis, we concluded that the market within which the DBCT service is supplied is also supplied by other coal handling services.¹⁵

By contrast, in its draft recommendation the QCA's approach to defining the market starts with a focus on the substitutability between DBCT's coal handling service and the coal handling services of other coal terminals on the Central Queensland coal network.¹⁶ It follows that the approach that the QCA takes to assessing the substitutability of coal handling services is critical to its view of the relevant market, and the suppliers and customers that are in that market.

⁹ QCA draft recommendation, p C11.

¹⁰ QCA draft recommendation, pp C28-C31, C43.

¹¹ QCA draft recommendation, pp C22-C28.

¹² QCA draft recommendation, pp C31, C34.

¹³ HoustonKemp first criterion (b) report, p 23.

¹⁴ See discussion in HoustonKemp first criterion (b) report, pp 18-19.

¹⁵ HoustonKemp first criterion (b) report, p 35.

¹⁶ QCA draft recommendation, p C11.

The QCA's approach to market definition focuses on substitution only for price and quality reasons. It states as a matter of principle that:¹⁷

Evidence of users switching between facilities may demonstrate that facilities are substitutes. However, it is also necessary to understand why users switch. Generally, products will be substitutable only where switching occurs (or would occur) as a result of price of quality incentives.

The market definition adopted by the QCA identifies the Goonyella system as the geographic boundary of the market. Several mines located in the Goonyella system have entered contracts with or otherwise use coal terminals outside the Goonyella system. These include Lake Vermont, Middlemount, South Walker Creek, Poitrel, Capcoal and Oaky Creek.¹⁸

For at least some of these users, the QCA does not regard their use of coal handling services at AAPT as indicating substitutability with the DBCT service because this does not represent substitution based on price or quality:¹⁹

...the QCA understands that some DBCT users (in the case of Lake Vermont and Middlemount) would have preferred to solely access DBCT, but that at the time of contracting, there was insufficient capacity at the terminal. Given commercial considerations, capacity was then sought at AAPT.

The QCA has not received evidence that these entities switched from DBCT to AAPT in response to a price change. Rather, it appears that both of them were unable to access additional capacity beyond their contracted entitlements at DBCT, and therefore sought additional capacity elsewhere.

The QCA goes on to conclude that, although these miners are within the relevant market, their use of other terminals is not part of total foreseeable demand in the market.

2.2 QCA assumes that demand is equal to the use of DBCT

The essential difference between our approach and that of the QCA that drives these differing conclusions is our respective consideration of the prospect for demand in the market to exceed the existing capacity of DBCT to provide coal handling services.

The QCA's approach assumes that demand in the market cannot include volumes that are served by other terminals. Put another way, the QCA's approach precludes the prospect that demand in the relevant market could meet or exceed the existing capacity of DBCT, and this in turn affects its view of which coal terminals supply this market.

In the quote above, the QCA discloses that its frame of reference for considering the potential for substitution between DBCT and other coal terminals is limited only to consideration of the substitutability between *existing* capacity at DBCT and other terminals. The QCA does not consider what this evidence has to say about the substitutability between *expanded* capacity at DBCT and other facilities.

Given that there was not sufficient existing capacity at DBCT to serve these customers, the choices made by Lake Vermont and Middlemount discloses that, for them, the use of capacity at other facilities was preferable to the use of expanded capacity at DBCT. DBCTM's submission noted that these mines:²⁰

... chose to sign long term take or pay agreements to export their coal via AAPT in circumstances where DBCT would have been the preferred terminal from a proximity perspective.

¹⁷ QCA draft recommendation, p 12.

¹⁸ HoustonKemp first criterion (b) report, pp 14-15.

¹⁹ QCA draft recommendation, p C29.

²⁰ DBCTM, *DBCT Management submission to the QCA*, 30 May 2018, paras 140-142.

Prior to signing those agreements Lake Vermont and Middlemount mines sought capacity from DBCT, however, at the time DBCT was fully contracted and would have required an expansion to its capacity to accommodate the miners' requirements. AAPT similarly needed to expand its capacity. However, this could occur within a shorter timeframe than any expansion to DBCT.

The miners had a choice between which terminal expansion would better suit their commercial requirements - either wait for DBCT to expand (the timing and approvals for which were uncertain) or utilise the GAPE and AAPT expansion (the timing and approvals for which were certain and aligned with the mines' commissioning plans). Rather than delaying their mine development processes to wait for DBCT to expand, the miners chose to use the coal handling services at AAPT. As noted above, Lake Vermont mine also exports coal through RGTCT. If there were no close substitutes to DBCT, Lake Vermont and Middlemount mines would have had to extend their mine development timeframes to align with the completion of a DBCT expansion beyond 85Mtpa.

It follows that the QCA, by assuming that demand in the market cannot include volumes served by other coal terminals, does not have regard to evidence of substitutability between expanded capacity at DBCT and existing or expanded capacity at other terminals that would have caused it to conclude that AAPT and RGTCT were both suppliers in the relevant market.

This view is suggested explicitly elsewhere in the QCA's draft recommendation. For example:

- ∅ the QCA accepts that BMC demand may be part of total foreseeable demand in the market, but only up to its contractual entitlements because:²¹

To do otherwise and also include the demand that is presently satisfied by other terminals would artificially inflate the estimate of total foreseeable demand (the calculation of which is ultimately central to criterion (b)).

- ∅ the QCA engaged MMI Advisory to prepare estimates of total foreseeable demand in the market that excluded the demand from mines outside the Goonyella system,²² which MMI Advisory explains is because:²³

...there is no evidence to support current or future material *redirection* of volumes from RG Tanna to DBCT. [emphasis added]

In other words, the QCA appears to estimate total foreseeable demand in the market based on its projected use of DBCT. Demand estimated on this basis precludes the inclusion of volumes that are currently served by other terminals.

2.2.1 Our approach to defining the market reflects demand that exceeds use of DBCT

Our approach to defining the market allows for the prospect that demand in the market may exceed the capacity of DBCT to meet that demand, either now or in the future. Under this approach:

- ∅ the price that clears this market will not necessarily be the regulated TIC determined by the QCA for the existing capacity of DBCT and instead reflects the best alternative option to customers associated with providing additional capacity to meet demand above this level; and
- ∅ evidence that miners prefer to use existing capacity at DBCT but ultimately use available capacity at other terminals in preference to expanded capacity at DBCT suggests that these alternative facilities are in the market, as are the miners and their demand that is met at these alternative facilities.

We demonstrate this conception of the market in figure 2.1 stylistically. We assume, for the purpose of the presentation, a market for coal terminal services provided to Goonyella mines. The supply curve reflects the increasing cost of options as they appear to Goonyella mines, with WICET being the most expensive. The

²¹ QCA draft recommendation, p C27.

²² QCA draft recommendation, p C43.

²³ MMI Advisory report, p 15.

chart also assumes a differentiation between demand by BMA and BMC mines, as compared to other demand, with the assumptions that:

- o BMA and BMC mines prefer to use HPCT to any other terminal; and
- o demand for HPCT by BMA and BMC mines exceeds its capacity.

Figure 2.1: Market for coal terminal services provided to Goonyella mines (HoustonKemp market)

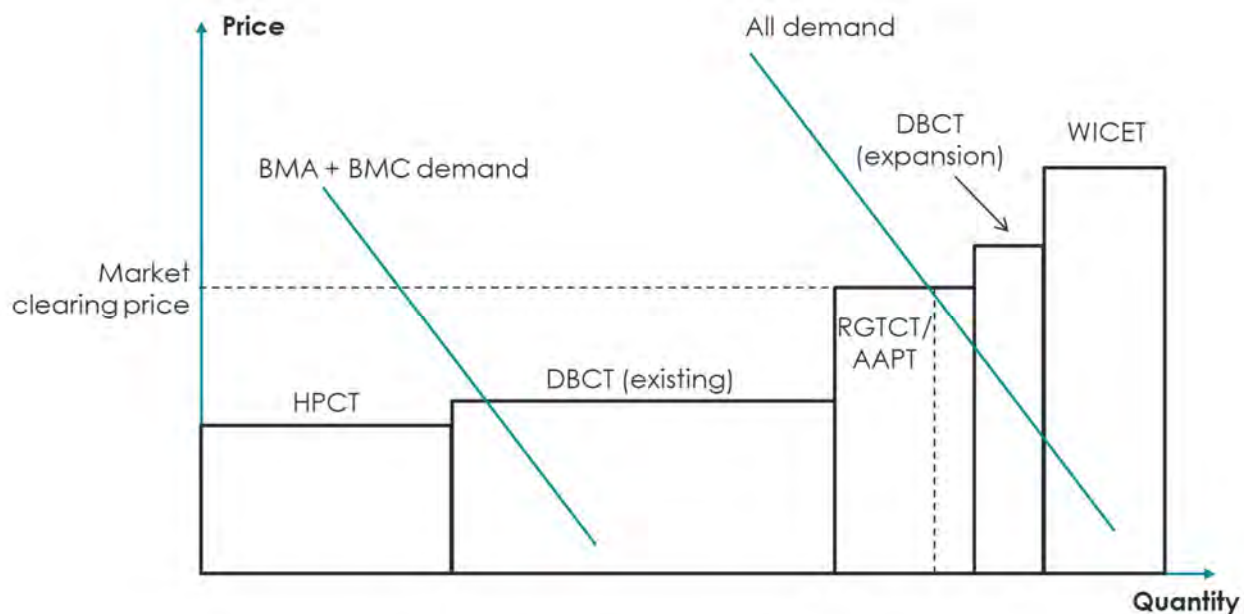


Figure 2.1 shows that, because demand for coal terminal services exceeds DBCT's existing capacity, capacity of other coal terminals is drawn into the market, and the market clearing price is determined by reference to the market clearing price for coal delivered to those terminals. In the diagram, nothing turns on an assumption of whether HPCT is a supplier in the market, or outside the market, since the effect of excluding HPCT would simply be to shift demand in the market inwards by the capacity of HPCT.

The figure also highlights the difference between the 'use' of DBCT and demand in the market within which the DBCT service is provided. When the analysis of the market leaves open the prospect that there may be more than one supplier in the market, it is evident that these concepts may differ materially.

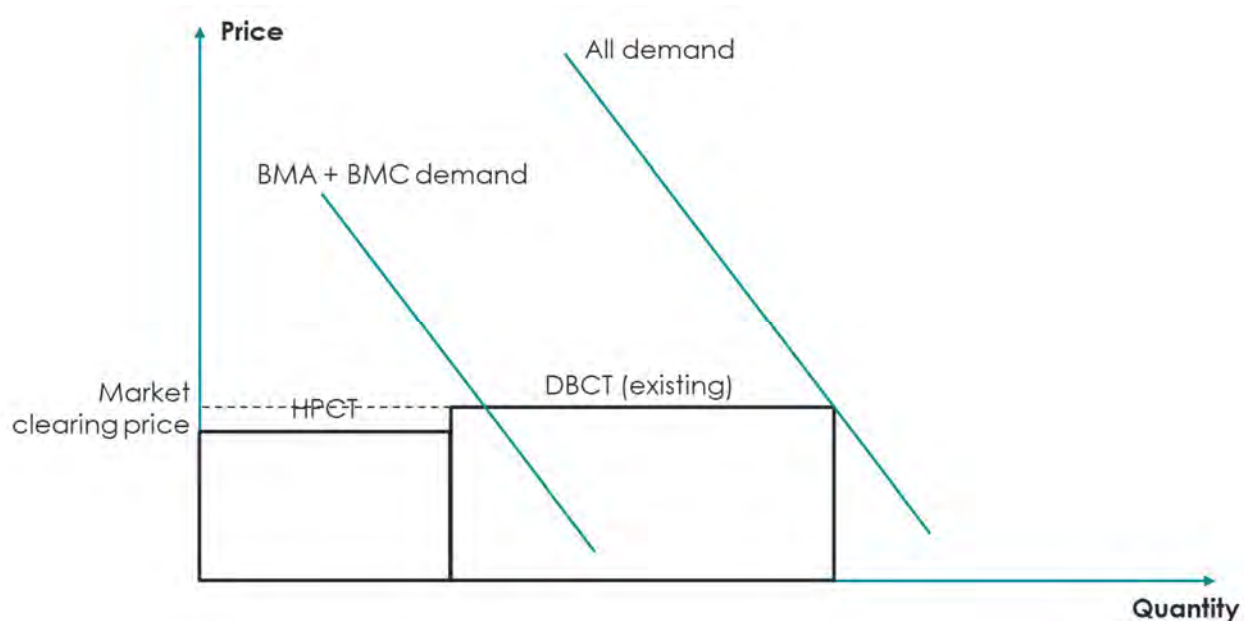
2.2.2 QCA's approach to defining the market reflects demand that is equal to use of DBCT

By contrast, at the market definition step, the QCA precludes the prospect that demand in the market may exceed the capacity of DBCT to meet that demand. Under the QCA's approach:

- o the price that clears this market is the regulated TIC determined by the QCA for the existing capacity of DBCT – the potential charges associated with expanded capacity at DBCT or available capacity at other terminals do not inform this price; and
- o evidence that miners prefer to use existing capacity at DBCT but ultimately use available capacity at other terminals in preference to expanded capacity at DBCT does not mean that these miners are in the market – because this does not demonstrate substitution between *existing* capacity at DBCT and available capacity at these alternative facilities.

The market hypothesised by the QCA's assumptions is shown at figure 2.2 below.

Figure 2.2: Market for coal terminal services provided to Goonyella mines (QCA assumptions)



As with figure 2.1, nothing turns on the inclusion of HPCT in figure 2.2, and the diagram could be redrawn without HPCT by shifting demand in the market inwards by the capacity of HPCT.

2.3 Evidence that demand in the market exceeds DBCT's capacity

We explain above that the potential for demand in the market to exceed the existing capacity of DBCT is critical to market definition.

There is clear evidence that the level of demand in the market exceeds the existing capacity of DBCT. Most importantly:

- o DBCT is fully contracted from July 2021 and there is a queue of access seekers with unmet capacity requirements;²⁴ and
- o Lake Vermont, Middlemount, Capcoal, Oaky Creek, South Walker Creek and Poitrel are all examples of mines that are located within the Goonyella system but have contracts to export coal through either AAPT or RGTCT.²⁵

This suggests that there is competition between DBCT and other coal terminals to serve demand that can only be met by expanding capacity at DBCT, and that other coal handling services are regarded as being at least as preferable to the DBCT service for this demand.

Despite this evidence, the QCA does not accept that the coal handling services at these terminals are a substitute for users located in the Goonyella system. The QCA lists four reasons for its position:²⁶

- o some DBCT users who have contracted with AAPT or RGTCT have done so because access to DBCT was not available at the time, such that this is not evidence of substitution in response to a price change;
- o the use of multiple terminals by miners with operations in multiple locations allows these businesses to optimise their operations by utilising, to the extent possible, their take-or-pay contracts;

²⁴ DBCTM, DBCT declaration review – update on contract profile, 7 November 2018.

²⁵ HoustonKemp first criterion (b) report, pp 14-15.

²⁶ QCA draft recommendation, pp C28-C31.

- ∅ it is expensive for a Goonyella coal mine to switch to an alternative terminal; and
- ∅ there is no evidence that Goonyella users have switched from DBCT in response to price or non-price incentives, and low-level switching does not demonstrate that another terminal is in the same market.

The first, third and fourth of these points are founded upon a view that evidence for substitution can only be found in switching between *existing* capacity at DBCT and capacity at another terminal. For example, the QCA addresses the use by Lake Vermont and Middlemount of capacity at other terminals by noting that these users would have preferred to access DBCT, but its capacity was not available to them at the time of contracting.²⁷ Once a broader perspective on substitution is adopted, these concerns fall away.

The second point originates from a perspective that some miners operate a portfolio of mines across multiple rail systems. It has been suggested that such miners:²⁸

- ∅ may contract surplus capacity across multiple terminals as part of an 'uneconomic' risk mitigation strategy to protect against system disruptions; and
- ∅ may export Goonyella coal from coal terminals other than DBCT in order to defray take-or-pay obligations incurred at those terminals.

None of these rationales indicates that the DBCT service may not be substitutable with other coal handling services.

The acquisition of surplus capacity is not 'uneconomic' but is justified by the expected benefits of contracting elsewhere. This may serve to increase a mine's demand for coal terminal services but does not indicate a lack of substitutability between them.

To the extent that miners operate a geographically dispersed portfolio of mines and a corresponding portfolio of terminal contracts, this supports their ability to substitute the DBCT service for other coal handling services at the margin within their portfolio. Such miners have the ability to switch away from DBCT both:

- ∅ in the short term, by sending more coal to other terminals in their portfolio; and
- ∅ in the medium term, based on their ability to renegotiate the contracts that underpin this portfolio.

2.4 Regulated TIC at DBCT is not the market clearing price

One consequence of the QCA's approach to market definition, and its focus on the substitutability between *existing* capacity of DBCT and other terminals rather than *expanded* capacity at DBCT and other terminals, is that it assumes a market price in the market that is lower than the competitive price or market clearing price. This in turn leads it towards a definition of the market that is too narrow.

2.4.1 Cellophane fallacy

Underpinning the conventional approach to market definition is a necessary condition that observed prices reflect the outcomes of competitive rivalry between firms. The importance of this condition is demonstrated by the classic 'cellophane fallacy' – a widely accepted limitation of the traditional hypothetical monopolist test (HMT), prominently arising in the 1956 'cellophane case' nearly thirty years prior to the formal adoption of the HMT in the United States in 1982.²⁹

At its conception, the cellophane fallacy referred to a situation in which, due to the market power of the incumbents, the prevailing market prices are above what they *would have been* in a workably competitive

²⁷ QCA draft recommendation, p C29.

²⁸ Anglo American Coal Australia, *Anglo America's submission in response to initial submissions*, 17 July 2018, pp 7-8.

²⁹ *United States v El du Pont & Co*, 351 US 377 (1956) (*du Pont*); United States Department of Justice, *Merger Guidelines*, reg 28.493, 1982;

market, leading to an erroneously wide market definition when the SSNIP is applied to the prevailing prices. Gene Schaerr summarised this idea in *The Yale Law Journal* as follows:³⁰

In industries characterized by market power (e.g., because of collusion or monopoly) the prevailing price is usually higher than the competitive price." When applying the Guidelines to mergers in such industries, however, DOJ applies the five-percent test to the prevailing price rather than to the competitive price. As the previous discussion shows, both the product and geographic markets may be larger than if the competitive price were used; the overall market, therefore, may be substantially larger.

This original understanding of the cellophane fallacy has become well established in many countries, including the United States, United Kingdom and Australia, both in case law and academic literature, even receiving explicit mention in the United Kingdom's Competition Commission & Office of Fair Trading, *Merger Assessment Guidelines*.³¹

The cellophane fallacy and its accepted remedy in market definition also implicitly accommodates the possibility of prevailing prices being below the competitive level, and the relevant market thereby being defined too narrowly. Nevertheless, this possibility was explicitly formalised by Luke Froeb and Gregory Werden of the antitrust division of the United States Department of Justice, in their seminal paper *The Reverse Cellophane Fallacy in Market Delineation* in 1992. Froeb and Werden extend the concept of the cellophane fallacy in the context of competition analysis to what they coin 'the reverse cellophane fallacy', for which the relevant market is defined too narrowly on the basis of prevailing market conditions:

... markets delineated on the basis of prevailing demand elasticities are likely to be too small and the potential for the exercise of market power is likely to be overstated. This is precisely the opposite of the error in the Cellophane case, so we term it the reverse Cellophane fallacy.³²

The idea that the cellophane fallacy can function in both directions and so has a counterpart in the case where prevailing prices are below what would have been observed in a competitive market is accepted in United States and Australian academic literature, being quoted in *The Journal of Competition Law and Economics* (U.S.) and *The Competition and Consumer Law Journal* (Australia).³³

2.4.2 Competitive prices in the market

In the assessment of criterion (b) for the DBCT service, the context within which the market must be defined is differentiated from typical circumstances because DBCT is a regulated facility, subject to administered pricing determined by the QCA.

There is no ready basis to assume that the price charged for existing capacity DBCT reflects the price that would be determined in the market by rivalrous interactions between coal terminals. Indeed, there are strong reasons to believe that the price for coal handling services in a competitive market would be substantially higher than the TIC determined by the QCA for DBCT.

First among those reasons is that, although a workably competitive market can be expected to give rise to cost-based prices, these may not be the costs of a particular supplier in the market. Rather, established economic principles and case law indicate that the measure of costs that constrains the pricing decisions of a firm in a workably competitive market is not its own costs, but the forward-looking costs of efficient actual or potential rivals. We set out these principles and case law at appendix A2 below.

³⁰ Schaerr, Gene, "The Cellophane Fallacy and the Justice Department's Guidelines for Horizontal Mergers", *The Yale Law Journal*, v 94(3), 1985, pp 676-677.

³¹ Competition Commission & Office of Fair Trading, *Merger Assessment Guidelines*, OFT1254, 2010, p 31; *Seven Network Ltd v News Ltd*, (2009) 182 FCR 160, pp 241-242.

³² Froeb, Luke and Werden, Gregory, "The Reverse Cellophane Fallacy in Market Delineation", *Review of Industrial Organization*, v 7, 1992, p 241.

³³ Smith, Rhonda, "Market Definition and Substitution Options", *Competition and Consumer Law Journal*, v 22(2), 2014; Savitski, David, "Market power analysis for oil pipelines facing excess demand", *Energy Economics*, v 34, 2012. pp 955-960.

By way of pertinent example, in the market for the export of seaborne metallurgical coal, South Walker Creek (operated by BMC) is understood to be one of the lowest cost suppliers.³⁴ Notwithstanding, the market for the export of seaborne metallurgical coal is understood to be workably competitive. The interaction of supply and demand in this market means that the price that BMC receives for coal from South Walker Creek is not based on its own operating costs but on the costs of marginal miners in the market.

Similarly, given that DBCT is at capacity, and that incremental volumes in the market must be met by either expanded capacity at DBCT or using existing capacity at other terminals, it is the potential costs and charges associated with these options that defines the price that clears the market. This is demonstrated using the example at figure 2.1 above.

It follows that the QCA's approach to market definition – and its associated analysis of substitutability – commences with a price that may be lower than would result from competitive rivalry between firms in the market. The consequence is that the QCA tends to define the market too narrowly – an example of the reverse cellophane fallacy.

The QCA highlights the extent to which charges associated with using existing capacity at DBCT are lower than charges associated with using existing capacity at other terminals. It suggests that this is indicative of a lack of substitutability between the services and concludes that other services are not in the same market as the DBCT service. However, when the process of market definition commences with prices that reflect competitive levels, other coal handling services provided at AAPT and RGTCT are much more likely to be identified as close substitutes to the DBCT service.

The result of this error is that the QCA defines the market for the service in an artificially narrow manner, so as to include only a single supplier – DBCT. This error is critical to its ultimate conclusion that DBCT satisfies criterion (b).

2.4.3 QCA's approach excludes substitute services from the market

Application of the QCA's approach, combined with application of a SSNIP to the price of the *existing* DBCT service, means that any functionally identical service that happens to provide services at prices that exceed the price of the *existing* DBCT service by more than the five to ten per cent that is usually applied in the context of a SSNIP will be excluded from the market.

The error in this approach can be seen by hypothesising that AAPT was instead located at the Port of Hay Point, with a coal handling charge established by user agreement such that the cost to miners of accessing AAPT was more than five to ten per cent higher than DBCT.

The QCA's approach to market definition, beginning with the DBCT service, would conclude that AAPT was not in the relevant market for the assessment of criterion (b) because:

- ⦿ it is significantly more expensive for mines to access AAPT than it is to access DBCT such that, faced with a SSNIP at DBCT, no miner receiving service at DBCT would substitute to AAPT; and
- ⦿ it is clear that any miners using AAPT must be doing so because they were unable to secure capacity at DBCT, since the terminals do not have closely similar charges, and so this does not provide evidence of substitution in response to a price change.

The QCA's approach to market definition would end with a conclusion that DBCT is the only supplier in the market. Further, in estimating total foreseeable demand in this market, the QCA would exclude all contracts for service at AAPT.

Of course, such a result would be nonsensical. Two firms located in the same place and supplying what is for all practical purposes an identical service, available to the same customers, clearly should both fall within the narrowest reasonable definition of the market. The fact that the administrative price determined by the

³⁴ See for example: HoustonKemp first criterion (b) report, pp 93-95.

QCA is lower than the price set by AAPT, in this example, is *prima facie* evidence that this regulated price is lower than the competitive market price.

It follows that two firms that are located some way apart (5km, 50km, 250km), but are both serving customers that fall within *the same* geographic envelope (as established by the first firm of interest):

- o are suppliers in that market; and
- o fall within the narrowest reasonable definition of the market.

2.4.4 Evidence of substitution and substitutability at the market price

Conclusive evidence that AAPT and RGTCT are close substitutes to the DBCT service, and in the market in which the service is provided, is set out at section 2.3. This shows that miners in the Goonyella system use AAPT and/or RGTCT in preference to expanded capacity at DBCT.

By way of illustration of this difference, the QCA's assessment of the average supply chain cost to Goonyella system users finds that the total cost for Goonyella users of accessing *existing* capacity at DBCT is \$11.42 per tonne, considerably lower than the closest potential alternative, which is RGTCT at \$16.73 per tonne.³⁵ However, if the potential cost for Goonyella users of accessing *expanded* capacity at DBCT is instead considered, on a differentiated basis, then the comparison narrows materially, as shown in table 4.2 below.

Table 2.1: QCA's assessment of average supply chain cost to Goonyella system users (\$ per tonne)

Cost components	DBCT	AAPT	RG Tanna	WICET
Below-rail cost	\$2.62	\$9.23	\$6.33	\$6.33
Above-rail cost	\$3.70	\$5.73	\$5.17	\$5.17
Coal handling cost	\$8.50	\$7.01	\$5.18	\$14.67
Other port and shipping costs	\$0.05	\$0.05	\$0.05	\$0.05
Supply chain cost	\$14.87	\$22.02	\$16.73	\$26.22
<i>Cost difference relative to accessing DBCT</i>		at least \$7.15 (48%)	at least \$1.86 (13%)	at least \$11.35 (76%)

Source: QCA

These elementary changes to the QCA's assessment substantially change its comparison of cost difference – in the case of RGTCT from 47 per cent to 13 per cent, relative to DBCT. Of course, these changes do not account for other factors that may make other coal handling services preferable to the use of expanded capacity at DBCT, such as the time that would be incurred to make this capacity available to users. The QCA's comparison is also limited to an assessment of substitutability from the perspective of a representative user, rather than from the individual perspective of each mine in the Goonyella system. We discuss this assumption further at section 2.5 below.

The most determinative evidence is provided by the actual choices made by miners in the Goonyella system, which demonstrates a degree of substitutability between the DBCT service and other terminal services that is significantly closer than would be suggested by the figures in table 4.2 above.

2.5 Substitutability should be assessed on a mine by mine basis

The QCA's assessment of the substitutability between the DBCT service and other coal handling service is conducted from the perspective of a representative Goonyella system user. As such, the comparison of charges for accessing different coal terminal services is represented with a single snapshot of transport

³⁵ QCA draft recommendation, table 5, p C16.

charges, which glosses over the geographic variety in transport charges that is important to understanding the geographic bounds of the market within which the DBCT service is supplied.

The nature and significance of the error in this approach can be explained by reference to the very different purposes of the market definition step in a criterion (b) assessment, as compared with the conventional competition analysis. Unlike in a conventional competition analysis, the precision of the market definition step and the identification of customers and suppliers that are in the relevant market are crucial to the assessment of criterion (b).

It follows that an assessment of substitutability that ignores relevant information about the location of each mine and the variation in transport costs to each terminal is not capable of giving rise to a precise assessment of the market.

2.5.1 Assessment of criterion (b) requires a precise market definition

Market definition is often used for the purpose of organising and focusing the analysis of competitive conduct, and this is reflected in the common approach to market definition. Usually, the principal focus is the degree of constraint that other firms and/or customers impose on the firm or firms of interest. This assessment may not require any definitive conclusion as to the boundaries of the market, or as to whether particular firms or customers are 'in' or 'out' of a market.

For example, in respect of merger analysis, the ACCC's guidelines emphasise the distinction between market definition and competition analysis:³⁶

While market definition is a useful tool for merger analysis, by itself it cannot determine or establish a merger's impact on competition. Accordingly, market definition should not obscure factors relevant to competition that fall outside the relevant markets. Similarly, there is no presumption that other firms within a relevant market necessarily provide an effective competitive constraint on the merged firm. Other factors also relevant to merger analysis are outlined in chapters 5, 6 and 7.

It is rarely possible to draw a clear line around fields of rivalry. Indeed, it is often possible to determine a merger's likely impact on competition without precisely defining the boundaries of the relevant market. For example, if the consolidation of the merger parties' activities is unlikely to substantially lessen competition in a narrow product and geographic area, then it is also unlikely to do so in a more broadly defined product and geographic area and, therefore, a conclusive view on the relevant market may not be necessary. Similarly, when a merger is likely to substantially lessen competition in any number of potential markets, it may be unnecessary to define the precise market boundaries.

The ACCC's commentary underlines that market definition is often not regarded as definitive in terms of capturing competitive constraints. Competitive constraints may emerge from outside the defined market, and suppliers within the market may not provide a close competitive constraint on the supplier of interest.

However, the absence of a precise market definition is not of great consequence in the context of competition analysis, since subsequent steps consider the nature of interaction between suppliers and/or customers and identify constraints on the exercise of market power. By way of example, the High Court in *Queensland Wire Industries Pty Ltd v Broken Hill Pty Co Ltd* noted that:³⁷

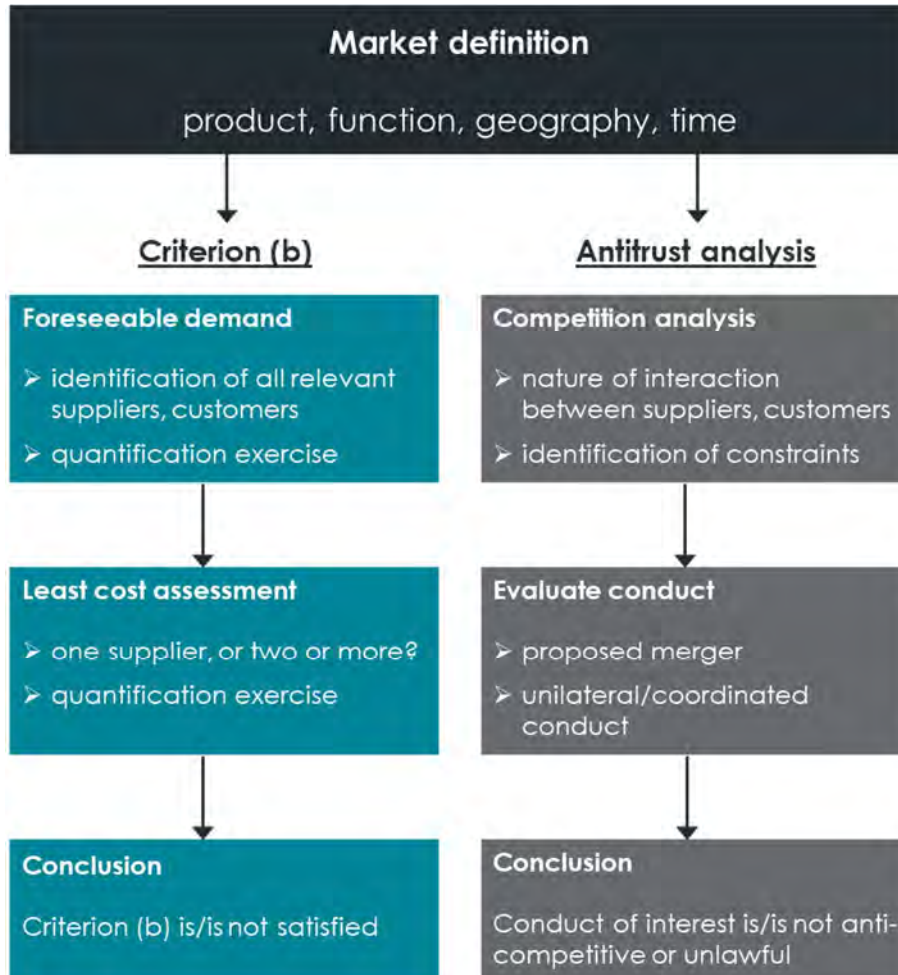
In identifying the relevant market, it must be borne in mind that the object is to discover the degree of the defendant's market power. Defining the market and evaluating the degree of power in that market are part of the same process, and it is for the sake of simplicity of analysis that the two are separated.

³⁶ ACCC, *Merger guidelines*, November 2008, paras 4.3-4.4.

³⁷ *Queensland Wire Industries Pty Ltd v Broken Hill Pty Co Ltd* ("Star Picket Fence Post case") [1989] HCA 6; (1989) 167 CLR 177 (8 February 1989), para 15.

Figure 2.3 below shows how market definition acts as an input into the assessment of criterion (b) compared to its use in an antitrust analysis.

Figure 2.3: The purpose for market definition



In sharp contrast, the assessment of criterion (b) requires a much more precise approach to the definition of a market. Given the purpose of performing the quantitative task of assessing total foreseeable demand in the market and determining whether that demand can be met at least cost by just one supplier, it is necessary to identify and state with precision those customers that are in the market and those that are not. To achieve this, the approach to market definition for the purpose of criterion (b) must have a much greater focus on the precise boundaries of the relevant market and the identity of customers within that market than is usually the case.

2.5.2 QCA adopts a system-wide approach to market definition

Our approach to market definition is underpinned by the purpose we describe above. In contrast, the QCA's approach is more focused on identifying suppliers that are in the market by reference to an examination of the extent of competition between terminals. This difference in focus means that our definition of the market reflects a more granular consideration of substitutability, from the perspective of users.

In its draft recommendation, the QCA states that it has focused on:³⁸

...what is happening in the market as part of determining whether other terminals provide a competitive constraint to DBCT Management, by virtue of providing a substitutable service to the coal handling service at DBCT.

In other words, the QCA's focus is explicitly on the extent of competition between terminals. This is reflected in its approach to defining the market, in which it is always guided by whether the DBCT service is substitutable with other coal handling services.

This framework for analysis causes the QCA to undertake only a very coarse assessment of substitutability. It sets aside the unique geographic location of each mine that, in turn, gives rise to a potentially wide variation of transport charges that would be required to send coal to each terminal. An assessment of substitutability that glosses over this rich detail and treats all Goonyella system users as if they were all faced identical choices between terminals is not an appropriate basis upon which to define the market for the purpose of estimating total foreseeable demand in the market.

Our criterion (b) report, which considered analysis by PricewaterhouseCoopers that makes the same assumption, shows how taking into account the perspective of different miners makes a considerable difference to the analysis of substitutability of coal handling services.³⁹

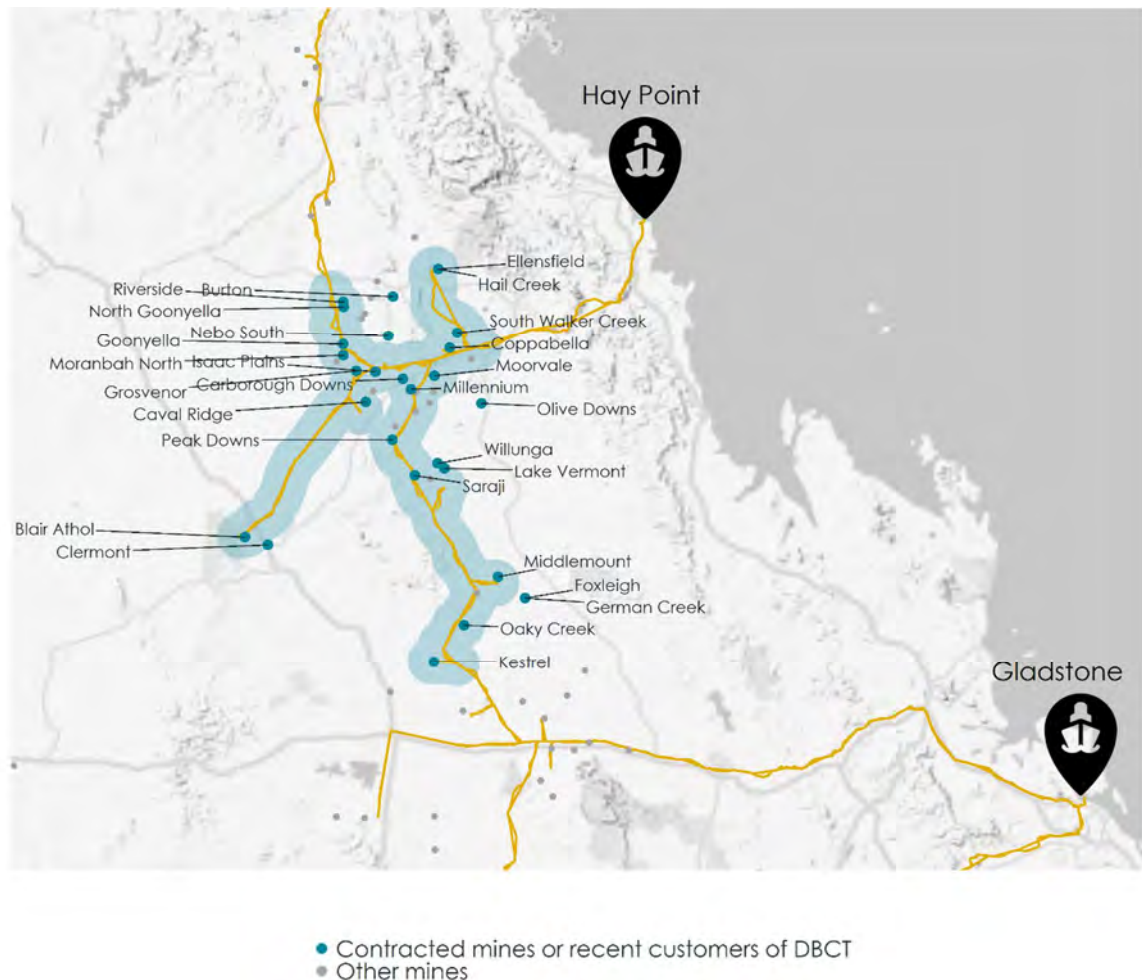
One pertinent example of how our approach gives rise to different conclusions from the QCA's is our consideration of the Kestrel mine and Teresa project, located in the north Blackwater system. We explain the basis for our different conclusions below.

In our criterion (b) report, we explain that the geographic dimension of the market is the area over which the DBCT service is currently being or will be supplied – the area that encompasses all of DBCT's existing and potential customers. Our criterion (b) report addresses this required step of market definition by identifying the area of the Central Queensland Coal Network within which recent and current customers of DBCT are located. This was depicted in figure 4.1 of our criterion (b) report, which we replicate below.

³⁸ QCA draft recommendation, p C26.

³⁹ HoustonKemp second criterion (b) report, pp 37-42.

Figure 2.4: Starting point for geographic market dimension using DBCT's current and recent customers



Source: DBCTM and AME data, HoustonKemp analysis

The shaded area in figure 2.4 above includes the entirety of the Goonyella system and also Kestrel mine. We separately show that the Teresa project would likely face lower charges to access DBCT than any other terminal. On this basis, we include Kestrel and Teresa in the geographic scope of the market for the DBCT service.⁴⁰

However, the QCA assesses the geographic scope of the market as only the Goonyella system – which does not include Kestrel mine or the Teresa project.

Although the QCA agrees that volumes from Kestrel have been exported from DBCT⁴¹ it does not agree that the market for the DBCT service extends outside the Goonyella system. The QCA characterises Kestrel's use of DBCT as "sporadic" and notes that it does not hold a contract for capacity. It concludes that:⁴²

... the QCA does not consider that this demonstrates that for mines on rail systems (other than Goonyella), the coal handling services provided at DBCT are substitutable for other terminals, as

⁴⁰ HoustonKemp first criterion (b) report, figure 4.4, p 31.

⁴¹ QCA draft recommendation, p C14, footnote 30.

⁴² QCA draft recommendation, p C34.

a significant proportion of the users of those terminals would not switch to DBCT in response to a SSNIP for the relevant service.

This reasoning discloses the QCA's reliance on an approach to market definition that, in this case, focuses on its view of the aggregate degree of competition between DBCT and RGTCT rather than a close consideration of whether these services are substitutable from the perspective of individual mines. In particular, the QCA concludes that:⁴³

- ∅ because Kestrel is primarily a user of RGTCT and a significant proportion of the users of RGTCT would not switch to DBCT in response to a SSNIP for the DBCT service; then
- ∅ it follows that Kestrel is not in the market in which the DBCT service is supplied.

The second point does not follow from the first. In considering whether Kestrel is a customer in the market within which the DBCT service is supplied, the relevant consideration is whether DBCT is a viable alternative service for Kestrel – not whether DBCT is a viable alternative service for a significant proportion of the users of RGTCT.

The result of this approach is that the QCA excludes Kestrel and Teresa from the market, based on their location in the Blackwater system, notwithstanding evidence that it is lower cost for these mines to access DBCT than it is for them to access RGTCT.

2.6 Substitutability of terminal services for mines without contracts

The QCA considers that only transactions involving long term contracts are relevant to defining the boundaries of the market, and that transactions for throughput can be discounted from this assessment. This assumption leads it to exclude the Kestrel mine and Teresa project from the market, as well as BMA mines. However, we explain below that, considered in the context of a principled framework for market definition, neither of these conclusions is justified.

Our criterion (b) report notes that a large number of mines have exported coal through DBCT since 2014. This includes mines that do not have contracts with DBCT, such as:⁴⁴

- ∅ Caval Ridge, Saraji, Peak Downs, Riverside and Goonyella mines, all operated by BMA; and
- ∅ Kestrel mine, operated by Adaro Energy (and previously by Rio Tinto).

Our approach to defining the market identifies its boundaries by reference to the area over which the DBCT service is currently being or will be supplied. We did not seek to distinguish in this assessment between use of the DBCT service under long term take-or-pay contracts or on a throughput basis. In our view, both modes of use indicate that the mine considers the DBCT service a viable option (and a potential substitute) for its coal handling services.

However, the QCA seeks to distinguish between use of the DBCT service under contract as compared to use on a throughput basis. It states that:⁴⁵

It is relevant to distinguish between mines that hold contract entitlements at DBCT and mines that use DBCT without a contract entitlement (presumably accessing the contract entitlements of another party).

Illustrating this distinction, the QCA contends that:

⁴³ QCA draft recommendation, p C34.

⁴⁴ HoustonKemp first criterion (b) report, p 23.

⁴⁵ QCA draft recommendation, p C26.

- o in respect of BMA mines, their use of DBCT is only occasional and opportunistic and does not indicate that it is a strong substitute to HPCT;⁴⁶ and
- o in respect of Kestrel mine, Rio Tinto did not hold a specific contract for coal handling capacity at DBCT for Kestrel, but rather used its portfolio contract entitlements to enable Kestrel to access DBCT on a 'sporadic' basis.⁴⁷

Neither the relevance nor basis for the distinction drawn by the QCA is clear cut. Anglo American notes that many miners have access to a portfolio of terminal contracts and optimise their use of these contracts across their mining operations.⁴⁸ In this context, it does not appear relevant to distinguish (as the QCA seeks to do) the use of DBCT under a contract with Kestrel as compared to a contract with Kestrel's owner. Both forms of arrangement would indicate that the DBCT service is regarded as a viable alternative coal handling service for coal mined at Kestrel.

The absence of an organising principle underpinning this position is further exposed by the QCA's treatment of BMC and BMA mines. Noting the existence of a long term contract held by BMC with DBCT, the QCA observes that:⁴⁹

...it is appropriate to include the contract entitlements held by BMC mines at DBCT as part of the market for coal handling services at DBCT. Mines that can access the BMC contract entitlements (whether it is a BMC mine or a mine of another entity) are necessarily part of the market of assessing total foreseeable demand (but only up to the level of the contract entitlements at DBCT).

A number of facts are relevant to understanding the use of DBCT by BMC and BMA.

BMA currently has total contractual entitlements with DBCT of [REDACTED]⁵⁰ [REDACTED].⁵¹ However, notwithstanding its current access entitlements [REDACTED] BMA did not have any access entitlements at DBCT in 2018.

BMC currently has total contractual entitlements with DBCT of [REDACTED]⁵² [REDACTED].

We understand that most of BMA's use of the DBCT service in 2018 was under BMC's contract entitlements. Exact attribution of the amounts is not straightforward because BHP nominates its tonnages at DBCT for BMA and BMC coal under a common login and does not notify the contractual basis for those tonnes. By way of example, [REDACTED]⁵³

An approach to market definition that places BMC mines in the relevant market and BMA mines outside the relevant market is not grounded in the reality of how those mines utilise DBCT. This reality appears to reflect

⁴⁶ QCA draft recommendation, p C26.

⁴⁷ QCA draft recommendation, p C34.

⁴⁸ Anglo American submission, pp 7-8.

⁴⁹ QCA draft recommendation, p 26.

⁵⁰ [REDACTED]

⁵¹ [REDACTED]

⁵² Data provided by DBCTM.

⁵³ [REDACTED]

that BMC's contract entitlements at DBCT are shared with BMA, and that most of the tonnages shipped from BMA's mines utilise these entitlements.

In our view, the extensive use of DBCT by the BMA mines over recent years means that they can reasonably be assessed as being customers in the market within which the DBCT service is supplied.⁵⁴ However, even if the QCA's contention as to contractual entitlements were accepted, on its own assessment the BMA mines would be in the market since they access the BMC contract entitlements.⁵⁵

⁵⁴ HoustonKemp first criterion (b) report, p 28.

⁵⁵ The QCA's separate contention that total foreseeable demand should be assessed only up to those total contractual entitlements is addressed in section 3 below.

3. Estimating total foreseeable demand

In our first criterion (b) report, we estimated total foreseeable demand in the market as the total foreseeable demand from customers who are in the market.⁵⁶

The QCA's disallowance of demand in the market that exceeds the amount that can be supplied by DBCT causes it to underestimate total foreseeable demand in the market for the service. This error on the part of the QCA manifests itself as:

- ∅ for customers that the QCA considers are in the market, the estimation of those customers' use of the DBCT service, not their total demand; and
- ∅ the understatement by the QCA of the number of customers in that market because it underestimates the scope of the market for the service.

In this section, we present estimates of total foreseeable demand that adjust for these errors, but otherwise accept:

- ∅ the base and high case forecasts of demand made by MMI Advisory, supplemented by AME data (as explained in more detail below);
- ∅ the approach adopted by the QCA to adopt the high case forecasts, truncated at 2026 levels, and scaled up to reflect a 10 per cent difference between demand for throughput and demand for contracted capacity.

3.1 QCA estimates demand for the DBCT service, not demand in the market

Since the QCA excludes from the relevant market demand from Goonyella mines that is served at coal terminals other than DBCT, it has the effect of estimating total demand for the existing DBCT service rather than total demand in the market in which the DBCT service is provided.

This is revealed in the QCA's approach to estimating foreseeable demand from Lake Vermont and Middlemount, mines that hold contracts with DBCT as well as other terminals. The QCA states that:⁵⁷

- ∅ these mines are in the market, for the purpose of market definition; but
- ∅ total foreseeable demand in the market should exclude that portion of demand from these mines that would be served by terminals other than DBCT.

Consistent with this approach, the QCA instructs MMI Advisory to deduct from total foreseeable demand:⁵⁸

- ∅ 6 mtpa sent from Lake Vermont to AAPT under a contract applying until 2028; and
- ∅ 3 mtpa sent from Middlemount to AAPT under a contract applying until 2027.

There is no reasonable basis for this approach. Criterion (b) requires the QCA to assess whether:⁵⁹

the facility for the service could meet the total foreseeable demand in the market—

⁵⁶ HoustonKemp first criterion (b) report, p 36.

⁵⁷ QCA draft recommendation, p C43.

⁵⁸ MMI Advisory report, pp 13-14.

⁵⁹ Queensland Competition Authority Act, s. 76(2)(b)

- (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);

Total foreseeable demand in the market is the total demand arising from customers who are in the market. The fact that some of these volumes may currently, or in the future, be served by a facility that is not DBCT is irrelevant to the calculation of total foreseeable demand in the market. The same applies to other customers that may be assessed to be in the market, such as BMA mines and Kestrel.

This approach conflates the distinct concepts of 'demand in the market' and 'use of the DBCT service'. Demand by an individual for a product reflects the maximum quantity that he or she is willing to consume at any given price of that product.⁶⁰ Demand in the market may exceed use of the DBCT service if DBCT is at capacity such that other suppliers are meeting the demand of consumers in the market.

The QCA's approach to exclude part of the demand of Lake Vermont and Middlemount from the market for the service appears to be founded on its view that, at the time that these contracts were entered, the DBCT service was not available and so this does not establish that other terminals are 'close substitutes' for the service.⁶¹

Notwithstanding the QCA's view that other coal handling services are not 'close substitutes' to the DBCT service, they clearly are substitutes to the service supplied using expanded capacity at DBCT, consistent with the discussion at section 2 above.

The approach that the QCA adopts to estimating total foreseeable demand is equivalent to assuming that only volumes served within the existing capacity of DBCT are in the market. We explain in our earlier criterion (b) report why this approach is conceptually incorrect and must in all cases result in a facility inaccurately being identified as a natural monopoly.⁶²

We demonstrate the difference between total foreseeable demand, when either including or excluding Lake Vermont and Middlemount and using the QCA's market definition, in table 3.1 below. Table 3.1 shows that, even with the QCA's market definition, total foreseeable demand in the market is approximately 103 mt per annum.

⁶⁰ Morgan, W, Katz, M and Rosen H, *Microeconomics*, McGraw-Hill: Maidenhead, 2006, p 62.

⁶¹ See for example, QCA draft recommendation, p C29.

⁶² HoustonKemp first criterion (b) report, pp 34-35.

Table 3.1: Estimates of total foreseeable demand with the QCA's market definition

Year	Total demand for the service (QCA's approach)	Total demand in the market
2021	92.99	102.99
2022	89.14	99.14
2023	89.10	99.10
2024	84.68	94.68
2025	87.14	97.14
2026	91.71	101.71
2027	91.71	101.71
2028	91.71	101.71
2029	91.71	101.71
2030	91.71	101.71

Source: MMI Advisory

3.2 QCA underestimates the number of customers in the market

We explain above that the QCA's approach to market definition causes it incorrectly to exclude demand arising from mines that should properly be included within the market, such as mines outside the Goonyella system that nonetheless either use DBCT, prefer to use DBCT or might reasonably be expected to do so – see section 2.5 above.

Table 3.2 below shows the effect of estimating total foreseeable demand in the market with these changes. The table shows:

- ∅ total foreseeable demand in the market using the QCA's market definition; and
- ∅ total foreseeable demand in the market using our preferred market definition.

We use MMI Advisory data to estimate total foreseeable demand in the market. However, since MMI Advisory does not provide forecasts of foreseeable demand from Kestrel, Teresa and BMA mines, we supplement its forecasts with estimates from AME.⁶³ We assume base case and high case forecasts are the same, except for the Teresa project, where we assume base case volumes of zero to reflect MMI's stated view about the prospects for the project.⁶⁴

⁶³ HoustonKemp first criterion (b) report, table A1.1.

⁶⁴ MMI Advisory, *Reconciliation of DBCT demand forecasts submitted by stakeholders*, December 2018, p 15 ('MMI Advisory report').

Table 3.2: Estimates of total foreseeable demand in the market

Year	QCA's market definition	HoustonKemp market definition
2021	102.99	164.67
2022	99.14	163.04
2023	99.10	163.94
2024	94.68	161.17
2025	97.14	168.71
2026	101.71	174.94
2027	101.71	174.94
2028	101.71	174.94
2029	101.71	174.94
2030	101.71	174.94

Source: MMI Advisory, AME

Table 3.2 shows that total foreseeable demand in the market, based on the combined MMI Advisory and AME data, is approximately 175 mt.



4. Assessing the least cost facility or facilities

In our earlier criterion (b) report, we assessed how total foreseeable demand in the market could be met at least cost, measured as the 'incremental cost to society'. A consequence of this approach is that our analysis:

- ∅ did not consider costs that would be incurred regardless of how total foreseeable demand is met, such as sunk costs; and
- ∅ included costs beyond those incurred at the terminal, since meeting total foreseeable demand in the market could be expected to drive additional rail access and haulage costs.

The QCA's approach to the assessment of least cost assesses total charges for coal handling, rail access and rail haulage. The rationale for this approach appears to be that the QCA:

- ∅ adopts a 'total cost' standard, which includes sunk costs;⁶⁵
- ∅ equates this to a 'average unit cost' standard;⁶⁶ and
- ∅ concludes that price is a suitable proxy for this measure of cost.⁶⁷

We agree with the QCA that a 'total cost' standard is a reasonable and appropriate basis to assess least cost. Our own analysis is conducted on the same basis since, as we explain below, properly considered, there is no difference between an assessment of least cost on a 'total cost' basis as compared to an assessment of least cost on an 'incremental cost' basis.

However, the QCA makes a fundamental error in assuming that an 'average cost' standard is the same as a 'total cost' standard. This assumption causes the QCA's assessment of least cost to be distorted, because it:

- ∅ ignores the sunk costs associated with other terminals when considering scenarios under which DBCT meets all foreseeable demand – even though the sunk costs of those other terminals will continue to be incurred in these scenarios; but
- ∅ takes into account these same sunk costs when considering scenarios under which some foreseeable demand is met at those other terminals.

The result of this distortion is to *understate the total costs* of meeting all foreseeable demand at DBCT, or to *overstate the incremental costs* of meeting some of this demand at the alternative terminal. Put another way, the QCA's preferred total cost standard must be applied with a consistent approach to costs, so that costs that are incurred in each scenario are counted in each scenario.

Alternatively, if the QCA's assessment of least cost is corrected so that it is expressed on an incremental cost basis (or, equivalently, a consistent total cost basis) then its conclusion that criterion (b) is satisfied is reversed.

Further, even on the QCA's approach to assessing least cost, it would not be possible for DBCT to meet estimated total foreseeable demand of 93 mt in 2021. This is because, even if actions commenced now to provide the expansions required to meet this level of demand:

- ∅ the Zone 4 expansion could only be placed into service in 2023; and
- ∅ the 8X Phase 1 expansion could only be placed into service in 2025.

⁶⁵ QCA draft recommendation, pp C47-C48.

⁶⁶ QCA draft recommendation, p C50.

⁶⁷ QCA draft recommendation, p C50.

DBCT cannot meet total foreseeable demand in the market at least cost in 2021, compared to any two or more facilities, if it is unable to meet all demand at any cost.

4.1 Incremental and total cost standards are equivalent

Our criterion (b) report undertook the least cost assessment by reference to incremental costs to society. The incremental cost standard focuses the analysis on the *additional* costs that would be incurred in order to meet total foreseeable demand. In other words, it does not take into account costs that have already been incurred.

We stated that the incremental cost standard was appropriate because non-recurring costs (including sunk costs) that have already been incurred:⁶⁸

- ∅ are not relevant to the assessment of least cost because they will not be incurred again over the period for which the service would be declared; and, in any case
- ∅ make no difference to the assessment of least cost because these costs will have been incurred regardless of how total foreseeable demand is met.

It follows from the second observation that nothing turns on the first. Any means of meeting total foreseeable demand that would be least cost under an incremental cost standard (which excludes non-recurring costs that have already been incurred) would also be least cost under a properly applied total cost standard (which includes non-recurring costs that have already been incurred).

This proposition is consistent with elementary principles that underpin economists' consideration of sunk costs. The key principle that defines sunk costs is that they cannot be avoided and so would be incurred regardless of any actions taken.

By way of example, the undergraduate textbook, *Microeconomics*, explains the basic principles of sunk costs:⁶⁹

To analyze costs, we also need to distinguish between sunk and nonsunk costs. When assessing the costs of a decision, the decision maker should consider only those costs that the decision actually affects. Some costs have already been incurred and therefore cannot be avoided, no matter what decision is made. These are called **sunk costs**. By contrast, **nonsunk costs** are costs that will be incurred only if a particular decision is made and are thus avoided if the decision is not made (for this reason, nonsunk costs are also called *avoidable costs*). When evaluating alternative decisions, the decision maker should ignore sunk costs and consider only nonsunk costs. Why? Consider the following example.

You pay \$7.50 to go see a movie. Ten minutes into the movie, it is clear that the movie is awful. You face a choice: Should you leave or stay? The relevant cost of staying is that you could more valuably spend your time doing just about anything else. The relevant cost of leaving is the enjoyment that you might forgo if the movie proves to be better than the first 10 minutes suggest. The relevant cost of leaving *does not* include the \$7.50 price of admission. That cost is sunk. No matter what you decide to do, you've already paid the admission fee, and its amount should be irrelevant to your decision to leave. [Emphasis in original]

Sunk costs receive a similar treatment in another textbook, *Principles of Microeconomics*:⁷⁰

Economists say that a cost is a sunk cost when it has already been committed and cannot be recovered. Once a cost is sunk, it is no longer an opportunity cost. Because nothing can be done

⁶⁸ HoustonKemp first criterion (b) report, p 21.

⁶⁹ Besanko, D. and Braeutigam, R., *Microeconomics*, Fourth edition: international student version, John Wiley & Sons, 2011.

⁷⁰ Gans, J, King, S and Mankiw, N.G., *Principles of Microeconomics*, Second edition, Nelson Australa Pty Ltd, 2003.

about sunk costs, you can ignore them when making decisions about various aspects of life, including business strategy.

Our analysis of the firm's shutdown decision is one example of the irrelevance of sunk costs. We assume that the firm cannot recover its fixed costs by temporarily stopping production. As a result, the firm's fixed costs are sunk in the short run, and the firm can safely ignore these costs when deciding the part of the marginal-cost curve that lies above average variable cost, and the size of the fixed cost does not matter for this supply decision.

These observations are consistent with the Tribunal's *Pilbara* decision, in which it states:⁷¹

In comparing the cost of "sharing" and "not sharing" a facility, some costs will be the same, ... the "original" costs – being the costs that would be incurred in any event, regardless of whether the existing line is shared or not – cancel out in either scenario. For the sake of simplicity, we do not include those costs. In the end, the differences should come down to:

- ∂ the difference between additional operating costs on the incumbents' line due to sharing versus the operating costs of the new line; and
- ∂ the difference between the capital costs of any necessary expansion to the incumbent's line versus the capital costs of developing another line.

Assessing the least cost means of meeting total foreseeable demand is directly analogous to any business decision. It is necessary to compare options that may involve either one or both of:

- ∂ the expansion of DBCT to provide additional capacity; as against
- ∂ the use of existing coal handling facilities at increased levels of intensity.

The widely accepted view in economics, and also accepted by the Tribunal, is that costs that are unavoidable, such that they would be incurred in both of these scenarios, are of no account to an assessment of which of these approaches is least cost.

4.2 QCA's approach is neither the total cost or incremental cost standard

The QCA states that it supports a 'total cost' standard and quotes the Tribunal's *Pilbara* decision in support of this view.⁷² However, the approach that it adopts is neither a total cost standard nor an incremental cost standard.

The QCA expresses reservations about reliance upon an incremental cost standard, and states instead that a total cost standard is preferable because it better identifies whether the facility for the service has natural monopoly characteristics. In doing so, it draws a distinction between the total cost standard and the incremental cost standard:⁷³

...criterion (b) is now clearly directed towards consideration of the cost of meeting total foreseeable demand in a variety of possible scenarios, which does not necessarily involve duplication of the facility for the service, and may or may not require consideration of sunk costs.

Where the nature of the least cost calculation results in the same sunk costs being considered under separate scenarios (thereby cancelling each other out), it may be simpler to exclude them, rather than to go through the process of quantifying those costs. The QCA considers this is consistent with the Tribunal's decision in *Pilbara*...

In other words, the QCA assumes that there may be some cases in which certain sunk costs would be:

⁷¹ In the matter of *Fortescue Metals Group Limited* [2010] ACompT 2, paras 906-907.

⁷² QCA draft recommendation, p C47.

⁷³ QCA draft recommendation, pp C47-C48.

- ∂ included in one scenario in which total foreseeable demand is met; but
- ∂ not included in another scenario in which total foreseeable demand is met.

We note at the outset that this contention appears to defy the very definition of sunk costs, which by their nature are *unavoidable*. If a cost is unavoidable, it must be incurred in both scenarios, not only one.

Nevertheless, the QCA explains that, under its preferred assumption, excluding sunk costs from the assessment of least cost could potentially affect its result. It demonstrates this difference by reference to a hypothetical example in which:⁷⁴

- ∂ total foreseeable demand is 100 units;
- ∂ a regulated facility currently serves 90 units and can be expanded to 100 units; and
- ∂ an alternative facility has spare capacity of 10 units.

The QCA states that its assessment of least cost involves the following comparison, in which the costs that cancel out are in bold:

- ∂ **capital costs of the regulated facility at 90 units + operating costs of producing 90 units**
+ incremental capital costs to expand the facility by 10 units + operating costs of producing 10 units

compared with

- ∂ **capital costs of the regulated facility at 90 units + operating costs of producing 90 units**
+ capital and operating costs of the alternative facility in producing 10 units

This example is helpful in illuminating the difference between the QCA's approach and a total cost standard. In short, in its second of the two comparisons, the QCA includes the (sunk) capital costs of the alternative facility producing ten units, but these same costs are excluded from the first comparison. Put another way, the QCA's two scenarios are not comparing costs on a like with like basis.

For ease of comparison, we show all potential costs in the QCA's example in a tabular format at table 4.1 below. The shaded rows in the table identify categories of costs that would be incurred under both scenarios and are therefore *unavoidable*. The difference between the total cost standard and the incremental cost standard is that:

- ∂ the total cost standard includes *all* of these costs under each scenario; whereas
- ∂ the incremental cost standard includes *none* of these costs under each scenario.

It follows that the total cost standard and the incremental cost standard will give rise to the same outcome, both in this example and more generally.

⁷⁴ QCA draft recommendation, p C49.

Table 4.1: Comparison of the total, incremental and QCA cost standards

Cost category	Total cost standard		Incremental cost standard		QCA's approach	
	Expand facility	Use alternative	Expand facility	Use alternative	Expand facility	Use alternative
Capital cost of the regulated facility at 90 units	Yes	Yes	No	No	Yes	Yes
Additional capital cost of the regulated facility to expand by 10 units	Yes	No	Yes	No	Yes	No
Operating costs of the regulated facility at 90 units	Yes	Yes	No	No	Yes	Yes
Additional operating costs of the regulated facility to produce 10 more units	Yes	No	Yes	No	Yes	No
Capital cost of the alternative facility	Yes	Yes	No	No	No	Yes
Operating costs of the alternative facility at its current use	Yes	Yes	No	No	No	No
Operating costs of the alternative facility to produce 10 more units	No	Yes	No	Yes	No	Yes

The QCA's approach is described in the rightmost two columns of table 4.1 above. The QCA's approach is similar to the total cost standard, except that it:

- o excludes the capital cost of the alternative facility when considering the cost of meeting all foreseeable demand using an expansion of the facility; but
- o includes at least part of the capital cost of the alternative facility when considering the cost of meeting some foreseeable demand using the alternative facility.

However, the alternative facility will be in place regardless of whether or not it meets the residual 10 units of demand. It follows that a reasonable assessment of total cost would either:

- o include the capital cost of the alternative facility under both scenarios in which total foreseeable demand is met – that is, the total cost standard; or
- o exclude the capital cost of the alternative facility under both scenarios in which total foreseeable demand is met – that is, the incremental cost standard.

The effect of the QCA's approach is to *understate the total costs* of meeting all foreseeable demand at the facility, or to *overstate the incremental costs* of meeting some of this demand at the alternative terminal.

The QCA relies on the Tribunal's decision in *Pilbara* to support its contention that a total cost standard is appropriate. We agree that it is, providing the total cost standard is applied correctly so that it is the same as the incremental cost standard (as the Tribunal and the Productivity Commission both observe).

However, the Tribunal's approach offers no support for the method that is actually applied by the QCA, which is not a total cost standard. Box 4.1 explains how the QCA's approach is different from and inconsistent with the Tribunal's decision, when considered in its entirety.

Box 4.1: The Tribunal's consideration of least cost in the matter of Fortescue Metals Group Limited

Throughout the Tribunal's considerations in *Pilbara*, it focused on the costs under two scenarios:

- ∂ meeting demand if access were provided; as against
- ∂ meeting demand if access were not provided.

In making this comparison, the Tribunal took as given the capacity and costs of existing facilities and sought to assess only the additional costs associated with meeting demand in each scenario.

Under the simplest example, for the eastern section of the Goldsworthy line, the Tribunal assessed BHPB demand as 2mtpa and third party demand as 20 mtpa. The Tribunal considered that:⁷⁵

- ∂ if access were provided, the cost of meeting demand would be very low, since the existing track has ample capacity to serve these volumes; and
- ∂ if access were not provided, the cost of meeting demand would require the construction of a single track bypass, which would be substantially higher.

Under a more complex assessment, in respect of the Mt Newman line, the Tribunal considered that:⁷⁶

- ∂ if access were provided, the cost of meeting demand would likely require the double-tracked section from Yandi to Port Hedland to be triple-tracked and the single-track section from Mindy-Mindy to Yandi would need to be double-tracked; and
- ∂ if access were not provided, demand might be met one of two ways:
 - > a single track railway from Mindy Mindy to Port Hedland, which the Tribunal assumed would be of similar cost to expanding the Newman line by an additional track over this distance; or
 - > construction of a spur line to the Chichester line and double-tracking bridges on the Chichester line (the rest of the line is already double-tracked), which the Tribunal assumed would be lower cost than expanding the Mt Newman line.

The Tribunal's assessment of least cost excludes the sunk costs of an alternative facility to the Mt Newman line, being the Chichester line, in *all* scenarios – on the basis that they would be incurred in any event and so would cancel out from the relevant comparison.

However, the QCA's approach applied to this scenario would include an allocation of the sunk costs of the Chichester line, including the double-tracked sections, *only* in the scenario in which the use of the Chichester line is considered. This is analogous to its approach of considering the potential charges associated with using existing capacity at AAPT, which include recovery of the sunk costs of the terminal, *only* in the scenario in which AAPT is used to serve foreseeable demand.

The Tribunal's approach is the correct one, since it takes into account the fact that the sunk costs of the Chichester line would be incurred in *all* scenarios. It follows that including a recovery of these sunk costs in only *one* scenario would give rise to a distorted comparison that may result in an incorrect identification of the least cost means of meeting total foreseeable demand in the market.

⁷⁵ In the matter of Fortescue Metals Group Limited [2010] ACompT 2, paras 917-923.

⁷⁶ In the matter of Fortescue Metals Group Limited [2010] ACompT 2, paras 938-944.

4.3 Criterion (b) is not satisfied under an appropriate least cost assessment

When the QCA's assessment of least cost is adjusted so that it is expressed on an incremental cost basis (or equivalently, a consistent total cost basis), its conclusion that criterion (b) is satisfied is reversed. In this section, we set out the changes that need to be made to the QCA's assessment of least cost to ensure that it is conducted on a basis that is consistent with both sound economic principles and the Tribunal's *Pilbara* test.

Table 9 in Part C of the QCA's draft recommendation sets out its assessment of least cost.⁷⁷ We reproduce this table below.

Table 4.2: QCA's assessment of supply chain cost, cost to society (\$ per tonne)

Cost components	DBCT	AAPT	RG Tanna	WICET
Below-rail cost	\$3.62	\$10.69	\$7.25	\$7.25
Above-rail cost	\$3.25	\$5.03	\$4.54	\$4.54
Coal handling cost	\$5.14	\$7.01	\$5.18	\$14.67
Other port and shipping costse	\$0.05	\$0.05	\$0.05	\$0.05
Supply chain cost	\$12.05	\$22.79	\$17.02	\$26.51
<i>Cost difference relative to accessing DBCT</i>		<i>at least \$10.73 (89%)</i>	<i>at least \$4.97 (41%)</i>	<i>at least \$14.46 (120%)</i>

Source: QCA

The QCA concludes that criterion (b) is satisfied because:

- ∅ the charges associated with meeting total foreseeable demand at an expanded DBCT are \$12.05 per tonne; which are lower than
- ∅ the charges associated with meeting some foreseeable demand at available capacity at other terminals, which are no lower than \$17.02 per tonne.

The comparison set out in table 4.2 above incorrectly assesses the least cost means of meeting total foreseeable demand because it:

- ∅ includes the sunk costs of existing terminal and rail services in the scenarios in which some foreseeable demand is met at terminals other than DBCT; but
- ∅ excludes the sunk costs of those same existing terminal and rail services in the scenario where all foreseeable demand is met at DBCT.

This problem arises because the QCA estimates the costs of meeting total foreseeable demand by reference to the *charges* associated with providing terminal and rail services. As the QCA notes, such charges will typically reflect average costs, including a return on and of sunk costs:⁷⁸

...to the extent that a uniform access price reflects a building block methodology of all factors relevant in the provision of a service (including a return on sunk costs), the QCA considers that price is a suitable proxy for cost.

The consequence is that when the QCA considers the *charges* associated with using coal terminal and railway facilities, its analysis of costs overstates the extent to which *costs* (whether measured on an incremental or total basis) differ between serving demand at DBCT as against other terminals. For example,

⁷⁷ QCA draft recommendation, p C51.

⁷⁸ QCA draft recommendation, p C50.

by relying on the charges for using an expanded DBCT, the QCA has overlooked the necessity of continuing to take into account the sunk costs that continue to apply to the alternative facility (even though no charges are paid for that alternative facility). Criterion (b) directs the QCA towards the consideration of costs, not charges.

By way of example, the QCA cites the charges associated with WICET as being \$14.67 per tonne and assumes that these are incurred only when some foreseeable demand is met at WICET. However, it is likely that the large majority of these charges reflect the recovery of sunk costs, which are incurred irrespective of whether any foreseeable demand is served at WICET. It follows that if some demand in the market were to be served at WICET, the extent to which *total* costs increase will not be by \$14.67 per tonne, but a fraction of this amount. The QCA's approach to assessing *total* costs effectively *double-counts* the sunk costs that are recovered in the WICET charge.

In table 4.3 below, we re-express the QCA's comparison so that it is made on an incremental cost basis. We compare two scenarios, where:

- ∂ DBCT is expanded and meets total foreseeable demand; as against
- ∂ DBCT is not expanded and foreseeable demand in excess of its capacity is met using existing capacity at an alternative facility.

Since both scenarios assume that the current capacity of DBCT is fully utilised, we do not need to consider the costs associated with serving this demand – they will be the same in both scenarios. Instead, it is sufficient to compare the costs of serving total foreseeable demand that exceeds the current capacity of DBCT at either:

- ∂ expanded capacity at DBCT; or
- ∂ available capacity at alternative terminals.

The costs that differ between the scenarios are:

- ∂ the additional costs of expanding DBCT to meet total foreseeable demand; and
- ∂ the additional operating costs of meeting foreseeable demand with terminal, rail access and rail haulage services.

The QCA estimates that the additional costs of expanding DBCT amount to \$8.50 per tonne, expressed on a unitised basis.⁷⁹

Consistent with the analysis in our criterion (b) report, we assume that the variable component of charges is:

- ∂ 22 per cent of the total coal handling charges for existing facilities – equal to the Handling Charge Variable (HCV) as a proportion of the total coal handling charges for 2017/18;
- ∂ 17 per cent of rail access charges for existing facilities – consistent with variable operating costs as a share of Aurizon's total access charges;⁸⁰ and
- ∂ 50 per cent of rail haulage charges for existing facilities.

The incremental cost comparison is set out at table 4.3 below. We exclude port and shipping costs from the comparison, since the QCA does not identify any differences in these costs between terminals.

⁷⁹ QCA draft recommendation, p C86.

⁸⁰ We estimate the share of total operating and maintenance costs as a proportion of total costs as 40 per cent based on the QCA's analysis of building block costs in the UT5 draft decision. Separately, for the West Moreton coal network, the QCA estimated that the share of variable operating costs as 42.7 per cent. It follows that approximately 17 per cent of total charges are likely to reflect variable costs.

Table 4.3: An incremental cost assessment of supply chain cost, cost to society (\$ per tonne)

Cost components	Expanded capacity at DBCT	Existing capacity at AAPT	Existing capacity at RGTCT	Existing capacity at WICET
Below-rail cost	\$0.62	\$1.82	\$1.23	\$1.23
Above-rail cost	\$1.63	\$2.52	\$2.27	\$2.27
Coal handling cost	\$8.50	\$1.54	\$1.14	\$1.23
Supply chain cost	\$10.74	\$5.87	\$4.64	\$6.73
<i>Cost difference relative to accessing DBCT</i>		<i>\$4.87 less (45%)</i>	<i>\$6.10 less (57%)</i>	<i>\$4.01 less (37%)</i>

Source: QCA, HoustonKemp analysis

Table 4.3 shows that, assessed on an appropriate standard, it is lower cost to meet some part of total foreseeable demand above the existing capacity of DBCT at any of AAPT, RGTCT or WICET, than it is to meet all of this using expanded capacity at DBCT.

This finding is consistent with the observation that we made in our criterion (b) report:⁸¹

The evaluation of the resource costs of meeting foreseeable demand is likely to be significantly affected by the fact that the provision of rail and terminal infrastructure is capital intensive. It follows that the resource costs of meeting foreseeable demand using existing infrastructure (which does not require new capital investment) are likely to be significantly lower than the resource costs associated with the construction and use of new infrastructure.

The revised comparison in table 4.3 demonstrates that, with an appropriate comparison of costs between scenarios, criterion (b) is not satisfied. In other words, the facility for the service cannot meet total foreseeable demand in the market at least cost, over the period for which the service would be declared, compared to any two or more facilities.

4.4 QCA's assessment is conducted on the basis of costs to society

In our criterion (b) report, we explicitly state our view that the relevant costs in the least cost assessment are the incremental costs to society.⁸² By contrast, the QCA does not take an explicit position as to whose costs should relevantly be captured in the least cost assessment. We show below that the result of our assessment does not turn on this assumption.

Our inclusion of below and above rail costs as part of the least cost assessment was made on the understanding that the relevant costs were those incurred by society. We stated that:⁸³

The costs referred to in criterion (b) should not be limited to those incurred by the provider of the facility for the service. To do so would overlook the fact that coal handling services are part of a supply network and that to meet foreseeable demand in the market requires costs to be incurred throughout that supply network. This is particularly relevant in the case of capacity expansions, which require that the system capacity is expanded to match, including below rail, above rail, terminal and port channels.

By contrast to this position, if a more limited view were taken as to whose costs were to be included in the assessment, other costs in the supply network would not be relevant to the assessment. It follows that the

⁸¹ HoustonKemp first criterion (b) report, p 21.

⁸² HoustonKemp first criterion (b) report, p 21.

⁸³ HoustonKemp first criterion (b) report, p 20.

QCA's assessment of least cost appears to be undertaken on the same basis as ours – on the basis of costs to society.

For example, if the relevant costs were assumed to be 'production costs' in the relevant market for coal handling services, these would not include the costs of above and below rail services, since providers of those services are not participants in this market.

Under this assumption, the assessment of least cost between providers of coal handling services would be significantly less involved. On an incremental cost basis (as with a total cost basis) the production costs associated with serving total foreseeable demand above the existing capacity of DBCT at other terminals are substantially lower than meeting this demand using expanded capacity at DBCT, as we show in table 4.4 below.

Table 4.4: An incremental cost assessment of supply chain cost, production cost (\$ per tonne)

Cost components	Expanded capacity at DBCT	Existing capacity at AAPT	Existing capacity at RGTCT	Existing capacity at WICET
Below-rail cost	n/a	n/a	n/a	n/a
Above-rail cost	n/a	n/a	n/a	n/a
Coal handling cost	\$8.50	\$1.54	\$1.14	\$1.23
Supply chain cost	\$8.50	\$1.54	\$1.14	\$1.23
<i>Cost difference relative to accessing DBCT</i>		\$6.96 less (82%)	\$7.36 less (87%)	\$7.27 less (86%)

In section 4.3 above we note the distinction between 'charges' and 'costs'. While terminal and rail charges represent costs to miners, they represent neither costs to society nor costs to terminal operators.

The issues associated with the use of charges in the least cost assessment are best understood by reference to the dichotomy between price for expansions on the basis of 'socialisation' as against 'differentiation'. We explain in Box 4.2 below that the use of socialised charges for the assessment of least cost may lead to incorrect conclusions.

Box 4.2: A comparison of socialised charges at DBCT with charges at other terminals is problematic

DBCT has a capacity of 84.2 mtpa and requires an expansion of 8.8 mtpa to meet total foreseeable demand in the market.

The charge for existing capacity at DBCT is \$2.60 per tonne – a total cost of \$218.9 million per annum. The incremental cost of undertaking the expansion is \$8.50 per tonne – a total incremental cost of \$74.8 million per annum.

By comparison, the tonnes could be served at RGTCT for an incremental cost of \$4.64 per tonne – a total incremental cost of \$40.8 million per annum.

It follows that the total cost of meeting total foreseeable demand at DBCT is \$293.7 million per annum, compared to the total cost of meeting total foreseeable demand across DBCT and RGTCT of \$259.7 million. It is least cost to service total foreseeable demand at two or more terminals, and so criterion (b) is not satisfied.

However, a comparison of a socialised charge at DBCT with the costs of accessing RGTCT at \$4.64 per tonne could lead to the erroneous conclusion that it is cheaper to expand DBCT than to meet 8.8 mtpa of foreseeable demand at RGTCT.

Although this would certainly be the case for miners that must otherwise incur the charges associated with accessing RGTCT to access DBCT on a socialised basis, it would not be the case for the miners that would otherwise have been able to access DBCT at the charge for existing capacity.

If the greater costs are eventually passed through to miners in charges, it is reasonable to conclude that the aggregate costs to miners of serving all volumes at DBCT would be higher than the use of RGTCT to meet demand that exceeds the existing capacity of DBCT.

The potential for this error is compounded by a discrepancy in the QCA's estimates of charges under a socialised expansion as against a differentiated expansion. Our understanding is that these approaches reflect different means of recovering the same quantum of costs. It follows that the annual revenue of the terminal should be the same with socialisation and with differentiation. However, this is not the case with the QCA's estimated charges, since:

- ∅ under socialisation, total revenue for the terminal is \$248.3 million, reflecting a TIC of \$2.67 per tonne applied over 93 mt; whereas
- ∅ under differentiation, total revenue for the terminal is \$271.7 million, reflecting a TIC of \$2.60 per tonne applied over 84.2 mt and a TIC of \$6.00 per tonne applied over 8.8 mt.

It is apparent that the average TIC with a differentiated expansion is \$2.92 per tonne, which is \$0.25 per tonne higher than the QCA's estimated charge under socialisation. This suggests that the QCA has either underestimated the socialised charge or overestimated the differentiated charge.

4.5 DBCT is unable to meet total foreseeable demand in 2021

The QCA estimates that total foreseeable demand, over the period for which the service would be declared, will reach its greatest level in 2021, at 93mt. To meet this level of demand, the QCA assumes that DBCT would require the Zone 4 and 8X Phase 1 expansion projects.

However, each of the Zone 4 and 8X Phase 1 expansion projects would require considerable lead times in order to be placed into operation. We understand that, absent any requirements imposed by the access undertaking or the access framework:⁸⁴

- ∅ the Zone 4 expansion could be delivered by September 2023; and
- ∅ the 8X Phase 1 expansion could be delivered by September 2025.

These estimates reflect the expected time associated with undertaking the following activities:

- ∅ negotiating and underwriting agreement for the expansion with access seekers;
- ∅ award engineering contracts for feasibility studies, including:
 - > a refresh of the existing feasibility studies for Zone 4; and
 - > new feasibility studies for 8X Phase 1 and consultation with access seekers;
- ∅ access seekers review and sign expansion agreements;
- ∅ secure environmental approvals;
- ∅ secure funding for the project;
- ∅ detailed design of the expansion; and

⁸⁴ We understand that this expansion schedule is attached as an appendix to DBCTM's submission in response to the QCA's draft recommendation.

o construction, commissioning and handover.

Since neither Zone 4 nor 8X Phase 1 can be delivered by 2021, these expansions (and other potential expansions of DBCT) cannot contribute to meeting total foreseeable demand in the market until such time as they can be completed. The best-case timeframes require expansion of below-rail capacity which is, for the purpose of the timeframes above, assumed to occur simultaneously.

It follows that, on the QCA's estimates of total foreseeable demand in the market, it must be least cost for any foreseeable demand above the existing 84.2 mt capacity of DBCT to be met at another coal terminal.

The QCA notes that WICET has available capacity of 11mt and the Blackwater system has available capacity of 18mt.⁸⁵ Since DBCT is unable to meet total foreseeable demand in 2021 using existing capacity, and cannot feasibly expand by that time, it would be lower cost, and feasible, for:

- o 84.2 mt of total foreseeable demand in the market to be met using existing capacity at DBCT; and
- o 8.8 mt of total foreseeable demand in the market to be met using existing capacity at WICET.

It would be cheaper still to use available capacity at AAPT and/or RGTCT.

It follows that, even on the QCA's analysis, criterion (b) is not satisfied, because total foreseeable demand in the market in 2021 is met at least cost using two or more facilities.

⁸⁵ QCA draft recommendation, pp C70-C71.

5. Declaration

We are pleased to confirm that in relation to the analysis presented and the conclusion drawn in our report:

- o the factual matters set out in our report are, as far as we know, true;
- o in preparing this report, we have made all enquiries we consider appropriate; and
- o that the opinions stated in our report are genuinely held by us and that our report contains reference to all the matters that we consider significant.

Greg Houston/Daniel Young

6 March 2019

A1. Foundations of the reverse cellophane fallacy

The cellophane fallacy is a widely accepted limitation of the traditional hypothetical monopolist test (HMT), prominently arising in the 1956 “cellophane case” – *United States v El du Pont & Co* – nearly thirty years prior to the formal adoption of the HMT in the United States in 1982.⁸⁶ At its conception, the cellophane fallacy referred to a situation in which, due to the market power of the incumbents, the prevailing market prices are above what they *would have been* in a workably competitive market, leading to an erroneously wide market definition when the SSNIP is applied to the prevailing prices. Gene Schaerr summarised this idea in *The Yale Law Journal* as follows:

In industries characterized by market power (e.g., because of collusion or monopoly) the prevailing price is usually higher than the competitive price." When applying the Guidelines to mergers in such industries, however, DOJ applies the five-percent test to the prevailing price rather than to the competitive price. As the previous discussion shows, both the product and geographic markets may be larger than if the competitive price were used; the overall market, therefore, may be substantially larger.⁸⁷

This original understanding of the cellophane fallacy has become well established in many countries, including the United States, United Kingdom and Australia, both in case law and academic literature, even receiving explicit mention in the United Kingdom’s Competition Commission & Office of Fair Trading, *Merger Assessment Guidelines*.⁸⁸

To remedy the implications of the cellophane fallacy when performing an HMT, the widely accepted solution is to apply a SSNIP to estimated competitive prices. In the words of the competition economist Massimo Motta:

... the appropriate market definition test should not ask whether the hypothetical monopolist can increase prices in a small but significant way relative to *current* prices, but rather relative to *competitive* prices.⁸⁹

The use of this solution is upheld by Australian case law in *Seven Network Ltd v News Ltd*, in which the judge directly acknowledged both the cellophane fallacy and the validity of the solution:

The trial judge accepted that the SSNIP test must be applied to the competitive price not the monopoly price because otherwise that might give rise to the “cellophane fallacy”: *Cellophane Case (United States v El du Pont de Nemours & Company 351 US 377 (1956))*.⁹⁰

The possibility of prevailing prices being below the competitive level, and the relevant market thereby being defined too narrowly, is implicitly accommodated for by both the cellophane fallacy and its accepted solution. Nevertheless, it was explicitly formalised by Luke Froeb and Gregory Werden of the antitrust division of the United States Department of Justice, in their seminal paper *The Reverse Cellophane Fallacy in Market Delineation* in 1992. Froeb and Werden extend the concept of the cellophane fallacy in the context of competition analysis to what they coin the reverse cellophane fallacy, for which the relevant market is defined too narrowly on the basis of prevailing market conditions:

⁸⁶ *United States v El du Pont & Co*, 351 US 377 (1956) (*du Pont*); United States Department of Justice, *Merger Guidelines*, reg 28.493, 1982;

⁸⁷ Schaerr, Gene, “The Cellophane Fallacy and the Justice Department’s Guidelines for Horizontal Mergers”, *The Yale Law Journal*, v 94(3), 1985, pp 676-677.

⁸⁸ Competition Commission & Office of Fair Trading, *Merger Assessment Guidelines*, OFT1254, 2010, p 31; *Seven Network Ltd v News Ltd*, (2009) 182 FCR 160, pp 241-242.

⁸⁹ Massimo Motta, *Competition Policy: Theory and Practice*, Cambridge University Press, Cambridge, 2004, p 105.

⁹⁰ *Seven Network Ltd v News Ltd*, (2009) 182 FCR 160, pp 241-242.

... markets delineated on the basis of prevailing demand elasticities are likely to be too small and the potential for the exercise of market power is likely to be overstated. This is precisely the opposite of the error in the Cellophane case, so we term it the reverse Cellophane fallacy.⁹¹

This idea, that the cellophane fallacy can function in both directions, and has a counterpart in the case where prevailing prices are below what would have been observed in a competitive market, is accepted in United States and Australian academic literature, being quoted in *The Journal of Competition Law and Economics* (U.S.) and *The Competition and Consumer Law Journal* (Australia).⁹²

The case of a regulated business exhibiting prices below what would be observed in a competitive market is examined in-depth by Debra Aron and David Burnstein in their 2010 paper *Regulatory Policy and the Reverse Cellophane Fallacy* as an example of the reverse cellophane fallacy. Aron and Burnstein make three key points: first, that regulated businesses are by their nature susceptible to having lower than market prices and are therefore susceptible to the reverse cellophane fallacy when applying an HMT; second, that the reverse cellophane fallacy leads to an incorrectly narrow market definition, with the potential exclusion of what might have been substitutes in a competitive market; and third, that this mistakenly leads to the self-perpetuation of regulatory oversight:

... applying the “small but significant non-transitory increase in price” (SSNIP) test for market power that is defined in the Horizontal Merger Guidelines to firms in regulated industries can lead to the reverse of what is referred to in the antitrust literature as the “cellophane fallacy”.⁹³ ...

The uneconomically low prices cause other services to appear to be weaker substitutes than they would be at compensatory prices and therefore lead to improperly narrow market definitions and erroneous inferences of market power. This in turn leads to the self-perpetuation of regulation, in which regulators insist on finding that the incumbent lacks market power before deregulating prices, whereas the artificially restricted prices lead to an erroneous inference of market power.⁹⁴

The principles extending the cellophane fallacy to include the reverse cellophane fallacy are brought into the context of Australian competition law by Rhonda Smith.⁹⁵ Smith notes that the artificially low price of flyash achieved by the defendant, Cement Australia, in *ACCC v Cement Australia* potentially leads to misspecification of the relevant market when using the HMT due to the reverse cellophane fallacy.⁹⁶ Smith also discusses practicable methods of overcoming the reverse cellophane fallacy when using an HMT, such as applying a SSNIP to a competitive price estimated using quantitative data, as was done by the ACCC’s economic expert, Greg Houston. Smith points out that, whilst Mr Houston’s approach was novel, it was nevertheless valid.

The validity of using quantitative estimation of the competitive price for the purposes of applying an HMT was first accepted in Australian case law in *Seven Network Ltd v News Ltd*:

The reliable application of the SSNIP test requires sufficient quantitative data to permit the calculation or assessment, in particular, of the competitive price for the product in question. As has been seen, it is the competitive price that provides the starting point for determining whether a hypothetical monopolist could profitably impose a SSNIP.⁹⁷

⁹¹ Froeb, Luke and Werden, Gregory, “The Reverse Cellophane Fallacy in Market Delineation”, *Review of Industrial Organization*, v 7, 1992, p 241.

⁹² Smith, Rhonda, “Market Definition and Substitution Options”, *Competition and Consumer Law Journal*, v 22(2), 2014; Savitski, David, “Market power analysis for oil pipelines facing excess demand”, *Energy Economics*, v 34, 2012. pp 955–960.

⁹³ Aron, Debra and Burnstein, David, “Regulatory Policy and the Reverse Cellophane Fallacy”, *Journal of Competition Law and Economics*, v 6(4), 2010, p 975.

⁹⁴ Aron, Debra and Burnstein, David, “Regulatory Policy and the Reverse Cellophane Fallacy”, *Journal of Competition Law and Economics*, v 6(4), 2010, p 973.

⁹⁵ Smith, Rhonda, “Market Definition and Substitution Options”, *Competition and Consumer Law Journal*, v 22(2), 2014.

⁹⁶ *ACCC v Cement Australia Pty Ltd*, (2013) 210 ALR 165.

⁹⁷ *Seven Network Ltd v News Ltd*, (2009) 182 FCR 160, pp 241-242.

A2. Outcomes of workably competitive markets

'Workable competition' is an economic concept that describes a state of competition which, despite not being perfect, gives rise to outcomes that provide many of the socially desirable benefits of perfect competition over the long run.

A common theme that emerges from the economic literature is that workable competition is a process of rivalry in which no supplier can affect the market price on a sustained basis, because of the constraints posed by either existing suppliers or the threat of new entry.

In this appendix, we set out:

- ∂ the economic foundations of the term 'workable competition', both in its development in the economic literature and in its use by practitioners in the context of infrastructure regulation and pricing in Australia; and
- ∂ the implications of workable competition for limiting that the prices that suppliers are able to achieve in the market, by reference to the costs of efficient rivals, or efficient potential rivals.

These implications are at odds with the implicit view of the QCA that the outcomes of a workably competitive market are prices that are aligned with the costs of a particular supplier in the market.

Some markets contain suppliers with heterogeneous costs, consistent with an upward-sloping supply curve. Workable competition in these markets gives rise to prices that reflect the costs of only the marginal supplier required to meet demand.

A2.1 Economic foundations of workable competition

The term 'workable competition' was first coined by John Clark in 1940 as a basis for describing competition in a market that is less extreme than the idealised benchmark of perfect competition but serves as a realistic standard against which monopoly power can be measured.⁹⁸

Clark addresses considerations that may be relevant to identifying workable competition. He notes that, in favourable circumstances, existing and potential competitors may provide a check on the tendency of firms to exploit market power over the long run by increasing prices or reducing output.⁹⁹

... there seems to be a tendency to regard the business-man as having too little foresight to anticipate the materializing of potential competition, and as following an unduly grasping policy in regard to price, and an unduly restrictive policy as to output, until potential competition becomes actual, and the industry is burdened with too many producers, whose individual output is restricted short of the optimum. This undoubtedly has some truth. It would be expecting a great deal of business-men that they should generally have perfect foresight of the emergence of potential competition, and on that account should avoid unduly restrictive policies. Nevertheless, there is apparently a tendency of somewhat similar effect on the part of some or many businesses, even if not guided by such impossibly perfect foresight. There is a tendency to strive to maintain and increase output, as if this were an end in itself, aside from the resulting net earnings and perhaps at a short-run sacrifice of net earnings which a more grasping policy might secure. In such cases, business, whether putting its reasoning in this form or not, acts as if it were governed by anticipations of potential competition, and by the desire to forestall its materializing.

⁹⁸ Clark, J.M., *Towards a concept of workable competition*, The American Economic Review, 30(2), June 1940, pp. 241-256.

⁹⁹ Clark, J.M., *Towards a concept of workable competition*, The American Economic Review, 30(2), June 1940, pp. 246-247

Workable competition is defined by Clark as that which is not perfect. Perfect competition is a theoretical construct that exists only under idealised assumptions, which include:¹⁰⁰

- ∅ homogeneous and perfectly divisible outputs, such that consumers are indifferent between the products of various firms;
- ∅ perfect information, with all prices and outputs being known;
- ∅ neither buyers nor sellers incur transactions costs or fees to participate in the market;
- ∅ the absence of externalities so that each firm bears the full cost of the production process; and
- ∅ buyers and sellers cannot individually influence the price at which the product can be purchased or sold – the price is determined by the market, and each buyer or seller takes the price as given.

Under these conditions, competition drives economically efficient outcomes in both the short run and the long run. However, few (if any) markets in the real world satisfy the conditions for perfect competition.

Following Clark, later contributions to the literature focused on identifying the characteristics of workably competitive market. Stephen Sosnick put together an extensive list of these,¹⁰¹ which was reorganised by Scherer and Ross into the ‘structure-conduct-performance’ paradigm.¹⁰²

The concepts of ‘workable’ and ‘effective’ competition had sufficiently developed that they were described and equated by the United States Attorney-General’s National Committee in its study of anti-trust laws in 1955. The Committee adopted a more explicit definition, identifying that workable competition exists where competition is sufficiently strong to defeat a potential exercise of market power by any seller:

The concept of “workable” or “effective” competition can perhaps best be described as the economists’ attempt to identify the conditions which could provide appropriate leads for policy in assuring society the substance of the advantages that competition should provide...

The basic characteristic of effective competition in the economic sense is that no one seller, and no group of sellers acting in concert, has the power to choose its level of profits by giving less and charging more. Where there is workable competition, rival sellers, whether existing competitors, or new or potential entrants into the field, would keep this power in check by offering or threatening to offer effective inducements, so long as the profits to be anticipated in the industry are sufficiently attractive in comparison with those in other employment when all risks and other deterrents are taken into account. The result would be to force the seller who sought to increase his profits above this level by employing a high-price, limit-output monopoly policy either to give it up, or to lose ground to his rivals at a rate sufficient to reduce his profits, thus defeating the policy.

In Australia, the concept of workable competition as a guide for economic policy originated with the Hilmer Committee report on National Competition Policy. Consistent with Clark’s motivation, the Hilmer Committee report defined workable competition as a benchmark against which monopoly power could be measured, by reference to the level of prices that could be sustained:¹⁰³

In markets characterised by workable competition, charging prices above the level of long run average costs will not be possible over a sustained period, for higher returns will attract new market entrants or lead customers to choose a rival supplier or product.

The Hilmer Committee report also implicitly defined the ‘long run average costs’ as an ‘efficient’ level of pricing, noting that where workable competition was absent, firms may be able to price above the efficient

¹⁰⁰ Carlton D.W. and Perloff, J M, *Modern industrial organization: fourth edition*, Pearson Education Limited: London, 2015, p 81.

¹⁰¹ Sosnick, S.H., *A critique of concepts of workable competition*, *The Quarterly Journal of Economics*, 72(3), August 1958, pp 380-423.

¹⁰² Scherer, F.M. and Ross, D.R., *Industrial market structure and economic performance*, Houghton Mifflin, Boston, 1990, pp 53-54.

¹⁰³ Independent Committee of Inquiry on National Competition Policy, *National Competition Policy Review*, 25 August 1993, p 269.

level. More generally, the report noted that the *'promotion of effective competition and the protection of the competitive process are generally consistent with maximising economic efficiency'*.¹⁰⁴

Similarly, in a paper prepared for the National Competition Council in relation to whether coverage should be revoked for the Moomba to Sydney Pipeline, Janusz Ordovery and William Lehr linked workable (or effective) competition to the absence of monopoly power, and prices being driven towards 'economic costs'. In doing so, they noted the distinction between:¹⁰⁵

- ∅ 'market power' – or the ability profitably to raise prices above marginal cost; and
- ∅ 'monopoly power' – or the possession of significant and durable market power leading to prices that substantially deviate from economic costs and which generate persistent returns in excess of competitive levels.

This understanding of workable competition is also reflected in decisions made by Australian courts. For example, in its decision on Metcash's proposed acquisition of Franklins, the Federal Court elegantly set out its understanding of workable competition and its outcomes, linking it towards the achievement of efficient outcomes over the long run:¹⁰⁶

In a workably competitive market, some or even all participants may have some market power, in the sense that they all have some discretion over price, but no participant will have a substantial degree of market power. In such a workably competitive market, at any given time, prices might deviate from underlying costs and the deployed technologies might deviate from the most efficient ones currently available. Economic forces drive such a market towards efficient prices, outputs and costs, but not instantly.

To summarise, economists understand that the concept of a workably competitive market is one which:

- ∅ no supplier can affect the market price on a sustained basis, because of the constraints posed by other existing suppliers or the threat of new entry; and
- ∅ the price for a service is therefore constrained to recover at most the efficient costs of supplying the service over the long term.

A2.2 Prices recover forward-looking efficient costs

In workably competitive markets, prices would be expected to recover only the forward-looking efficient costs of supplying the service over the long term. In this section, we explain what we mean by efficient costs in this context, and why only forward-looking costs are relevant to this assessment.

A2.2.1 Efficient costs are those of rivals or potential rivals

We explain above that workable competition is a process of rivalry in which no supplier can affect the market price on a sustained basis, because of the constraint posed by other suppliers or the threat of new entry.

Over the long term, a firm in a workably competitive market is not able to set prices any higher than would be necessary to recover the costs of an efficient rival, or efficient potential rival. To do so would be self-defeating, since it would give rise to the erosion of its market share and profitability in favour of more efficient rivals.

It follows that the measure of costs that constrains the pricing decisions of a firm in a workably competitive market is not its own costs, but the costs of efficient actual or potential rivals. Put another way, in a workably competitive market, a firm with costs that are materially higher than those of its rivals (or potential rivals)

¹⁰⁴ Independent Committee of Inquiry on National Competition Policy, *National Competition Policy Review*, 25 August 1993, pp 4-5.

¹⁰⁵ Ordovery, J and Lehr, W, *Should coverage of the Moomba-Sydney Pipeline be revoked?* 22 November 2001, p 7.

¹⁰⁶ *Australian Competition and Consumer Commission v Metcash Trading Limited* [2011] FCA 967 (25 August 2011), para 163.

cannot expect to recover those costs from its customers over the long run, because it will be constrained from doing so by the process of competition.

A2.2.2 Efficient costs are forward-looking

An assumption that underlies a large body of economic theory is that all actors in the economy – whether consumers or firms – are acting rationally to maximise their own utility or profit over time.

Consistent with this assumption, the only outcomes that affect a firm's decision making are those that can be expected to occur in the future.¹⁰⁷ This is because, at any point in time:

- ∂ decisions that were made in the past cannot be revisited – the only levers that a firm has available to influence its outcomes are decisions that it may make now or in the future; and
- ∂ outcomes that were achieved in the past cannot be affected by decisions that a firm may make now or in the future – these past outcomes are beyond the control of a firm.

It follows that a firm seeking to maximise its overall level of profits will do so by taking into account expectations of future outcomes and the actions that it could take now and in the future to influence those outcomes. For example, it is only expectations of future revenues and future costs that drive firms' decisions about whether to enter or exit, and to produce or not. Firms' decisions are fundamentally guided by whether they expect that the future revenues which result from their actions will meet or exceed the associated future costs.

In this sense, the only costs that are relevant to the outcomes of workably competitive markets are forward-looking costs. Indeed, this principle applies regardless of the extent of competition in a market, since it relies only on the assumption that firms act to maximise their profits.

¹⁰⁷ However, the options that a firm has available to it may be affected by decisions that it has made in the past.



HOUSTONKEMP

Economists

Sydney

Level 40
161 Castlereagh Street
Sydney NSW 2000

Phone: +61 2 8880 4800

Singapore

8 Marina View
#15-10 Asia Square Tower 1
Singapore 018960

Phone: +65 6817 5010