Rail

Tarcoola to Darwin Railway: 5-year Review of Revenues 2013-14 to 2017-18

Draft Report

October 2021

Request for submissions

The Essential Services Commission (**Commission**) invites written submissions on this draft report. Written comments should be provided by 26 November 2021

It is the Commission's policy to make all submissions publicly available via its website (www.escosa.sa.gov.au), except where a submission either wholly or partly contains confidential or commercially sensitive information provided on a confidential basis and appropriate prior notice has been given.

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Responses to this paper should be directed to: **Tarcoola to Darwin Railway: 5-year Review of Revenues 2013-14 to 2017-18**.

It is preferred that submissions are sent electronically to: escosa@escosa.sa.gov.au

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Contents

Glossary of terms

AARC	The AustralAsia Railway Corporation.
Above-rail	Operations involving rolling stock / trains.
Access provider	A party providing, or able to provide, rail infrastructure services – sometimes referred to as a below-rail operator.
Access seeker	A party seeking access to below-rail services.
Below-rail	Refers to the railway infrastructure facilities and services; not the trains themselves.
Code	AustralAsia Railway (Third Party Access) Code, contained in the Schedule to the Act
Commission	Essential Services Commission, established under the *Essential Services Commission Act 2002*
Concession deed	The concession deed covers the rights, responsibilities and obligations of the concession holder (One Rail Australia (North)) and the South Australian and Northern Territory Governments.
DORC	Depreciated Optimised Replacement Cost, which represents the cost of replicating an asset in the most efficient way possible from an engineering perspective, less accumulated depreciation.
ESC Act	*Essential Services Commission Act 2002.*
KGTK	Thousands of gross tonne kilometres, a measure that combines distance and weight in rail haulage (GTK is equal to gross weight multiplied by distance).
Schedule	The schedule to the Code outlines the access pricing principles, including access pricing in connection with freight services, access pricing in connection with passenger services and worked examples.
TEU	Twenty-foot equivalent unit, a widely used metric for measuring containerised freight.

1 Executive summary

The Essential Services Commission (**Commission**) has conducted a five-year review of the revenues earned from third party access to below-rail (rail infrastructure) services on the Tarcoola to Darwin rail line. Its draft finding is that, based on the Depreciated Replacement Optimised Cost (**DORC**) asset value adopted in this review, the relevant below-rail revenues have not been excessive.

The review was undertaken in accordance with the AustralAsia Railway ('Third Party Access') Code (**Code**), a schedule to the *AustralAsia Railway (Third Party Access) Act 1999 (SA)* and the *AustralAsia Railway (Third Party Access) Act 1999 (NT)*. Under Clause 50(4) of the Code, the Commission must, for five-year periods, review below-rail freight revenues where no sustainable prices exist. It must determine if those relevant revenues are excessive, having regard to the factors outlined in the Code.

It is common when regulating monopolies to assess the revenues earned. The methodology for this periodic review of revenues is a comparison of the revenues earned for below-rail services, where no sustainable competitive prices exist (that is, where potential alternative transport services do not provide an effective constraint on below-rail prices on the Tarcoola to Darwin rail line), against an estimated maximum (or monopoly) revenue limit for those same below-rail services. The maximum limit is calculated based upon the requirements of Clause 50 of the Code, noting these provide the Commission with some discretion in the approach adopted. Should revenues earned be considered excessive, the Commission must take regulatory actions, as outlined in Clause 50 of the Code.

1.1 Excessive revenues have not been earned for the period 1 July 2013 to 30 June 2018

The Commission's draft finding is that, based on the DORC asset value adopted in this review, excessive revenues have not been earned over the period 1 July 2013 to 30 June 2018. The finding is based on the following evidence:

- The weight, volume and distances involved in transporting mineral ore freight on the Tarcoola to Darwin freight route tends to favour rail transport over road. Stakeholders report that this freight has continued to be transported on rail with no apparent switching to road. Below-rail services for the transport of mineral ores are therefore determined to be *not* subject to sustainable competitive prices, so the revenues earned from these services were included in the five-year review.
- The revenues earned for below-rail services for the transport of mineral ore were approximately $106.2 million (in December 2014 dollars) for the period from 1 July 2013 to 30 June 2018. The revenue earned was below the estimated maximum revenue limit, irrespective of the two alternative cost allocation approaches presented in this review. Those two cost allocation approaches resulted in different maximum revenue limits of $112.3 million and $387.3 million (in December 2014 dollars). There are a range of options for allocating costs in the calculation of the maximum revenue limit; this draft finding presents two cost allocation methodologies but does not seek to identify a preferred methodology.

The results are highly sensitive to the asset value, the cost allocation approach adopted and the rate of return applied to the asset value. Along with other areas of the review, the Commission is seeking stakeholder views on the cost allocation approaches presented in this review.

Further, noting the specific requirements of Clause 50 of the Code, and that this Clause has a separate and distinct purpose from that of arbitration, the Commission considers there is benefit in exploring the topic of asset value methodologies prior to, and for future use in, subsequent revenue reviews. It is recognised that stakeholders often raise issues relating to asset valuation methodologies. However, the Commission considers that the topic of asset valuation methodologies is most appropriately dealt with through a separate discussion paper process, rather than in the test of excessive revenues.

The future exploration of this issue is intended to take the form of a discussion paper, to be published in 2022-2023. It does not pre-suppose any particular outcome and does not impact on this review. Rather, the discussion paper is intended to explore arguments and evidence for various asset valuation methodologies in a transparent manner for the benefit of all stakeholders. The process will allow for comments and stakeholder input on appropriate asset valuation methodologies and their future application in subsequent reviews.

1.2 Next steps

The Commission seeks stakeholder views on this draft finding on the revenues earned for the period 1 July 2013 to 30 June 2018 by 26 November 2021. Questions for stakeholders have been included throughout the report.

The Commission invites written submissions on this draft report by 26 November 2021. The inside cover of this report explains how to make a submission. The Commission would be pleased to meet with stakeholders, either individually or with representative organisations, to discuss the draft finding.

If you or your organisation wish to meet with Commission staff, please use the contact details on the inside cover of this draft report. The Commission aims to publish its final finding on the revenue review in February 2022.

2 Purpose and scope of review

2.1 Purpose of review and legislative framework

The Essential Services Commission (**Commission**) is the regulator of the third party access regime that applies to below-rail (rail infrastructure) services on the Tarcoola to Darwin rail line, established under the *AustralAsia Railway ('Third Party Access') Code* (**Code**).[1] The Code sets out a framework for commercial negotiation between a provider of access to below-rail services (**access provider**) and an end-user seeking to access those infrastructure services (**access seeker**). The Code includes dispute resolution processes and arbitration as a regulatory backstop should commercial negotiations fail.

Clause 50 of the Code requires that the Commission review, for five-year intervals, below-rail freight revenues where no sustainable prices exist (that is, where potential alternative transport services do not provide an effective constraint on below-rail prices on the Tarcoola to Darwin rail line). The purpose of the review is to determine whether the revenues earned by the access provider have been 'excessive' having regard to factors outlined in Clause 50 of the Code.

When regulating monopolies it is common to assess the revenues earned.[2] A lack of effective competition for the provision of rail infrastructure with monopoly characteristics can allow the access provider to set prices above efficient costs for certain below-rail services.

Importantly, the review of revenues for the Tarcoola to Darwin rail line can reveal whether certain regulatory action or oversight may be required. Should below-rail revenues be determined as excessive, the Commission must notify the access provider of the outcome, consider any remedial plans put forward by the access provider, and, if necessary, make a determination to regulate prices and/or establish conditions relating to prices or price-fixing factors in future.[3,4]

This review of revenues is the second undertaken by the Commission. It is for the period 1 July 2013 to 30 June 2018. The previous review was completed in 2015, covering the period 15 January 2004 to 30 June 2013. It concluded that the relevant revenues earned were not excessive.[5]

The legislative framework for the revenue review requires that the Commission:

- reviews actual revenues earned for below-rail freight services where no sustainable competitive prices exist
- takes into account revenues earned from both awards by arbitrators and from commercially negotiated access contracts
- compares actual revenues against the efficient costs of providing those same below-rail freight services, and

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1 The Code is a schedule to the *AustralAsia Railway (Third Party Access) Act 1999 (SA)* and the *AustralAsia Railway (Third Party Access) Act 1999 (NT).*

2 National Competition Council, *AustralAsia Railway Access Regime – Application for Certification under Section 44M(2) of the Trade Practices Act*, Final Recommendation, February 2000, p. 66.

3 Code, Clause 50(8).

4 The importance of the revenue review was highlighted in the Commission's review of access pricing guidelines published in October 2019 in which it stated that *'[a] key question… is whether or not… [One Rail Australia (North)'s] pricing approach is leading to monopoly rents and, if so, is greater pricing oversight required, to the extent permitted under the Code?'* See Commission, *Review of rail guidelines for the Tarcoola-Darwin railway*, October 2019, p. 11, available at https://www.escosa.sa.gov.au/ArticleDocuments/1061/20191029-Rail-ReviewRailGuidelines-Tarcoola-Darwin-FinalDecision.pdf.aspx?Embed=Y.

5 Commission, *10-year review of revenues – Final report*, August 2015, pp. 1-43, available at https://www.escosa.sa.gov.au/ArticleDocuments/365/20150828-Rail-Tarcoola-Darwin-TenYearReviewOfRevenues-FinalReport.pdf.aspx?Embed=Y.

- determines efficient costs by applying an objective and appropriate methodology, which has regard to investment in all railway infrastructure, applies an appropriate commercial return (accounting for the project risk at the time of construction, development and operation),[6] and takes into account the avoidable costs and a reasonable contribution to fixed costs from access holders (users) of the rail infrastructure.

An extract of Clause 50 of the Code is in Appendix A.

2.2 Legal structure, ownership and operation of the Tarcoola to Darwin rail line

The Tarcoola to Darwin rail route comprises approximately 824 kilometres of rail line (including track and signalling systems) from Tarcoola to Alice Springs that opened in 1980, and approximately 1,415 kilometres of line (including track and signalling systems) from Alice Springs to Darwin that opened in 2004 (Figure 1).

Construction of the Alice Springs to Darwin rail line was a greenfields project aimed at furthering economic progress in the north of Australia (conceived as a "land bridge" to connect Australia with overseas markets). As a result, there was considerable demand risk at the time of construction, even despite government contributions to the rail infrastructure.[7]

The Commonwealth Government, the South Australian Government and the Northern Territory Government contributed funding in approximately equal portions for the construction of the Alice Springs to Darwin line, totalling approximately $559 million (in nominal terms).[8] Those contributions reduced the risk exposure on the project funds contributed from the private sector investors.

In March 2000, the access regime was certified as effective for a period of 30 years until 31 December 2030.

The current access provider of below-rail services on the Tarcoola to Darwin rail infrastructure is One Rail Australia (North), formerly Genesee & Wyoming Australia (North). Genesee and Wyoming Australia (North) purchased the right to operate the rail infrastructure in 2010 for a total cost of $334 million (in nominal terms). The rail infrastructure was previously operated by FreightLink, a company that entered into administration in 2008.

One Rail Australia (North) leases the right to operate the rail infrastructure under the 50-year AustralAsia Railway Project Concession Deed (**Concession deed**). Parties to the Concession deed are One Rail Australia (North), the AustralAsia Railway Corporation (**AARC**[9]) and the Governments of both South Australia and the Northern Territory.

The Concession deed specifies the rights, responsibilities and obligations of the parties involved. The deed ceases in 2054. Although government contributors did not require a financial return on the investment, they require that the physical assets be returned when the lease expires.

The AARC is responsible for promoting and monitoring that rail infrastructure be maintained in a fit for purpose condition. The AARC undertakes annual inspections and regular maintenance reviews to promote compliance in this regard.

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6 Code, Clauses 50(5)(c), 50(5)(d), 50(6) and 50(7).

7 National Competition Council, p. 1, and Commission, *Tarcoola-Darwin Railway: Regulated Rates of Return*, Provisional Determination, 2003, pp. 40-41.

8 AARC, *Annual Report 2002-03*, p. 11.

9 The AARC was established in 1997 to build the Alice Springs to Darwin section of the rail line. In 2000, the AARC awarded the contract to design, construct and operate the rail line under a build, own, operate and transfer arrangement to the Asia Pacific Transport Consortium (APT). FreightLink was awarded the contract to operate below-rail services from APT. APT was the holder of the concession deed prior to Genesee & Wyoming Australia (North).

2.3 End users of the rail infrastructure

The Tarcoola to Darwin rail line is used, in part or in its entirety, by several key end users (Table 1).

Table 1: Key end users of the Tarcoola to Darwin rail line over period 1 July 2013 to 30 June 2018

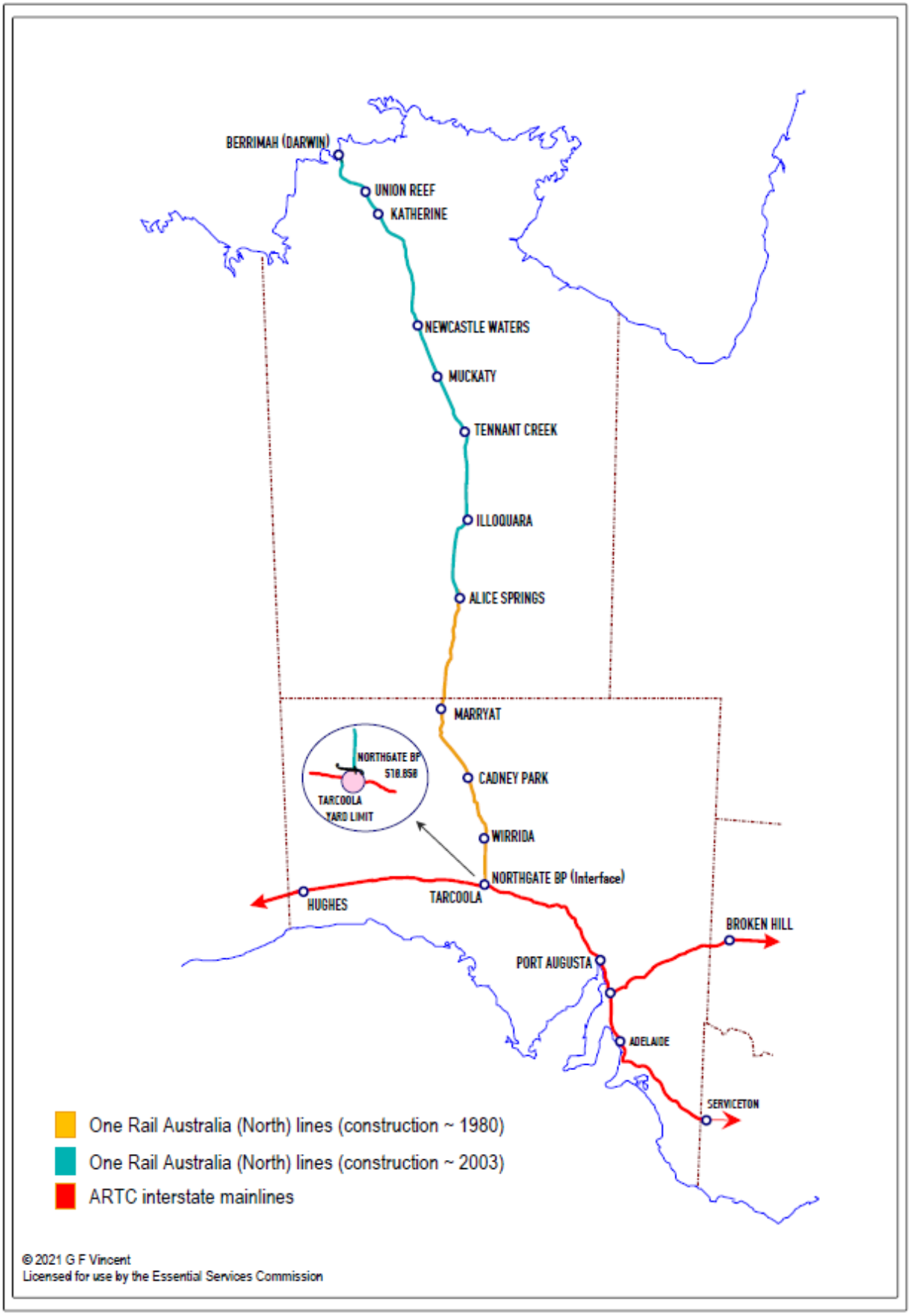
End user	Period of use	Transported good or service	Section of line most utilised
Bulk freight[10]			
OM Manganese	2013-14 to 2017-18	Manganese ore	Tennant Creek to Darwin (Berrimah)
OZ Minerals[11]	2013-14 to 2017-18	Copper ore	Wirrida to Northgate BP (Tarcoola) Some smaller volumes Wirrida to Tennant Creek
Territory Resources	2013-14 to 2014-15	Iron ore	Union Reef to Darwin (Berrimah)
CU River	2016-17 and 2017-18	Iron ore	Wirrida to Northgate BP (Tarcoola)
Southern Iron	2013-14 to 2017-18	Iron ore	Wirrida to Northgate BP (Tarcoola)
Intermodal freight			
Various customers[12]	2013-14 to 2017-18	Intermodal (containerised) freight	Tarcoola to Darwin (Berrimah)
Passenger			
Individual customers	2013-14 to 2017-18	Passenger	Tarcoola to Darwin (Berrimah)

[10] There may be periods of use for certain mines not labelled in Table 1. For example, above-rail rail operator, Specialised Bulk Rail Pty Ltd appears to have transported mineral ore for the Cairn Hill mine in 2013-14.

[11] Over the period in question, OZ Minerals' product was transported from Wirrida to Adelaide and, in some smaller volumes, Wirrida to Tennant Creek (where the product is transported by road to a smelter located at Mt Isa). To put the size of volumes transported into perspective, in 2015-16 approximately a quarter of OZ Minerals' tonnage was transported from Wirrida to Tennant Creek (62,000 tonnes per annum), while three-quarters were transported from Wirrida to Adelaide (200,000 tonnes per annum). See AARC, *2015-16 Annual report*, pp. 1-6.

[12] Examples include, supermarkets (eg Woolworths), retailers (eg Coca Cola), and the Australian Government.

Figure 1: Map of Tarcoola to Darwin rail line



2.4 Contextual considerations of the Clause 50 review of revenues

The Code's scope covers various aspects, one of which is the review, for five-year intervals, of revenues earned by the access provider for the provision of below-rail services on the Tarcoola to Darwin rail line where no sustainable competitive prices exist. That review of revenues has a distinct purpose: to determine whether the relevant revenues earned are excessive, in the context of the various requirements specified in Clause 50.

It is important to identify and distinguish various Code requirements at the outset of the review, including those which are mandatory.

- Throughout the review the operator's costs will be assessed as to whether they are efficient.
- The relevant required railway infrastructure is defined as the portion of the rail infrastructure required from the access provider in order to provide the relevant below-rail services to the access seeker.
- The revenues reviewed are only those earned for below-rail services where no sustainable competitive prices exist and were earnt under either access awards made through the Code's arbitration processes and/or access agreements commercially negotiated between the parties.[13]

In determining whether revenues are excessive, the regulator must have regard to various factors (including but not limited to):

- The review requires that efficient costs be measured against the actual revenues earned by the access provider.
- The regulator must have regard to investment in all rail infrastructure and all revenues earned by the access provider for the provision of below-rail services.
- The regulator must adopt a reasonable contribution to fixed costs from all other access holders (not just those where sustainable competitive prices exist), in accordance with the method outlined in Clause 50(4) of the Code, and it must be combined with avoidable costs attributable to usage by all other access holders, and then subtracted from the costs for access seekers where no sustainable competitive price exists.
- When having regard to the appropriate commercial return on the rail infrastructure, the appropriate risk premium must be based on the expected risks prevailing at the date of commencement of construction of the rail infrastructure. In respect of any expansion of the rail infrastructure, the appropriate risk premium must be based on the expected risks prevailing as at the commencement of that expansion. Furthermore, when having regard to the appropriate return, the relevant financial market rates (the risk free rate and the rate of inflation) are those prevailing at the time of the regulator's review.
- For the purposes of determining the appropriate risk premium, the regulator must have regard to the information provided by the access provider with respect to any contents of any financing plan of the access provider.

An important aspect of the Clause 50 review is that it allows the Commission's review to adapt as circumstances change (subject to the requirements of the review imposed under the Code). Within the context of the Clause 50 requirements, there are certain aspects of the review that allow for some discretion on the part of the regulator having regard to relevant matters or circumstances, when undertaking the revenue review.

[13] To date, no awards have been made under arbitration.

These aspects, among others, relate to various methodological issues for: valuing capital assets; determining the expected risks prevailing at the commencement of the construction of the rail infrastructure; determining the risk free rate and rate of inflation; determining the methodology for calculating the value of regulatory depreciation, determining the portion of the rail infrastructure required by access seekers (noting that the regulator must have regard to investment in all of the rail infrastructure); determining (if the maximum contribution to fixed costs is not reached) the methodology for estimating a reasonable allocation of fixed costs across access holders (noting that the regulator must have regard to all the revenues earned by the access provider for the provision of below-rail services); and determining the methodology for the allocation of avoidable costs.

Going forward, it is important to note that sub-clauses (8) and (9) of the Code allow the regulator to determine a course of remedial action depending on the outcomes of the review of excessive revenues. These requirements, however, are not discussed in detail at the outset of this review. They apply only if the regulator determines that revenues are excessive.

2.5 Approach to the review

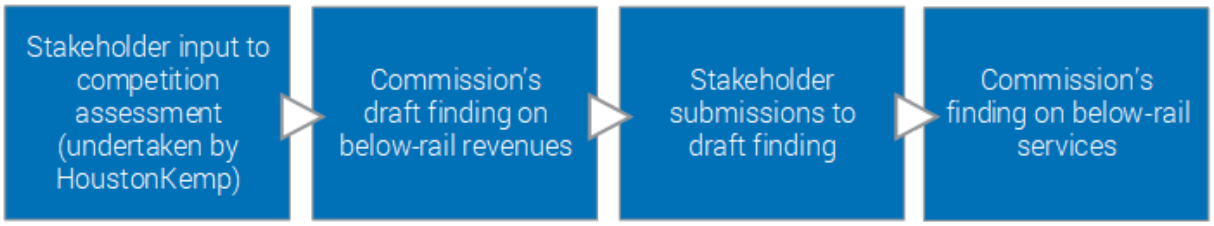
This revenue review compares the revenues earned for relevant below-rail services with maximum revenue limits, which are established as the efficient full-economic cost of access permitted under the Code (where the maximum price for an individual service is set at the total cost estimated in this review based on the DORC asset value, and allocated among sections and access holders (users) of the rail infrastructure). Should revenues exceed the limit, those revenues may potentially be considered excessive.

The structure of the draft report is as follows. Chapter 3 describes recent economic performance including the level and composition of demand for below-rail services. The degree of competition for below-rail services is discussed and the below-rail services subject to sustainable competitive prices are identified. Chapter 4 estimates the maximum revenue limit, using two alternative cost allocation methodologies in relation to the sections of the rail infrastructure. The maximum revenue limits are then compared with the relevant revenues earned.

2.6 Submission process

The process for the review includes an opportunity for interested stakeholders to make submissions (Figure 2). A range of stakeholders provided comments and feedback on the state of competition on the Tarcoola to Darwin rail line to economic consultancy firm, HoustonKemp. The Commission thanks those participants and notes that the feedback was used by HoustonKemp in its assessment of competition, published as a separate report and discussed in chapter 3.

Figure 2: Process for the revenue review



3 Assessment of sustainable competitive prices

- **Draft finding:** Below-rail services for the transport of mineral ores do *not* appear to be subject to sustainable competitive prices. The revenues earned from these services are included in the five-year review of revenues. In contrast, for below-rail services of intermodal freight, sustainable competitive prices appear to exist, and, accordingly, intermodal freight revenues are excluded from the review of revenues.

The Commission's assessment of sustainable competitive prices is organised into two parts. First, it outlines the criteria in the Code that determines whether sustainable competitive prices exist. Second, it discusses the transport of key goods on the Tarcoola to Darwin rail line, such as mineral ore freight and intermodal freight, in the context of demand-side substitution and the state of competition.

3.1 Criteria to determine whether sustainable competitive prices exist

HoustonKemp has produced a report for the Commission about the degree of competition for below-rail services. Consistent with the definition of sustainable competitive prices as set out in Schedule (1)(2) of the Code,[14] they considered two key criteria:

1. whether there were impediments to transporting freight by means other than rail, and
2. whether other modes of transport provided an effective constraint on price.

According to HoustonKemp, the concept of an effective constraint on price is closely related to the definition of a workably competitive market.[15]

Ultimately, if the below-rail freight service is constrained by actual or potential rivals, then a sustainable competitive price could be said to exist.

3.2 Competitive environment according to the type of good transported

The demand for below-rail services on the Tarcoola to Darwin rail line is derived from the demand for transport services, which, in turn, flows from end-user demand for commodities and other goods that require transportation. The transport of mineral ores (such as iron ore and copper ore) accounted for approximately 42 percent of below-rail revenues earned by One Rail Australia (North) over the relevant period, while intermodal freight accounted for approximately 52 percent. Passenger services constituted approximately 6 percent; however, Clause 50(4)(b) excludes passenger services from the revenues being reviewed.

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[14] Schedule to the Code, Clause (1)(2) states that:

> *'A sustainable competitive price will exist in relation to the transportation of a particular type of freight where it can be demonstrated that – (a) there are no regulatory, technical or other practical impediments to transport of the freight by a mode of transport other than the railway or combination of such alternative modes; and (b) the availability or potential availability of modes of transport other than the railway is an effective constraint on the price of transporting such freight on the railway …'*

Clause (3) of the Code defines an effective constraint to *'…exist when it is likely that a supplier (or the threat of entry by a potential supplier) of transportation services by a mode other than rail (supplier A) will prevent another supplier of the same or similar transportation services by rail (supplier B) from sustaining prices materially above supplier B's long term efficient costs of supply without offering materially more in return'.*

[15] HoustonKemp, *Sustainable competition assessment for the Tarcoola-Darwin railway*, p. 9. It is noted that there are various models recognised for studying the state of competition in a market, not only the model of workable competition. Australian Competition Tribunal, *Application by Chime Communications Pty Ltd (No 2)* [2009] ACompT 2.

In reviewing and identifying the main variables of interest, the choices available to end-users of transport services are key. On the Tarcoola to Darwin rail line this involves the type of good transported (for example, mineral ore freight or intermodal freight), the availability of substitutes (road transport, shipping or air transport), and the origin and destination of the transport task (for example, transporting from a mine to a port, between Adelaide and Darwin, or between southern Australian cities and locations in the Northern Territory).

By way of background, there are six intermodal trains per week on the line, and those intermodal trains and the Journey Beyond passenger service appear to use the entire line between Tarcoola and Darwin.

In contrast, mineral ore transport typically uses sections of the rail infrastructure in order to move product from mine to port (either to Darwin Port, or to connect to the interstate rail line in order to move goods to ports and locations in southern Australian cities). Consistent with this, available data suggests that between 2013-14 and 2016-17 only a small share of freight where no sustainable competitive price exists was transported between Alice Springs and Tennant Creek. This likely reflects that, on the basis of distance, mineral operations located near Wirrida send most freight volume south (to ports) rather than north.[16]

3.2.1 Below-rail services for the transport of mineral ore freight

Mineral ore products are known to be generally heavy, bulky and transported over long distances. These factors are known to favour the use of rail transport rather than other modes of transport.[17] The Commission's 2015 review of revenues earned on the Tarcoola to Darwin rail line concluded that rail did not face sustainable competitive prices in the transport of mineral ore freight.[18]

Since the 2015 review, demand for One Rail Australia (North)'s below-rail services for the transport of mineral ore freight has decreased (Figure 3). The sharp decrease, and subsequent modest upturn in 2017-18, largely reflects operations opening and closing[19] and fluctuations in mineral production.[20] These movements in transport and mining production coincided with a fall and subsequent pick-up in global metal commodity prices.[21] The decrease in volumes was a key driver of lower revenues.

[16] This is, of course, subject to various factors that may influence transport decisions, such as capacity at ports and on rail lines, port charges, shipping rates, and the end locations of the buyers of the mineral ore (either domestic or international). For instance, OZ Minerals transports some volumes of copper ore from Wirrida to Tennant Creek.

[17] Commission, *2020 South Australian Rail Access Regime Review - Final Report*, August 2020, p. 21, available at https://www.escosa.sa.gov.au/ArticleDocuments/21535/20200828-Rail-AccessRegimeReview-FinalReport.pdf.aspx?Embed=Y.

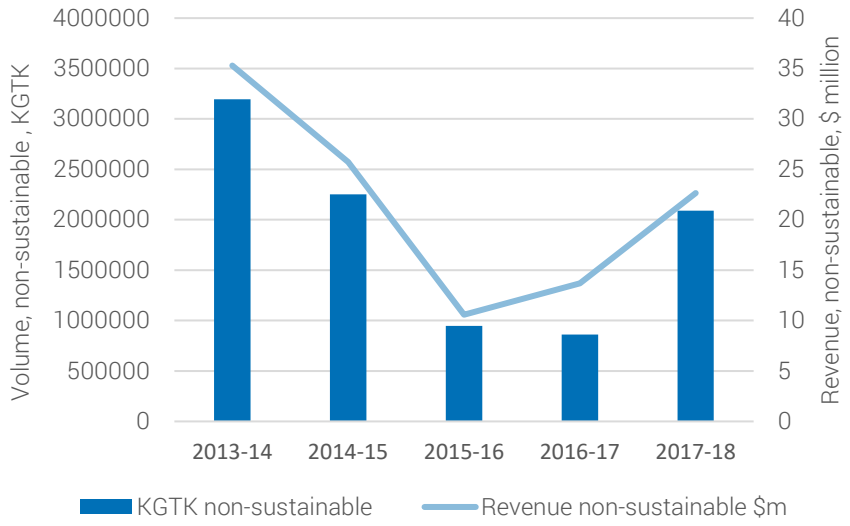
[18] Commission, *10-year review of revenues – Final report*, pp. 21-27.

[19] Such as for Southern Iron, CU River and Territory Resources.

[20] Such as for OZ Minerals and OM Manganese.

[21] Reserve Bank of Australia, *Index of Commodity Prices*, available at https://www.rba.gov.au/statistics/frequency/commodity-prices/2018/.

Figure 3. Below-rail volumes and revenue transporting mineral commodities over the Tarcoola to Darwin rail line



Source: One Rail Australia (North)

HoustonKemp's research for the Commission, including discussions with stakeholders and results from survey questions, found that mineral ore freight has continued to be transported by rail on the Tarcoola to Darwin freight route with no apparent switching to road transport.[22] To complement qualitative information gathered from stakeholders, HoustonKemp used a hypothetical case study to illustrate that rail transport of mineral ore products had a cost advantage over road transport over long distances (Figure 4). As stated by HoustonKemp: [23]

> *'[t]he hypothetical example … suggests that the costs of transporting bulk freight via rail is materially lower than road. This suggests that road freight services do not provide a sustainable competitive price. In other words, the below rail operator could increase its price by a small but significant amount (of, say five to ten per cent) and there would likely be limited switching from rail to road.'*

It is important to note that the hypothetical example is indicative only and the results are sensitive to the assumptions used. Those assumptions are outlined in Appendix A.1 in HoustonKemp's report.[24]

The implication of the evidence provided by HoustonKemp is that, while substitution might be theoretically possible between rail and road transport for the transport of mineral ore, especially at shorter distances, these possibilities have failed to eventuate in any material way over the long term on the Tarcoola to Darwin freight route. This suggests that road transport is not a practical and realistically commercial alternative for the transport of mineral ores on the Tarcoola to Darwin rail line.[25] In these circumstances, road transport may not act as an effective substitute that constrains below-rail prices.

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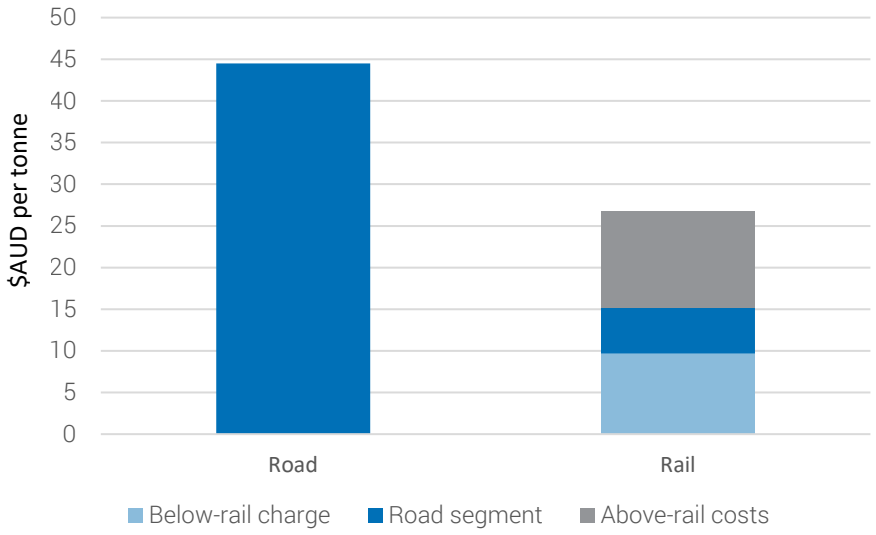
22 HoustonKemp, pp. 10-12.

23 HoustonKemp, pp. 10-12.

24 The example is for a mine approximately 800 kilometres from port and 450,000 tonnes of product is assumed to be transported per year. As a practical comparison, the distance involved in transporting mineral ore freight from Tennant Creek to Darwin is approximately 950 kilometres, and the distance transporting mineral ore freight from Wirrida to Adelaide is approximately 860 kilometres. As noted earlier, mineral ore is oftentimes transported between Tennant Creek and Darwin, and between Wirrida and Tarcoola (and then on to the interstate network to southern ports). This suggests that the distance used in the hypothetical example for both road transport and rail transport appears to be a reasonable indicative assumption.

25 Patterns of actual transactions provide important insights into how firms' view markets. For instance, there might be barriers to entry or limitations to product substitutability that are not immediately obvious. There may be road congestion, limitations in integrating road transport to and from port terminals, or issues of community perceptions regarding safety and congestion preventing transport of mineral ores.

Figure 4. Transport costs for a hypothetical mine located in the Northern Territory (800 km from Darwin)



Source: HoustonKemp

Overall, the Commission considers that, based on the available evidence, its 2015 conclusion still holds. That is, the rail transport of mineral ore does not face a sustainable competitive price on the Tarcoola to Darwin rail line. The revenues earned from these below-rail services have therefore been included in the review of revenues for the period 1 July 2013 to 30 June 2018.

- **Question for stakeholders:** To what extent does the rail transport of mineral ores face competition from road transport on the Tarcoola to Darwin rail line? Do you agree with the Commission's draft finding that the transport of mineral ores are not subject to sustainable competitive prices? Please provide evidence to support your position.

3.2.2 Below-rail services for the transport of intermodal freight

The Commission's 2015 revenue review found that intermodal rail freight faces competition from road transport, hence a sustainable competitive price likely exists. At that time it was noted that a number of firms offer flexible freight services between Adelaide and Darwin, and road transport could act as an effective substitute for the rail transport of containerised freight.[26]

HoustonKemp's research found that, in relation to intermodal freight:

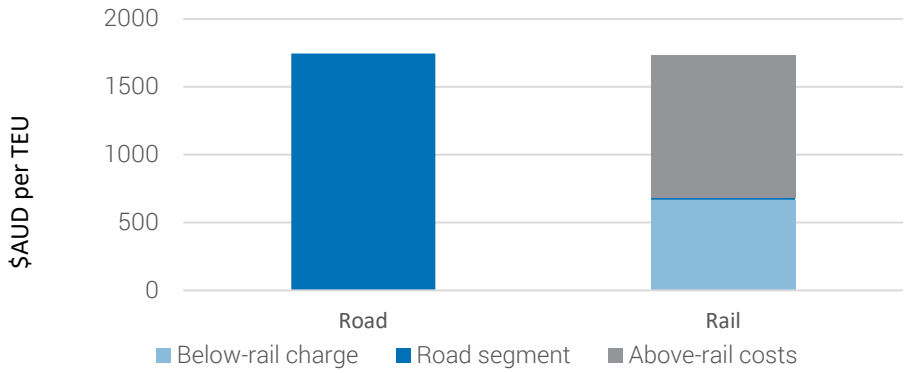
- road transport is the only form of transport on the Tarcoola to Darwin freight route that could provide a practical alternative to rail (air freight and coastal shipping do not reportedly provide a sufficient degree of substitutability),[27] and
- the cost of road transport is estimated to be comparable to rail transport (Figure 5).[28]

Road transport has increased its market share on the Tarcoola to Darwin freight route over the past half-decade. Below-rail intermodal volumes decreased over the period in question, in part reflecting Coca-Cola moving its factory from South Australia to Western Australia, Woolworths shifting perishable goods to road to achieve a longer shelf life, closure of certain furniture and automotive manufacturing operations, and cessation of the construction of the Inpex LNG plant.[29] At the same time, road

[26] Commission, *10-year review of revenues – Final report*, pp. 21-27.
[27] HoustonKemp, pp. 16-17.
[28] HoustonKemp, pp. 16-17.
[29] For instance, see AARC, *2016-17 Annual report*, p. 6, and AARC, *2017-18 Annual report*, p. 6.

transport between the Northern Territory and southern Australian cities has reportedly increased in volume.[30] Road transport's market share is estimated by Houston Kemp at between 55 percent and 62 percent (although alternative estimates published by the AARC put the market share lower).[31]

Figure 5. Transport costs for a hypothetical intermodal freight route between Adelaide and Darwin[32]



Source: HoustonKemp

In addition, HoustonKemp provided a qualitative assessment against the various factors set out in Clause (2)(b) of the Schedule to the Code. HoustonKemp's assessment did not highlight any issues that would materially alter its conclusions (Appendix B).

On balance, the evidence provided by HoustonKemp is consistent with the Commission's 2015 conclusion, and supports the potential for customers to switch between using road and rail transport.[33] The Commission has therefore determined that below-rail freight services for intermodal freight on the Tarcoola to Darwin rail line have likely been subject to sustainable competitive prices for the period 1 July 2013 to 30 June 2018, and accordingly, these revenues are excluded from being reviewed.

- **Question for stakeholders:** To what extent does intermodal rail transport face competition from alternative modes of transport on the Tarcoola to Darwin freight route? Do you agree with the Commission's draft finding that the transport of intermodal freight is subject to sustainable competitive prices? Please provide evidence to support your position.

30 HoustonKemp, pp. 18-20.

31 The AARC stated in its 2019-20 annual report that '*…[r]ail retains an estimated 76% market share, with ~85% of the contestable market for intermodal freight on the corridor ex SA'*. AARC, *Annual Report 2019-20*, p. 10.

32 The hypothetical example involves a logistics company moving around 14,000 twenty-foot equivalent units (TEUs) per year between Darwin and Adelaide. Assumptions are in Appendix A.1 in HoustonKemp's report.

33 Other regulators have recently noted the competitive environment between road and rail transport. ACCC, *Issues paper – regulatory framework for ARTC's interstate network*, 25 August 2021, pp. 6-7, available at https://www.accc.gov.au/system/files/IAU%20-%20ARTC%20-%20Issues%20Paper%20-%20The%20regulatory%20framework%20for%20ARTC%27s%20Interstate%20network%20-%2020210825.pdf.

4 The review of revenues

- **Draft finding:** Based on the assumptions adopted in undertaking this review, the actual revenues earned for providing below-rail services where no sustainable competitive prices exist are below the estimated maximum revenue limit.

This chapter identifies the below-rail revenue for the period 1 July 2013 to 30 June 2018 and compares it to the estimated maximum revenue limit for those same below-rail services. The maximum threshold is an estimate of the efficient economic cost of access, based on the assumptions adopted. This estimate is allocated across access holders and sections of the rail infrastructure. The review has been undertaken in accordance with Clause 50 of the Code.

4.1 Identifying the relevant below-rail revenues earned

One Rail Australia (North) has reported to the Commission the revenues earned from below-rail freight services for the transport of mineral ores over the period in question. The revenues collected were from commercially negotiated contracts with six end users;[34] no awards from arbitrators were made over the period. In total, the actual revenue earned was approximately $106.2 million in December 2014 dollars.

(Note that the dollar figures presented throughout this chapter are in December 2014 dollars.[35])

4.2 Methodology for establishing the maximum revenue limit

The maximum revenue limit is based on: [36]

- avoidable costs, including operating expenditure and a return on and of new assets[37]
- fixed costs, including a return on and of existing assets,[38] and
- an allocation of costs across access holders and relevant sections of the rail infrastructure.

The avoidable (below-rail) cost is the amount that would not have been incurred if access to rail infrastructure was not sought. It includes labour, materials and administration expenses, items that tend to vary with usage. While a return on and of new assets is not in full an avoidable cost, given the minor size of this variable (discussed later on), it is treated as an avoidable cost for simplicity in this review.

The fixed costs of the rail infrastructure do not vary with usage, and are calculated in this review as the return on and of existing rail infrastructure.

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34 End users of rail infrastructure were mineral operations including, OM Manganese, OZ Minerals, Territory Resources, CU River and Southern Iron. The revenues include the use of one siding. In addition, the access revenues for the period included those from private above-rail rail operator, Specialised Bulk Rail Pty Ltd, which, as noted earlier, appears to have provided below-rail services for the Cairn Hill mine for one financial year of the review period in question.

35 The December 2014 price base was selected on the basis that it was consistent with the 2015 review.

36 Note that a pre-tax regulatory rate of return is used, therefore a tax allowance is not calculated as it is already incorporated into the return on assets.

37 As mentioned earlier in chapter 2, Clause 50(5)(d) requires that costs must be determined incorporating the avoidable costs of all other access holders attributable to the usage of the required relevant rail infrastructure. Those costs must be of the kind referred to in Schedule to the Code. For instance, these costs are to include labour and material costs and an appropriate allocation of administration costs.

38 As mentioned earlier in chapter 2, Clause 50(5)(d) requires that costs must be determined incorporating a reasonable contribution to fixed costs from all other access holders using the relevant rail infrastructure.

All access holders must be allocated a share of the costs of access. This involves allocating avoidable and fixed costs across access holders, and accounting for relevant segments of the rail infrastructure.

Recognising that there can be different methodological approaches to account for rail segments, two alternative methodologies are presented: one is based on allocating costs across the entire rail line while the other is based on allocating costs across only a portion (48 percent) of the line. Estimates under both approaches are presented in this chapter.

4.2.1 Allocation of avoidable and fixed costs between access holders

Avoidable costs have been allocated according to the estimated share of usage by freight type based on a gross tonne kilometres basis (GTK) (for example, as shown in Table 2). This cost allocation method is consistent with a user-pays approach. It is an industry standard approach to allocating avoidable/variable costs.[39]

Table 2. Estimated share of usage by freight type, based on a GTK basis, based on the entire length of rail line

	2013-14	2014-15	2015-16	2016-17	2017-18
Freight where no sustainable competitive price exists (%)	42	33	18	17	40
All other access holders (intermodal and passenger) (%)	58	67	82	83	60

In terms of fixed costs, the Code requires that a reasonable contribution be allocated across all access holders. The allocation method adopted in this review estimates the contribution from all other access holders and subtracts it from total fixed costs. The remainder is the contribution to fixed costs where no sustainable competitive price exists.

The approach to fixed costs adopted in this review is in accordance with Schedule (2)(2)(c) of the Code. It requires that the maximum contribution to fixed costs from access holders subject to sustainable competitive prices be calculated as the revenue earned by all such access holders less the avoidable costs attributable to them. Put simply, the avoidable cost accounts for the incremental cost of usage and the remainder is the maximum contribution to fixed costs for which access holders subject to sustainable competitive prices are liable. This means that the overall contribution by those access holders that have the capacity to substitute to an alternative transport service is no more than the revenue earned from them. Appendix C provides a simple descriptive example to illustrate this type of calculation.

- **Question for stakeholders:** Do stakeholders support the cost allocation methods adopted in relation to fixed costs and avoidable costs? Please provide evidence to support your position.

4.2.2 Allocation of costs across segments of the rail infrastructure

The Code refers to required rail infrastructure as the portion of infrastructure required from the access provider in order to provide the relevant railway infrastructure service to the access seeker or access holder.[40] There are a range of options for allocating costs in the calculation of the maximum revenue limit. Two potential approaches are presented below for use in this draft finding.

[39] This type of usage approach has historically been used by industry to distribute common costs; Freebairn J, *Access prices for rail infrastructure*, The Economic Record, vol. 74, No. 226, September 1998, p. 289.

[40] Clause 3 of the Code defines required railway infrastructure as: '*… required railway infrastructure, in relation to an access seeker or access holder, means that portion of the railway infrastructure facilities required from the access*

1. Because there have been at least some below-rail services where no sustainable competitive prices exist on each main segment of the Tarcoola to Darwin rail line over the period in question (for example, OZ Minerals reportedly transports some copper ore north along the rail infrastructure), one option is to calculate costs for the entire rail line. At the time of the previous revenue review, GWA (North) (now One Rail Australia (North)) supported a whole of line approach on the basis that the rail line is a contiguous network, cost items within the below-rail business are structured around the entire line (rather than segments), and the project's original greenfields risk profile remains. This entire line approach may, however, not appropriately distinguish the relevant portions of track for mineral operations in South Australia and the Northern Territory, and may not reflect the most frequently adopted route for the access holders.

2. Because it could be said to be most cost efficient to transport mineral ore directly to the nearest port, rather than using the entire line, one option is to calculate costs only for the rail line directly relevant to the movement of goods to the nearest port. On this basis, approximately 48 percent of the entire rail line would be utilised.[41,42] This provides an indicator of the portion of rail infrastructure required for access seekers (where no sustainable competitive price exists) if they sought the shortest and potentially most efficient route to port. [43]

The draft finding does not state a preference for either one of these two cost allocation methods.

- **Question for stakeholders:** Do stakeholders support options 1 and 2 to allocate costs according to segments of the rail infrastructure? Are there alternative methodologies that stakeholders would suggest that the Commission should adopt? Please provide evidence to support your position.

4.3 The calculation of the maximum revenue limit

This section outlines the underlying calculations to estimate the maximum revenue limit. It outlines calculations for operating costs, depreciation and return on assets. Then it summarises these cost components into avoidable and fixed costs, and calculates access holders' contributions to fixed costs.

4.3.1 Operating costs

The Commission's draft finding in regard to operating expenditure is outlined in Table 3. One Rail Australia (North)'s operating costs were provided to the Commission and these have been adjusted using the two alternative options noted above.[44] That is, option 1 presents operating cost figures weighted according to estimated share of usage as shown earlier in Table 2 (when distance is set to

provider in order to provide the relevant railway infrastructure service to the access seeker or access holder (as the case may be)'.

41 For example, the distance from Wirrida to Tarcoola (is approximately 130 kilometres) and from Tennant Creek to Darwin (is approximately 950 kilometres), and the entire rail line is approximately 2,240 kilometres. 48.13 percent is calculated as 1,078 kilometres relative to 2,239 kilometres. Genesee & Wyoming Australia, *Network Operating Guide Part A: Route Operating Protocols, Northgate BP to Berrimah*, section 6.1, p. 11, available at https://1rail.com.au/pdf/north/operational-track/Network%20Operating%20Guide.pdf.

42 Access holders where no sustainable competitive price exists are located near Wirrida (OZ Minerals' mine Prominent Hill, CU River's mine Cairn Hill, and Southern Iron's mine Peculiar Knob), near Tennant Creek (OM Manganese's Bootu Creek mine), near Union Reef (Territory Resources' Frances Creek mine).

43 The approach has limitations. For example, it assumes that mineral operations use the exact distance of the rail infrastructure between Wirrida and Tarcoola, and between Tennant Creek and Darwin. However, in practice, those distances may be slightly different. Furthermore, mineral operations may sometimes choose to move freight north from Wirrida, or move freight south from Tennant Creek.

44 Operating expenditure items included linehaul & operating costs, track maintenance, general administration, insurance claims and insurance, and taxes other than income. Given the small size of operating costs, the Commission has not undertaken a bottom-up itemised review of One Rail Australia (North)'s operating costs.

the entire line), while option 2 presents figures weighted by 0.48 (48 percent for distance) and on n estimated share of usage basis (when distance is set to set for only relevant rail lines, as shown below in Table 4). (By way of background, Appendix D provides a step by step calculation of the share of usage calculation.)

Table 3. Operating costs (December 2014 dollars)

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Option 1						
Freight where no sustainable competitive price exists, $m	6.8	5.2	2.7	2.4	5.5	22.6
Other access holders, $m	9.6	10.7	12.5	11.3	8.2	52.3
Option 2						
Freight where no sustainable competitive price exists, $m	4.0	3.3	2.0	1.3	2.8	13.5
Other access holders, $m	3.9	4.3	5.3	5.2	3.8	22.5

Table 4. Estimated share of usage by freight type, GTK basis, based on only relevant (48 percent) of the rail line

	2013-14	2014-15	2015-16	2016-17	2017-18
Freight where no sustainable competitive price exists (%)	51	43	28	20	43
All other access holders (intermodal and passenger) (%)	49	57	72	80	57

4.3.2 Starting asset value, depreciation and capital expenditure

The Commission's draft finding in this review is to:

- adopt the Depreciated Optimised Replacement Cost (DORC) value as the initial asset value (Box 1)
- include government-contributed assets and other government financial assistance in the asset value (Box 1)
- adopt actual new capital expenditure as submitted by One Rail Australia (North),[45] and
- adopt a regulatory depreciation value calculated using a straight-line method and a 50-year asset life that aligns with the term of the Concession deed.

The approaches noted above are in line with those adopted in the previous review.[46]

[45] Given the small size of new capital expenditure, the Commission has not undertaken a prudency and efficiency assessment of that capital spend. New capital expenditure was supplied by One Rail Australia (North). For the review period in question, the steps we took were to: sort capital expenditure on the basis of financial year and below-rail services. Capital expenditure for the period prior is in line with that recorded in the Commission's ten-year review of revenues completed in 2015.

[46] Commission, *10-year review of revenues – Final report*, pp. 1-43.

Box 1. Asset valuation of rail infrastructure

Selecting the initial asset valuation methodology

In 2005, an initial DORC value of the rail infrastructure was prepared by external consultants, BOOZ Allen Hamilton on behalf of the owners of the railway at the time, APT. The initial DORC value was approximately $1,696.9 million at July 2003 (expressed in nominal terms; including government-contributed assets and other government financial assistance). The DORC asset value was adopted in the 2015 review.

The Commission has adopted the DORC asset value for this review for consistency with the previous review. However, the Commission sees value in exploring the topic of asset value methodologies prior to, and for future use in, revenue reviews. It is recognised that stakeholders often raise issues relating to asset valuation methodologies. However, the Commission considers that this topic is most appropriately dealt with through a separate discussion paper process, rather than in the test of excessive revenues.

The exploration of the asset valuation topic is intended to take the form of a discussion paper to be published in 2022-23. It does not pre-suppose any particular outcome and does not impact on this review. Rather, the discussion paper is intended to explore arguments and evidence for various asset valuation methodologies in a transparent manner for the benefit of all stakeholders. The process will allow for comments and stakeholder input on appropriate asset valuation methodologies and their future application in subsequent reviews.

Government-contributed assets and other government financial assistance

As highlighted in chapter 2, the construction of the Tarcoola to Darwin rail line faced significant greenfields project risk and it accordingly relied on government-contributed assets and other government financial assistance to bring the project forward.[47] This draft finding has included those contributions on the basis that the risk exposure at the time of construction of the rail infrastructure is captured in the risk premium of the regulatory rate of return.

By way of background, in 2003, the Commission calculated that, for ceiling price purposes, the post-tax real terms risk premium applied to total assets was 2.6 percent[48] (which was reported as equivalent to a risk premium of 13.1 percent if applied to project funds).[49] The large difference reflects in part that, as highlighted in chapter 2, there was a large amount of government contributions at the time of commencement of construction of the rail infrastructure.

4.3.2.1 Roll-forward calculations

In calculating the asset value, the initial DORC value at July 2003, of approximately $2,301 million has been rolled forward in real terms. The steps taken were to:

47 Code, Clause 50(5).

48 The Commission's 2003 finding accounted for the debt risk premium (1.2 percent), debt-to-capital ratio (60 percent) and asset beta (of 0.55) at the time of commencement of the project. The parameter values were informed at that time by industry information. Commission, *Tarcoola-Darwin Railway: Regulated Rates of Return*, Provisional Determination, 2003, pp. 23-34.

49 The 13.1 percent risk premium on project funds was calculated in 2003 based on project-specific rate of return parameters (including a project-specific debt-to-capital ratio of 70 percent, an asset beta of 0.62 and a debt risk premium of 3.24 percent) and an uplift factor (or 'truncation premium') applied to take into account the probability distribution of expected pre- and post-regulation returns. The risk premium was based on a nominal post-tax ceiling rate of return of 17.7 percent on project funds. Commission, *Tarcoola-Darwin Railway: Regulated Rates of Return*, Provisional Determination, 2003, pp. 23-34.

- add new capital expenditure and
- deduct the value of regulatory depreciation.[50]

Because depreciation is greater than the additional capital expenditure over the period, there is a decline in the asset value.[51] The asset value decreases from an opening value of $1,889.6 million in 2013-2014 to a closing value of $1,702.9 million in 2017-2018. The roll-forward table for the period in question is shown in Table 5.[52] (A table of the roll-forward from 2003-04 to 2017-18 is in Appendix D.)

Table 5. Roll-forward of the asset base over the period of the review (December 2014 dollars)[53]

Total assets	2013-14	2014-15	2015-16	2016-17	2017-18
Opening asset value ($m)	1889.6	1854.3	1817.5	1780.9	1743.1
Capital expenditure ($m)	11.5	10.1	10.6	9.6	7.3
Disposals ($m)	0.0	0.0	0.0	0.0	0.0
Depreciation ($m)	46.8	47.0	47.2	47.4	47.5
Closing asset value ($m)	1854.3	1817.5	1780.9	1743.1	1702.9

In order to distinguish between new and existing assets, capital additions and the associated regulatory depreciation were calculated.[54] The steps taken were to calculate:

- cumulative capital expenditure, and
- the difference between depreciation (when including and excluding new capital expenditure).

Table 6 shows the roll-forward for existing assets (ie excluding new capital expenditure), while Table 7 shows new asset values rolled forward.

Table 6. Roll-forward of existing asset base only (excluding new capital expenditure) (December 2014 dollars)

Existing asset base	2013-14	2014-15	2015-16	2016-17	2017-18
Opening asset value ($m)	1866.1	1820.1	1774.0	1728.0	1682.0
Capital expenditure ($m)	0	0	0	0	0
Disposals ($m)	0	0	0	0	0
Depreciation ($m)	46.0	46.0	46.0	46.0	46.0
Closing asset value ($m)	1820.1	1774.0	1728.0	1682.0	1635.9

50 Calculated as the average of the opening and closing value, divided by the remaining asset life, noting that the asset life is set at 50 years starting in 2003-2004.

51 Disposals were nil over the period.

52 To provide an example of the calculation, the average of the opening and closing asset value in 2013-2014 was $1,872 million, and dividing this by 40 (which represents the remaining asset life), gives approximately $47 million, as shown in the table above. The remaining asset life is 40 years because 10 years has passed since 2003-2004 when the asset life was set at 50 years to align with the start of the Concession deed.

53 Figures in Tables 5, 6 and 7 may not sum due to rounding.

54 The latter is calculated as the difference between depreciation of the asset value including new capital expenditure, and depreciation based on a roll-forward of the asset base in which no capital expenditure is added.

Table 7. Roll-forward of capital additions (including new capital expenditure) (December 2014 dollars)

New assets	2013-14	2014-15	2015-16	2016-17	2017-18
Opening asset value for new assets ($m)	23.5	34.3	43.5	52.9	61.1
Capital expenditure ($m)	11.5	10.1	10.6	9.6	7.3
Disposals ($m)	0	0	0	0	0
Depreciation ($m)	0.7	0.9	1.2	1.3	1.5
Closing asset value ($m)	34.3	43.5	52.9	61.1	67.0

4.3.2.2 Summary of new and existing assets

This section calculates the regulatory depreciation on new and existing assets. For existing assets, under option 1, regulatory depreciation remains as it is in Table 6 above. Under option 2, however, regulatory depreciation is multiplied by 0.48 to account for the distance of the relevant line (ie only 48 percent of depreciation is included). This can be seen in Table 8 below. (The next step in relation to depreciation on existing assets – which is calculated in section 4.3.3 – is the allocation of these fixed costs between access holders.)

Table 8. Depreciation on existing assets (December 2014 dollars)

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Option 1						
Depreciation – existing ($m)	46.0	46.0	46.0	46.0	46.0	230.1
Option 2						
Depreciation – existing ($m)	22.2	22.2	22.2	22.2	22.2	110.8

For new assets, under option 1, regulatory depreciation is multiplied by share of usage (which was shown earlier in Table 2). Under option 2, however, regulatory depreciation is multiplied by both 0.48 and by the share of usage for those relevant rail lines (which was shown in Table 4). Table 9 below presents the results for that calculation. (By way of background, Appendix D provides a step by step calculation of the application of the cost allocation options to depreciation of new assets.)

Table 9. Depreciation on new assets (December 2014 dollars)

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Option 1						
Depreciation – new ($m)	0.3	0.3	0.2	0.2	0.6	1.7
Option 2						
Depreciation – new ($m)	0.2	0.2	0.2	0.1	0.3	1.0

4.3.3 Return on assets

4.3.3.1 Rate of return

The Commission's draft finding is for the return on assets to be calculated on the basis of a pre-tax real rate of return of 2.44 percent. The pre-tax, real return has been calculated in a manner that is consistent with Clause 50(5)(c) of the Code, which specifies that the return must have regard to:

- an appropriate risk premium based on the expected risks prevailing at the time of the commencement of construction of the rail infrastructure by the access provider, and
- the relevant financial market rates (including the risk free rate for return on investments and the rate of inflation) prevailing at the time of the regulator's review.

Inputs and parameters

In 2003, the Commission calculated a real terms risk premium of 2.6 percent applied to total assets and a real terms risk premium of 13.1 percent applied to project funds (that is, the risk premium if government-contributed assets and other government financial assistance are disregarded).[55] The Commission's 2003 finding accounted for the debt risk premium (1.2 percent), debt-to-capital ratio (60 percent) and asset beta (of 0.55) at the time of commencement of the project. The parameter values were informed at that time by industry information.[56] As mentioned earlier (in Box 1), this draft finding has included government contributions, therefore a real term risk premium of 2.6 percent has been adopted for the purposes of calculating a rate of return.

In terms of financial market data, the yield on 10-year Commonwealth Government Securities has been selected as the appropriate term to maturity of the risk free rate. The yield on the nominal risk free rate was calculated as 1.57 percent (the 40-day average of the daily observations to 30 June 2021). Notwithstanding some of the known limitations in the use of inflation-indexed government securities,[57] the real risk-free rate was calculated to be -0.47 percent at the end of June 2021, and long-term inflation expectations were estimated at 2.04 percent. Inflation-linked securities were adopted for the purposes of this review for consistency with the Code, which specifies having regard to financial market rates.[58]

The financial markets data adopted for this review are for the end of June 2021. This is in accordance with Clause 50(5)(d) of the Code, which specifies that in determining an appropriate return the Commission must have regard to financial market rates *'prevailing at the time of the regulator's review'*.[59]

Nevertheless, in using the time period of the regulator's review to derive market rates, the rate of return may differ compared with the rates at the commencement of the period in question, or those observed at the end of the period. For example, the risk free rate adopted in this review is more than 2 percentage points below the July 2013 rate, and more than 1 percentage point below the July 2018 rate.

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55 Commission, *Tarcoola-Darwin Railway: Regulated Rates of Return*, Provisional Determination, 2003, pp. 23-34. The risk premiums are published in the Commission's Tarcoola-Darwin access and pricing guideline number 2.

56 Commission, *Tarcoola-Darwin Railway: Regulated Rates of Return*, Provisional Determination, 2003, pp. 23-34.

57 Limitations of the bond break-even approach involve time-varying premiums and biases. A detailed description is outlined in Commission, *SAWRD20 Statement of reasons – Final Determination*, pp. 283-289, available at https://www.escosa.sa.gov.au/ArticleDocuments/21489/20200611-Water-SAWRD20-FinalDetermination-StatementOfReasons.pdf.aspx?Embed=Y.

58 Data are obtained from the Reserve Bank of Australia. These data can be found in RBA Statistical Tables F2 and G3, available at https://www.rba.gov.au/statistics/tables/.

59 The June quarter of 2021 was selected as it includes the latest available data for published bond-breakeven rates from the Reserve Bank of Australia.

Calculations

The nominal post-tax rate of return adopted has been calculated as:

Nominal post-tax rate of return = (1 + real risk free rate + risk premium)(1 + expected long-term inflation)*

Substituting in the financial market based parameters and the risk premium, gives:

Nominal post-tax rate of return = (1-0.47%+2.60%)(1+2.04%) -1 = 4.22%*

The real post-tax rate of return has been calculated as:

Real post-tax rate of return = (1+nominal post-tax return) / (1+long-term expected inflation) -1

Substituting in the nominal post-tax return and long-term expected inflation, gives:

Real post-tax rate of return = (1+4.22%) / (1+2.04%) -1=2.13%

The real, post-tax return is converted into a pre-tax return for the purposes of this review, and is done so using 60 percent gearing, a 30% corporate tax rate, and a gamma variable of 50%.[60]

Real pre-tax rate of return = (60% x real, post-tax rate of return) / (1-30%) +

(40% x real, post-tax rate of return x 50%) / (1-30%)

Substituting in the real, post-tax return, gives:

Real pre-tax rate of return = (60% x 2.13%) / (1-30%) + (40% x 2.13% x 50%) / (1-30%) = 2.44%

- **Question for stakeholders:** Do stakeholders support the rate of return being applied for the purpose of calculating the return on assets? Please provide evidence to support your position.

4.3.3.2 Return on assets calculation

This section calculates the return on new and existing assets. The return on assets is calculated as the real, pre-tax rate of return (calculated above) multiplied by the value of the asset base (shown earlier in section 4.3.2). Tables 10 and 11 present the summary values below.

Table 10. The calculation of the return on assets on existing assets (December 2014 dollars)

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Real rate return (%) (pre-tax)	2.44					
Average asset value ($m)	1843.1	1797.0	1751.0	1705.0	1659.0	
Return on existing assets ($m)[61]	45.0	43.8	42.7	41.6	40.5	213.6

[60] These assumptions are consistent with the Commission's 2003 determination in relation to risks prevailing at the time of commencement of construction of the rail line. Commission, *Tarcoola-Darwin Railway: Regulated Rates of Return*, Provisional Determination, 2003, pp. 23-33.

[61] Calculated as the average asset value multiplied by the pre-tax real rate of return.

Table 11. The calculation of the return on new assets (December 2014 dollars)

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Real return (%) (pre-tax)	2.44					
Average new asset value ($m)	28.9	38.9	48.2	57.0	64.1	
Return on new assets ($m)[62]	0.7	0.9	1.2	1.4	1.6	5.8

For existing assets, under option 1, the return on assets remains as it is (as shown in Table 10). Under option 2, however, the return on existing assets is multiplied by 48 percent to account for the distance of the relevant line. This can be seen in Table 12 below. Once the return on existing assets has been calculated, the next step is the allocation of fixed costs between access holders (which is calculated in section 4.3.4).

Table 12. Return on existing assets (December 2014 dollars)

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Option 1						
Return – existing assets ($m)[63]	45.0	43.8	42.7	41.6	40.5	213.6
Option 2						
Return – existing assets ($m)[64]	21.6	21.1	20.6	20.0	19.5	102.8

For new assets, under option 1, the return on assets in Table 11 is multiplied by share of usage shown earlier in Table 2. Under option 2, however, the return on new assets is multiplied by both 48 percent and by the share of usage for those relevant rail lines (shown earlier in Table 4). Table 13 below presents the results for the calculations. (By way of background, Appendix D provides a step by step calculation of the application of the cost allocation options to the return on new assets.)

Table 13. Return on new assets (December 2014 dollars)

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Option 1						
Return – new assets ($m)	0.3	0.3	0.2	0.2	0.6	1.7
Option 2						
Return – new assets ($m)	0.2	0.2	0.2	0.1	0.3	1.0

4.3.4 Calculating avoidable costs and the contribution to fixed costs

4.3.4.1 Avoidable costs for access holders

As mentioned in section 2.2.1, the avoidable (below-rail) cost is the amount (labour, materials and administration costs) that would not have been incurred if access to rail infrastructure was not sought.

[62] Calculated as the average new asset value multiplied by the pre-tax real rate of return.
[63] These figures are unadjusted, hence match those presented in Table10.
[64] This is calculated as approximately 0.4813 percent multiplied by the return on existing assets in Table 10.

Further, it was also noted that, while a return on and of new assets is not in full an avoidable cost, given the minor size of this variable, it is treated as an avoidable cost for simplicity in this review.

In that context, the avoidable costs for access holders where no sustainable competitive price exists are calculated as the sum of operating costs (in Table 3), depreciation of new assets (in Table 9) and return on new assets (in Table 13). Therefore the avoidable costs for non-sustainable below-rail services are: $25.9 million (under option 1) and $15.5 million (under option 2).

The avoidable costs for access holders that are subject to sustainable competitive prices are calculated as the sum of operating costs (in Table 3), depreciation of new assets (in Table 9) and return on new assets (in Table 13). The avoidable costs for these below-rail services are: $60.4 million (under option 1) and $26.1 million (under option 2).

4.3.4.2 Contribution to fixed costs

As explained in section 4.2.1 (and Appendix C), the Code requires that a reasonable contribution to fixed costs be allocated to all access holders. The allocation method adopted in this review estimates the contribution to fixed costs from access holders where a sustainable competitive price exists and then subtracts it from total fixed costs. The remainder is the contribution to fixed costs where no sustainable competitive price exists.

Given this methodology, the contribution to fixed costs from non-sustainable below-rail services is presented in Table14.[65] The large difference between the contributions under options 1 and 2 reflects that approximately 48 percent of the rail infrastructure is taken into account under option 2.

Table 14. Calculation of the maximum contribution to fixed costs (December 2014 dollars)[66]

	Under Option 1 ($m)	Under Option 2 ($m)
Avoidable costs for all other access holders	60.4	26.1
Total revenues earned from all other access holders[67]	142.8	142.8
R (maximum contribution to fixed costs from all other access holders)	82.4[68]	116.7[69]
Total fixed costs from existing assets	443.7	213.6
Contribution to fixed costs from non-sustainable below-rail services ($m)	**361.4**[70]	**96.9**[71]

4.4 Comparing relevant revenues to the estimated maximum revenue limits

The maximum revenue limit of below-rail services that are not subject to sustainable competitive prices was estimated under two alternative cost allocation methodologies (Table 15).

65 The calculation estimates the maximum to be recovered from all other access holders (as shown in the table's variable named *R*). The calculation then subtracts *R* from the total relevant fixed costs of the asset (the latter being the sum of the return on and of assets, as shown earlier in Tables 8 and 12).

66 Data may not sum due to rounding.

67 Data were provided by One Rail Australia (North) in nominal terms. They have been converted into December 2014 dollars.

68 $142.8 million minus $60.4 million, gives $82.4 million.

69 $142.8 million minus $26.1 million, gives $116.7 million.

70 $443.7 million minus $83 million, gives $361.4 million.

71 $213.6 million minus $116.7 million, gives $96.9 million.

Table 15. Revenues earned compared with the maximum revenue limit (December 2014 dollars) [72]

	Under Option 1 ($m)	Under Option 2 ($m)
Avoidable costs for non-sustainable below-rail services	25.9	15.5
Contribution to fixed costs from non-sustainable below-rail services	361.4	96.9
Maximum revenue limit	**387.3**	**112.3**
Actual revenues	**106.2**	**106.2**
Extent of under-recovery	(-281.1)	(-6.1)

- The first option, which assumes that the entire rail line is used by those not subject to sustainable competitive prices, results in a maximum revenue limit of $387.3 million.
- The second option, which assumes that freight not subject to sustainable competitive prices would travel only on the shortest (and potentially most efficient) route to port, results in a maximum revenue limit of $112.3 million. The maximum revenue limit would be higher again if the actual revenue earned from all other access holders is also allocated based on length of the rail infrastructure.

The key difference between these two options reflects that under option 2 only 48 percent of the rail infrastructure is included in the calculation of the maximum revenue limit.

It is noted that the rate of return applied in this review, which uses financial market rates prevailing at the time of the review, as required under the Code, reduces the margin between actual revenues earned and the maximum revenue limit under option 2. To illustrate, if the risk free rate and long-term inflation expectation figures were taken as at the commencement of the period in question (July 2013), the maximum revenue limit under option 2 is likely to be more than $90 million in excess of revenues earned. Further, if the risk free rate and long-term inflation expectation figures were taken as at June 2018 (the end of the period in question), the maximum threshold under option 2 is likely to exceed actual revenues earned by more than $60 million.

- **Question for stakeholders:** Do stakeholders have any comments or views on the Commission's overall methodology for assessing whether revenues earned have been excessive? Please provide evidence to support your position.

[72] Data may not sum due to rounding.

5 Draft finding and next steps

In accordance with Clause 50 of the Code, the Commission undertook a revenue review for the period from 1 July 2013 to 30 June 2018. Its draft finding is that, based on the DORC asset value adopted in this review, the relevant below-rail revenues have not been excessive.

The review compared revenues earned for relevant below-rail services with estimates of the maximum revenue limit (calculated under two alternative cost allocation methodologies).

The relevant below-rail revenues were identified as those earned from the transport of mineral ores, as this freight does not appear to be subject to sustainable competitive prices. Accordingly, the revenues earned from these below-rail services were included in the five-year review period from 1 July 2013 to 30 June 2018. Those revenues were approximately $106.2 million (in December 2014 dollars).

The revenues earned are below the two different estimated maximum revenue limits. The results are highly sensitive to the asset value, the cost allocation approach adopted and the rate of return applied to the asset value. There are a range of options for allocating costs in the calculation of the maximum revenue limit; this draft finding presents two cost allocation methodologies but does not seek to identify a preferred methodology.

Noting that any approach for the Tarcoola to Darwin rail route must be consistent with the Code, the Commission sees value in exploring asset value methodologies for use in future revenue reviews. The topic of asset valuation methodologies is considered most appropriately dealt with through a separate discussion paper process, rather than in the test of excessive revenues. The exploration of the asset valuation topic will take the form of a public discussion paper, expected to be published sometime in 2022-23. A consultative process will allow for comments and stakeholder input on the issue.

5.1 Next steps

The Commission seeks stakeholder views on this draft finding on the revenues earned for the period 1 July 2013 to 30 June 2018 by 26 November 2021. Questions for stakeholders have been included throughout the report.

The Commission invites written submissions on this draft report by 26 November 2021. The inside cover of this report explains how to make a submission. The Commission would be pleased to meet with stakeholders, either individually or with representative organisations, to discuss the draft finding.

If you or your organisation wish to meet with Commission staff, please use the contact details on the inside cover of this draft report. The Commission aims to publish its final finding on the revenue review in February 2022.

Appendix A: Clause 50 of the Code

50—Review of Code

(1) The Northern Territory Minister and South Australian Minister jointly may, at any time, review the operation of this Code but, in any case, must do so—

(a) firstly, not later than 30 June in the 3rd year of operations of the railway; and

(b) secondly, not later than 12 months before the expiration of the period for which the Commonwealth Minister has specified under section 44N of the Trade Practices Act 1974 of the Commonwealth that the access regime, of which this Code is a part, is to remain in force.

(2) To enable the Ministers to perform their function under subClause (1), the regulator must prepare such reports to the Ministers as the Ministers may require. —

(3) The Ministers must, in relation to a review under subClause (1)(a) or (b)—

(a)

(i) by notice published in a newspaper circulating generally in Australia, invite interested persons to make submissions in relation to the review within a period stated in the notice; and

(ii) give consideration to any submissions made in response to an invitation under subparagraph (i); and

(b) —

(i) in the case of the Northern Territory Minister—cause a report on the outcome of the review to be laid before the Legislative Assembly of the Northern Territory within 12 sitting days after the completion of the review; and

(ii) in the case of the South Australian Minister—cause a report on the outcome of the review to be laid before both Houses of the South Australian Parliament within 12 sitting days after the completion of the review.

(4) The regulator must, at the intervals referred to in subClause (10), review the revenues paid or payable by access holders to the access provider for railway infrastructure services where no sustainable competitive prices exist (relevant revenues), being revenues derived under either:

(a) awards by arbitrators to the extent the awards involve the application of section 2 of the pricing principles; or

(b) access contracts to the extent that the regulator considers sustainable competitive prices did not or do not exist in relation to the transportation of the freight the subject of those access contracts,

and determine whether the relevant revenues paid or payable by such access holders (the relevant access holders) for those railway infrastructure services are excessive having regard to the factors referred to in subClause (5).

(5) In determining whether the relevant revenues are excessive the regulator must have regard to the following:

(a) the relevant revenues are to be measured against the costs associated with the required railway infrastructure required by the relevant access holders including an appropriate commercial return on the required railway infrastructure used by the relevant access holders in the circumstances referred to in subClause (4) (the relevant required railway infrastructure);

(b) the investment in all of the railway infrastructure facilities by the access provider or any other person and all of the revenues earned by the access provider from the provision of railway infrastructure services including, if the access provider, a related body corporate or an associate has conducted transportation services on the railway, revenues at market rates in relation to those services;

(c) an appropriate commercial return on the relevant required railway infrastructure, determined having regard to—

(i) the appropriate risk premium associated with the construction, development and operation of the railway infrastructure facilities, based on both of the following:

(A) the expected risks prevailing as at the date of commencement of construction of the railway by the access provider; and

(B) in respect of any expansion or extension of the railway after the date of commencement of construction of the railway by the access provider—the expected risks prevailing as at the date of the commencement of construction of that expansion or extension; and

(ii) the relevant financial market rates (including the risk free rate for return on investments and the rate of inflation) prevailing at the time of the regulator's review;

(d) when comparing the relevant revenues to the costs under paragraph (a), the regulator must subtract from those costs an amount determined by the regulator to be the aggregate of—

(i) the avoidable costs attributable to the usage of the relevant required railway infrastructure by all other access holders (being avoidable costs of the kind referred to in section 3 of the pricing principles); and

(ii) a reasonable contribution to fixed costs of the relevant required railway infrastructure (R) from all other access holders using that required railway infrastructure, where R has the same meaning as in section 2(2)(c) of the pricing principles.

(6) The costs to be applied under subClause (5) must be efficient.

(7) For the purposes of determining expected risks under subClause (5)(c)(i), the regulator must have regard to information provided by the access provider with respect to the contents of any financing plan of the access provider.

(8) If the regulator determines that revenues are excessive under subClause (4)—

(a) the regulator must promptly give the access provider written notice of the regulator's determination, including the reasons for his or her determination;

(b) within 2 months of receiving the regulator's determination under paragraph (a), the access provider must prepare and submit to the regulator for approval a plan under which the access provider will reduce future relevant revenues so that such revenues are not excessive (having regard to the matters referred to in subClause (5)), when measured over the next regulatory review period (the remedial plan);

(c) the regulator will consider the remedial plan submitted to it with a view to reaching agreement with the access provider on the terms which are acceptable to the regulator for the remedial plan;

(d) if the regulator and the access provider agree on the terms of a remedial plan, the access provider must implement that plan;

(e) if the regulator and the access provider are unable to reach agreement on a remedial plan that is acceptable to the regulator within 1 month of receiving the remedial plan, the regulator must make a determination under subClause (9) and the access provider must observe the terms of that determination.

(9) If subClause (8)(e) applies, the regulator will make a determination to regulate prices, and/or to establish conditions relating to prices or price fixing factors in relation to the future provision of railway infrastructure services in any manner the regulator considers appropriate, including—

(a) fixing a price or the rate of increase or decrease in a price;

(b) fixing a maximum price or rate of increase or decrease in a maximum price;

(c) fixing an average price for specified railway infrastructure services or an average rate of increase or decrease in an average price;

(d) specifying pricing policies or principles;

(e) fixing a maximum revenue in relation to railway infrastructure services,

provided the effect of the determination is limited to reducing revenues of the type referred to in paragraphs (a) and (b) of subClause (4) derived from railway infrastructure services so that the total of such revenues so derived do not result in excessive revenues (having regard to the matters referred to in subClause (5)), when measured over the next regulatory review period.

(10) The regulator's reviews under subClause (4) are to be conducted in relation to the following periods:

(a) the first review must be in respect of the period ending on 30 June in the 10th year of operations of the railway;

(b) the second review must be in respect of the 5 year period commencing immediately after the end of the period of the first review; and

(c) the third and subsequent reviews must be in respect of successive 5 year periods.

Appendix B: Intermodal freight services

Schedule (1)(2)(b) of the Code outlines eleven factors to be considered in any assessment of whether alternative modes of transport provide an effective constraint should have regard to. The table below reproduces HoustonKemp's assessment for intermodal freight in relation to each of the eleven criteria.[73]

Table B1. HoustonKemp's assessment of intermodal (containerised) freight services, reproduced from Table 5.4

The criteria from Schedule (1)(2)(b) of the Code	HoustonKemp's assessment
(i) The number and size of operators in the market	*The number and size of operators in the heavy vehicle sector supports our conclusion that intermodal freight is subject to competition from road freight services. The heavy vehicle sector has a large number of operators across Australia. Our analysis …. shows there have been significant interstate road freight movements along the Tarcoola-Darwin freight corridor, which could have potentially used the Tarcoola-Darwin railway. This indicates that road is a viable alternative and heavy vehicle services are available along the corridor.* *There is only one above rail operator operating along the Darwin-Tarcoola railway. We understand from our discussions with stakeholders that other above rail operators have expressed an interest in operating on this line, but none have entered the market. It is unclear why another above rail operator has not entered the market. However, this could be because of the relatively small rail freight volumes along the corridor makes it financially less attractive for another above rail operator to enter into the market.*
(ii) The type and volume of freight involved and any unequal backhaul loadings	*We do not expect the volume of freight and any unequal backloading to have a material effect on competition between road and rail along the Tarcoola-Darwin freight corridor. Our analysis … indicates that rail and road both have significant market share of the freight task along the corridor – in 2018-19 road's market share was 62 per cent compared with 38 per cent for rail). Furthermore, unequal backhaul loading appears to exist for both transport modes:* *for road freight services, our analysis of ABS data … suggests that there is unequal backhaul loadings between the Northern Territory and its two main interstate destinations, Adelaide and Sydney; and* *for rail freight services, our discussions with stakeholders indicate that there is also unequal backhaul loading for rail freight using the Tarcoola-Darwin railway, with more freight northbound than there is southbound.*
(iii) Whether there are any regulatory, technical or other practical barriers to entry	*The Commission concluded in its 2015 review that there are minimal barriers to entry for road freight. Our analysis … shows that road freight has gained market share between 2014-2019, which supports the notion that the barriers to entry to the road freight sector are not significant.*
(iv) The extent of product differentiation in the market, including the differences in the ancillary services and convenience offered by different modes of transport	*We expect that road freight services would have a competitive advantage over rail freight services from a product differentiation perspective. Transportation via the road network allows for faster door-to-door time and schedule flexibility. As such, rail generally needs to offer lower door to door costs for it to be competitive with road. Furthermore, the investment required to have heavy vehicles as an ancillary service is significantly lower than rail. As such, using heavy vehicles as an ancillary service will be viable for more businesses compared to rail.*

[73] HoustonKemp, pp. 22-23.

The criteria from Schedule (1)(2)(b) of the Code	HoustonKemp's assessment
(v) The dynamic characteristics of the market including any fluctuations in demand for transportation services	*The changes in market share provides evidence of road rail competition along the corridor. The intermodal freight on the Tarcoola-Darwin railway generally involves the transport of containerised freight between Northern Territory and other capital cities. Our analysis shows that the majority of the interstate containerised freight between Darwin and other southern capital cities is undertaken by road, and rail has been losing market share between 2014 to 2019.*
(vi) The costs and service characteristics of transporting freight by different modes of transport	*Our analysis above suggests that road freight services constraints (sic) the below rail service provider's ability to increase access charges. The below rail access provider's ability to increase access charges is further limited by road freight service's (sic) ability to offer faster door-to-door time and schedule flexibility. It follows that rail freight services will likely need to offer lower door-to-door costs to be competitive with road freight services.*
(vii) Contractual terms (such as duration and frequency of service, whether for a specific volume or at call)	*The Commission found in its 2015 review that the inter-modal transport market is generally at call. This allows inter-modal freight forwarders to switch transport modes at short notices. We are unaware of any changes that could change the Commission's findings in its 2015 review.*
(viii) Congestion and bottleneck inefficiencies caused by constraining points on the road, railway or other relevant infrastructure	*The Commission considered in its 2015 review that neither mode had a significant advantage over the other in this area. We have not identified any evidence that would change the Commission's findings in its 2015 review.*
(ix) The safety requirements the different modes of transport are required to meet	*Rail is generally considered to be a safer mode than heavy vehicles. The Commission's 2015 review concluded that safety requirements were unlikely to have a material influence on mode choice between road and rail. We are unaware of any changes that could change the Commission's 2015 findings and we do not expect that this would have a material influence on mode choice between road and rail.*
(x) The direct and indirect costs of environmental impacts of the different modes of transport	*Rail is generally considered to be more environmentally friendly than heavy vehicles. The Commission's 2015 review concluded that this was unlikely to have a material influence on mode choice between road and rail. We are unaware of any changes that could change the Commission's 2015 findings and we do not expect that this would have a material influence on mode choice between road and rail.*
(xi) Other factors considered to be relevant	*We did not identify any other factors we consider to be relevant.*

Appendix C: Contributions to fixed costs

As outlined earlier in chapters 2 and 4, Clause 50(5)(d) of the Code requires that a reasonable contribution to fixed costs be allocated across all access holders. This review calculates the contribution to fixed costs in accordance with that method. It is noted that in the 2015 review of revenues this type of approach was not used.

The method is based on:

1. a reasonable contribution to fixed costs is to be allocated across access holders, and
2. that in calculating the contribution to fixed costs from freight where no sustainable competitive price exists, the maximum contribution from all other access holders be calculated as the revenue earned by all other access holders *less* the avoidable costs attributable to them.[74]

A simple example illustrates item 2 above. For example, say an access provider earns $125 million for below-rail services where a sustainable competitive price does exist (that is, that is the amount earned from all other access holders). Further, say the avoidable costs of access from all other access holders are $15 million (which reflects the incremental cost of usage such as the labour and capital costs that vary directly with usage). Then when calculating the maximum contribution to fixed costs from all other access holders (known as R in the Code), that contribution cannot exceed $110 million (calculated as $125 million minus $15 million).

The concept of R avoids the situation in which all other access holders would contribute an amount to fixed costs that were not earned from these below-rail services over the period in question.

Under this simple example, the $110 million contribution is the maximum amount of fixed costs that can be attributed to all other access holders. Therefore, if total efficient fixed costs for all access holders were calculated to be $300 million for the period in question, then the contribution to fixed costs for below-rail services where no sustainable competitive price exists must be $190 million (calculated as $300 million minus $110 million).

[74] Schedule (2)(2)(c) of the Code.

Appendix D: Tables and further calculations

The calculation of operating costs under options 1 and option 2[75]

Steps for calculating operating costs under cost allocation option 1.

1. Convert One Rail Australia (North)'s nominal operating costs into real terms.

Table D1. Operating costs

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Nominal costs ($m)	16.1	15.9	15.4	14.0	14.4	76.0
Costs in December 2014 dollars ($m)	16.4	15.9	15.2	13.6	13.7	74.9

2. Multiply the real operating cost figures by the estimated percentage share of usage where no sustainable competitive prices exist. For example, for 2013-14, 42 percent is multiplied by $16.4 million and gives approximately $6.8 million.

Table D2. Estimated share of usage and operating costs

	2013-14	2014-15	2015-16	2016-17	2017-18
No sustainable competitive prices share of freight (%)	42	33	18	17	40
Operating costs for freight where no sustainable competitive prices exist ($m) – weighted by share of usage	6.8	5.2	2.7	2.4	5.5

Steps for calculating operating costs under cost allocation option 2.

1. As above, convert One Rail Australia (North)'s nominal operating costs into real terms.

Table D3. Operating costs

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Nominal costs ($ million)	16.1	15.9	15.4	14.0	14.4	76.0
Costs in December 2014 dollars ($ million)	16.4	15.9	15.2	13.6	13.7	74.9

2. Calculate the relevant distance of the rail infrastructure. For example, the distance from Wirrida to Tarcoola is approximately 130 kilometres, and the distance from Tennant Creek to Darwin is approximately 950 kilometres. This is a total of 1,078 kilometres, approximately 48 percent of the total Tarcoola to Darwin rail line.

3. Calculate the share of usage in GTK terms *only* for the relevant (48 percent) of the rail line infrastructure.

    a. Calculate the annual amount of volume transported between Tennant Creek and Darwin, and between Tarcoola and Tennant Creek, for both freight with no sustainable competition

[75] Numbers might not add due to rounding. When presented in dollars, the figures are in December 2014 dollars.

and total freight. This is informed by KGTK volume information provided by One Rail Australia (North). The difference between the volumes for total freight and freight where no sustainable competitive price exists gives the volume transported for all other access holders.

b. Calculate the average gross weight for the rail line segment between Tarcoola and Tennant Creek. This is calculated by dividing the KGTK volume measure by the distance between Tennant Creek and Tarcoola (ie approximately 1,292 kilometres).

c. Apply the average gross weight for the line segment between Tarcoola and Tennant Creek to the distance between Wirrida and Tarcoola (ie approximately 130 kilometres). This gives an estimated volume measure (in KGTK terms) for the rail line segment between Wirrida and Tarcoola.

d. Combine the transport volumes for the line segments (Tennant Creek to Darwin and Wirrida to Tarcoola), and calculate the estimated share of freight where no sustainable competitive prices exist on these rail line segments.

Table D4. Usage by rail line segment[76]

	Identifier / calculation	2013-14	2014-15	2015-16	2016-17	2017-18
Step (a)						
Tennant Creek to Darwin, KGTK, no sustainable competitive prices	E	1964064	1526895	758185	423299	1148751
Tennant Creek to Darwin, KGTK, total freight	F	3719293	3325033	2510933	2059921	2637268
Tennant Creek to Darwin, KGTK, all other access holders	G = F - E	1755229	1798138	1752748	1636622	1488517
Tarcoola to Tennant Creek, KGTK, no sustainable competitive prices	H	1230687	724604	188290	438308	941771
Tarcoola to Tennant Creek, KGTK, total freight	I	3953001	3510816	2880379	2922363	2592081
Tarcoola to Tennant Creek, KGTK, all other access holders	J = I - H	2722314	2786212	2692089	2484055	1650310
Step (b)						
Tennant Creek to Darwin, average gross weight, no sustainable competitive prices	K = H/1291.7	953	561	146	339	729

[76] Numbers might not necessarily total due to rounding.

	Identifier / calculation	2013-14	2014-15	2015-16	2016-17	2017-18
Tennant Creek to Darwin, average gross weight, total freight	L = I/1291.7	3060	2718	2230	2263	2007
Tennant Creek to Darwin, average gross weight, all other access holders	M = J/1291.7	2108	2157	2084	1923	1278
Step (c)						
Wirrida to Tarcoola, KGTK, no sustainable competitive prices	N = 130.15 x K	124007	73013	18973	44165	94895
Wirrida to Tarcoola, KGTK, total freight	O = 130.15 x L	398315	353759	290234	294465	261185
Wirrida to Tarcoola, KGTK, all other access holders	P = 130.15 x M	274307	280746	271262	250300	166290
Step (d)						
No sustainable competitive prices share of freight for relevant lines (%)	= (E+N) / (F+O)	51	43	28	20	43

4. Multiply the operating cost figures by the distance of the relevant rail lines (48 percent) and by the percentage share of usage by freight where no sustainable competitive prices exist for the relevant lines. For example, for 2013-14, 48 percent multiplied by $16.4 million multiplied by 51 percent gives $4.0 million.

Table D5. Share of usage and operating costs

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Line section share - constant (%)	48	48	48	48	48	
No sustainable competitive prices share of freight (%)	51	43	28	20	43	
Operating costs for freight where no sustainable competitive prices exist ($m) – weighted by share of usage	4.0	3.3	2.0	1.3	2.8	13.5

The calculation of returns on and of *new* assets under options 1 and 2

Steps for calculating depreciation of new assets and a return on new assets under cost allocation option 1.

1. Estimate the unweighted total figure of the depreciation of new assets and return on new assets, as outlined in the tables above.

Table D6. Return on new assets and depreciation of new assets – unweighted

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Return – new assets ($m)	0.7	0.9	1.2	1.4	1.6	5.8
Depreciation – new assets ($m)	0.7	0.9	1.2	1.3	1.5	5.7

2. Multiple these figures by the percentage share of usage by freight where no sustainable competitive prices exist. For example, for 2013-14, 42 percent is multiplied by $0.7 million and gives approximately $0.3 million.

Table D7. Return on new assets and depreciation of new assets –adjusted according to share of usage

	2013-14	2014-15	2015-16	2016-17	2017-18
No sustainable competitive prices share of freight (%)	42	33	18	17	40
Return – new assets ($m)	0.3	0.3	0.2	0.2	0.6
Depreciation – new assets ($m)	0.3	0.3	0.2	0.2	0.6

Steps for calculating depreciation of new assets and a return on new assets under cost allocation option 2.

1. Estimate the unweighted total figure of the depreciation of new assets and return on new assets, as outlined in the tables above.

Table D8. Return on new assets and depreciation of new assets – unweighted

	2013-14	2014-15	2015-16	2016-17	2017-18	Total
Return – new assets ($m)	0.7	0.9	1.2	1.4	1.6	5.8
Depreciation – new assets ($m)	0.7	0.9	1.2	1.3	1.5	5.7

2. Multiply these figures by the distance of the relevant rail line segments (48 percent) and the percentage share of usage by freight where no sustainable competitive prices exist on these relevant rail lines. For example, for 2013-14, a return of $0.7 million is multiplied by 48 percent and 51 percent gives approximately $0.2 million.

Table D9. Return on new assets and depreciation of new assets –adjusted according to distance and share of usage for rail line segment

	2013-14	2014-15	2015-16	2016-17	2017-18
Line section share - constant (%)	48	48	48	48	48
GTK – non – sustainable % of relevant line	51	43	28	20	43
Return on new assets ($m)	0.2	0.2	0.2	0.1	0.3
Depreciation – new assets ($)	0.2	0.2	0.2	0.1	0.3

Asset roll-forward from 2003-2004 to 2017-2018

Table D10. Asset roll-forward from 2003-2004 to 2017-2018 (December 2014 dollars)

	First review period										Current review period				
	2003-04	*2004-05*	*2005-06*	*2006-07*	*2007-08*	*2008-09*	*2009-10*	*2010-11*	*2011-12*	*2012-13*	*2013-14*	*2014-15*	*2015-16*	*2016-17*	*2017-18*
Opening asset value	2301.4	2280.3	2234.3	2190.1	2146.7	2105.2	2060.4	2015.0	1972.0	1932.1	1889.6	1854.3	1817.5	1780.9	1743.1
Capital expenditure	0.0	0.0	1.8	2.7	4.7	1.5	0.9	3.3	6.6	4.1	11.5	10.1	10.6	9.6	7.3
Disposals	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Indexation	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Depreciation	21.1	46.0	46.1	46.1	46.2	46.2	46.3	46.3	46.5	46.5	46.8	47.0	47.2	47.4	47.5
Closing asset value	2280.3	2234.3	2190.1	2146.7	2105.2	2060.4	2015.0	1972.0	1932.1	1889.6	1854.3	1817.5	1780.9	1743.1	1702.9

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