

Independent Pricing and Regulatory Tribunal
New South Wales

NSW Rail Access Undertaking – Review of the rate of return and remaining mine life

From 1 July 2019

Draft Report
Rail Access

April 2019

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Invitation for submissions

IPART invites written comment on this document and encourages all interested parties to provide submissions addressing the matters discussed.

Submissions are due by 28 May 2018

We would prefer to receive them electronically via our online submission form <www.ipart.nsw.gov.au/Home/Consumer_Information/Lodge_a_submission>.

You can also send comments by mail to:

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1 Executive summary

The NSW Rail Access Undertaking (the Undertaking) provides for third party access to the rail network in NSW. The Undertaking currently covers all or part of four rail networks across NSW including the Country Rail Network (CRN), the Sydney Metropolitan Freight Network (MFN), ARTC's non-Hunter Valley Coal Network sectors (non-HVCN) and the five sectors (21km) of the Hunter Valley Coal Network (HVCN) owned by RailCorp.¹

The Undertaking requires IPART to review the rate of return that applies to all networks covered by the Undertaking, and remaining mine life of the relevant mines that use the RailCorp HVCN every five years.² The rate of return is applied to the regulatory asset base (RAB) of the rail network to yield a return for the five years commencing 1 July 2019. The remaining mine life determines the rate of depreciation charged over the same period. It applies only to the five sectors of the HVCN covered by the Undertaking. IPART last reviewed the rate of return and remaining mine life in 2014. Depreciation is to be calculated on a straight-line basis using the remaining life of the Hunter Valley coal mines that utilise the relevant rail network sectors, as a proxy for the remaining useful life of the rail network.

This Draft Report sets out our reasoning and draft decisions on the rate of return for all networks, and remaining mine life as it applies to the RailCorp HVCN sectors.

1.1 Overview of our draft decisions and draft recommendations

Draft Decisions

- 1 That the rate of return that should apply from 1 July 2019 is 5.8% per annum on a real, post-tax basis.
- 2 That the remaining mine life from 1 July 2019 used to determinate depreciation should be 21 years, resulting in a terminal date of 2040.

Draft Recommendation

- 1 That the NSW Government should ask IPART to undertake a review of the NSW Rail Access Undertaking.

Our draft decision on the rate of return is made in accordance with our standard approach to calculating the weighted average cost of capital (WACC) for regulated businesses. This aims to provide regulatory certainty and a buffer against short-term fluctuations in the market. The WACC takes into account recent evidence on industry-specific parameters, which results in an equity beta of 1.0 and benchmark gearing level of 45%.

¹ A number of sectors that were previously covered by the Undertaking have been transferred to the national regulatory regime, under access undertakings with the ACCC. For example, of the 37 sectors (646km) of the Hunter Valley Coal Network, only 5 sectors (21 km) remain subject to the NSW regime.

² NSW Rail Access Undertaking, Schedule 3.

Our draft decision on the remaining mine life provides an estimate of the useful life of the RailCorp HVCN sectors. These sectors are used to transport coal for a range of purposes, however, the one likely to have the most longevity is supplying the fuel needs of the Eraring and Vales Point power stations, while they, and the Hunter Valley coal mines that supply them, continue to operate. While it is likely the power stations would continue to operate up to 2032 (Origin Energy (owner of the Eraring power station) has previously announced it will exit coal fired generation by 2032)³, their future beyond this date would depend on a number of variables, including electricity pricing trends and government policy. Upon closure of the power stations, it is unlikely that RailCorp could recover its depreciation expenses from the remaining coal traffic on the line, leading to potential asset stranding.

We consider that bringing forward the terminal date to 2040 would reduce the risk of stranding RailCorp’s assets, while mitigating price impacts for access seekers, which may reduce demand for the use of the rail line.

Since the Undertaking came into effect, there have been significant changes to the ownership, scope and complexity of the networks under the regime and we consider it is no longer meeting the stakeholder needs. We recommend that the NSW Government asks IPART to undertake an independent review of the Undertaking.

1.2 Our review process

In November 2018, we released a Fact Sheet and invited stakeholders to subscribe to updates on our review. We have consulted the Australia Rail Track Corporation (ARTC), Transport for NSW (TfNSW), Origin Energy (owner of Eraring power station) and Delta Electricity (owner of Vales Point power station). We now invite all stakeholders to make written submissions in response to this Draft Report by 28 May 2019. We will then conduct further consultation and analysis before finalising our Final Report in July 2019. An indicative timetable for the remainder of our review is in Table 1.1 below.

Table 1.1 Indicative timetable for review

Milestone	Date
Release Draft Report	29 April 2019
Submissions close on Draft Report	28 May 2019
Release Final Report	July 2019

³ See <https://www.originenergy.com.au/blog/big-picture/commitment-renewables-gets-big-boost.html>, accessed 22 April 2019.

1.3 How this Draft Report is structured

The remainder of our Draft Report explains our analysis and draft decisions on the rate of return and remaining mine life.

- ▼ Chapter 2 discusses the context and scope for our review
- ▼ Chapter 3 discusses our analysis and draft decision on the rate of return
- ▼ Chapter 4 discusses our analysis and draft decision on the remaining mine life of the relevant Hunter Valley mines utilising the rail sectors.

2 Context and scope for our review

Under Schedule 6AA of the *Transport Administration Act 1988*, the NSW Rail Access Undertaking (the Undertaking) provides for third party access to the rail network in NSW, including specifying certain pricing principles that rail owners must apply in negotiating access prices.

The Undertaking requires IPART to assess the annual compliance of rail owners with these provisions, and also review, every five years, the rate of return and depreciation that rail owners must apply when setting maximum prices.

This chapter discusses IPART's role under the Undertaking, the network covered by our review and our previous decisions. It also discusses our reasons for recommending an independent review of the NSW rail access regime.

2.1 IPART's role in determining rate of return and depreciation

Schedule 3 of the Undertaking sets out the pricing principles that the rail infrastructure owners must apply in negotiating access prices. Each year, IPART assesses compliance of the owners against specific requirements of Schedule 3 including:

- ▼ The Asset Valuation Roll Forward Principles (AVRFP)
- ▼ The ceiling test, having regard to the operation of an Unders and Overs Account.

By 31 October each year, the rail infrastructure owner submits to IPART documents demonstrating its compliance with these two elements for the financial year.

Every five years, we review the rate of return and depreciation to be applied when rolling forward the asset base and calculating whether access revenue has exceeded the ceiling test.

Schedule 3, clause 3.2(c)(i) and (ii) of the Undertaking state that:

- (i) depreciation is to be calculated at the beginning of each financial year using a straight-line methodology and the estimate of the remaining useful life of the assets
- (ii) the useful life of a Sector or group of Sectors is to be determined by reference to the remaining mine life of the Hunter Valley coal mines utilising that Sector or those Sectors.

Schedule 3, clause 2.1 states that the:

Rate of return means a rate of return in percentage terms approved by IPART for a period of five years to be applied to the average of the Opening and Closing Regulatory Asset Base.

The rate of return applies to each of the networks covered by the Undertaking, while the remaining mine life applies only to the five sectors of the HVCN covered by the Undertaking.

2.2 Rail network covered by this review

The Undertaking currently covers all or part of four rail networks across NSW including the Country Rail Network (CRN), the Sydney Metropolitan Freight Network (MFN), ARTC's non-Hunter Valley Coal Network sectors (non-HVCN) and the five sectors (21km) of the Hunter Valley Coal Network (HVCN) owned by RailCorp.

The Undertaking splits rail networks into the Hunter Valley Coal Network (HVCN) and other networks (non-HVCN). The HVCN is subject to greater monitoring as it is more likely, given the volumes of coal traffic, to potentially over-recover costs.

The HVCN comprises 37 track sectors of which 32 are leased to the ARTC for 60 years from 5 September 2004.⁴ The ARTC has a separate undertaking with the Australian Competition and Consumer Commission (ACCC) (Hunter Valley Access Undertaking 2011 (HVAU))⁵ and these sectors are regulated under the national regime.

RailCorp owns the remaining five sectors of 21 route kilometres running between Newstan and Woodville Junction. They are used by passenger trains as well as coal and other freight trains.

RailCorp's HVCN sectors are listed in Table 2.1 below.

Table 2.1 RailCorp Hunter Valley Coal Network list of sectors

Sector	Name	Route kilometres
405	Newstan Jct to Cockle Creek	7.18
406	Cockle Creek to Sulphide Jct	3.15
490	Sulphide Jct to Adamstown	8.05
407	Adamstown to Broadmeadow (via Main)	1.60
497	Broadmeadow to Woodville Jct	0.85

Source: NSW Rail Access Undertaking.

Our draft decision on the rate of return applies to each of the networks covered by the Undertaking. However, the remaining mine life applies only to the five sectors of the HVCN covered by the Undertaking.

⁴ <https://www.artc.com.au/projects/hv-strategy/>, accessed 16 April 2019.

⁵ <https://www.accc.gov.au/regulated-infrastructure/rail/artc-hunter-valley-access-undertaking>, accessed 16 April 2019.

2.3 Our previous decisions on the rate of return and remaining mine life

We set the initial estimate of the remaining mine life for all 37 sectors of the HVCN at 40 years from 1 July 1999, giving a terminal date of 2039. This was based on:

- ▼ The estimated rail infrastructure asset life, which was 39.4 years⁶
- ▼ A balance between the views of stakeholders, which ranged from 30 to 50 years.⁷

In subsequent reviews, we identified the mines using the track, and determined the amount of coal available and the amount likely to be extracted each year, depending on infrastructure capacity and market conditions.

At our 2014 review, the ARTC sectors no longer fell under the Undertaking, which reduced the number of Hunter Valley coal mines under consideration. Further, the two mines located on the remaining section of track, Newstan and Teralba, were no longer operational and so were not using the line to export coal from Newcastle. However, we determined that while the two power stations south of the line – Eraring and Vales Point – remained operational, there would be potential demand for coal from Hunter Valley mines, as long as the mines could supply it.⁸ We found that the median terminal date of the subset of longest-lived substantial mines was 2044.⁹ We engaged Frontier Economics to advise on the likely economic lives of the power stations, given various energy scenarios. Frontier considered that 2044 was a reasonable estimate of the economic lives.¹⁰ As such, IPART extended the remaining mine life by five years from the initial terminal date of 2039 to 2044.¹¹ Table 2.2 shows IPART's previous decisions on the rate of return and remaining mine life since the initial Undertaking in 1999.

At the 2014 review, IPART also moved from a pre-tax to a post-tax WACC, following an IPART wide change in WACC methodology.

Table 2.2 Previous IPART decisions

Decision	Remaining mine life	Rate of return
Initial Undertaking (1999)	40 years (to 2039)	real pre-tax WACC 8.0%
2004	35 years (to 2039)	real pre-tax WACC 7.3%
2009	30 years (to 2039)	real pre-tax WACC 8.0%
2014	30 years (to 2044)	real post-tax WACC 5.9%

Source: IPART, *Aspects of the NSW Rail Access Regime, Final Report*, April 1999; IPART, *Report on the determination of remaining mine life and rate of return from 1 July 2004*, May 2005; IPART, *NSW Rail access undertaking – review of the rate of return and remaining mine life from 1 July 2009, Final report and decision*, August 2009; IPART, *NSW Rail access undertaking – review of the rate of return and remaining mine life from 1 July 2014, Final report and decision*, July 2014.

⁶ IPART, *Aspects of the NSW Rail Access Regime – Final Report*, April 1999, p 44.

⁷ *Ibid*, p 45.

⁸ IPART, *NSW Rail Access Undertaking – Review of the rate of return and remaining mine life – Final Report*, July 2014, p 2.

⁹ *Ibid*, p 27.

¹⁰ *Ibid*, pp 31-32.

¹¹ *Ibid*, p 2.

2.4 Reviewing the NSW rail access regime

The current NSW Rail Access Undertaking was drafted in 1999. Since this time there have been changes in the ownership, scope and complexity of the networks covered by the regime. Regulatory practice has also evolved significantly. In addition, we have identified the following concerns with the way the regime is operating:

- ▼ **Compliance/enforcement of the regime is inadequate.** For some networks, access charges have exceeded the full economic cost of providing access for several years. Currently the onus is on the access seeker to pursue legal recourse. This has not proved to be an effective means of protecting access seekers from being overcharged.
- ▼ **The relationship between the NSW and federal regimes requires review.** Currently rail operators can choose which regime to be regulated under (the NSW regime or the Commonwealth regime administered by the ACCC). This leaves access seekers potentially dealing with multiple regimes. It also allows operators to select regulatory outcomes in order to maximise returns.
- ▼ **The current regime is not meeting the needs of access seekers.** There appears to be increasing dissatisfaction with the current regime. In June 2018, a group of access seekers obtained authorisation from the ACCC to collectively negotiate non-price terms of access with RailCorp as individual negotiations had failed.

As such, we consider that it would be timely for IPART to undertake an independent review of the NSW Rail Access Undertaking. An independent review would ensure that access charges reflect the full economic cost of providing access (but not more), simplify the relationship between the NSW and national access regimes and better meet the needs of access seekers.

3 Determining the rate of return

We aim to provide the operator of the rail network with an estimated rate of return equivalent to that required by the market to invest in those assets.

Since the 2014 review, we have used a real post-tax WACC to estimate the required rate of return, and a standard method for determining most market-based parameters. We conduct our own analysis to determine industry-based parameters such as equity beta and gearing.

This chapter outlines our draft decision and explains how we have applied our standard method to calculate the WACC. It explains our analysis on the appropriate equity beta and gearing to apply to the networks under the Undertaking.

3.1 Draft decision on the rate of return

Draft Decision

- 3 That the rate of return that should apply from 1 July 2019 is 5.8% per annum on a real, post-tax basis.

This is the mid-point of the upper and lower bounds of the range calculated using long-term averages and current market data. Table 3.1 shows the parameters used in our WACC draft decision.

Table 3.1 Draft decision on WACC

Step 1 – Current and long-term estimates	Step 2 – WACC range			
	Current market data	Long-term averages	Lower	Mid-point Upper
Nominal risk-free rate	2.7%	3.6%		
Inflation	2.4%	2.4%		
Implied debt margin	2.3%	2.7%		
Market risk premium	8.6%	6.0%		
Debt funding	45%	45%		
Equity funding	55%	55%		
Total funding (D + E)	100%	100%		
Gamma	0.25	0.25		
Corporate tax rate	30%	30%		
Effective tax rate equity	30%	30%		
Effective tax rate debt	30%	30%		
Equity beta	1.00	1.00		

Cost of equity (nominal post-tax)	11.3%	9.6%			
Cost of equity (real post-tax)	8.7%	7.0%			
Cost of debt (nominal pre-tax)	5.0%	6.3%			
Cost of debt (real pre-tax)	2.5%	3.8%			
Nominal Vanilla (Post-tax nominal) WACC	8.5%	8.1%	8.1%	8.3%	8.5%
Post-tax real WACC	5.9%	5.6%	5.6%	5.8%	5.9%
Pre-tax nominal WACC	10.3%	9.6%	9.6%	10.0%	10.3%
Pre-tax real WACC point estimate	7.7%	7.1%	7.1%	7.4%	7.7%

Source: Bloomberg; IPART analysis.

This is 10 basis points lower than the rate of return that applied from 1 July 2014 of 5.9% per annum on a real, post-tax basis.

3.2 Our approach to estimating the WACC parameters

Consistent with the requirements of the Undertaking, we have estimated a single rate of return, which would apply to the average of the opening and closing RAB for the five year period from 1 July 2019.

We estimated the industry parameters - equity beta and gearing - using a proxy company analysis. For our draft decision, we used the market parameters from our February 2019 bi-annual update (sampled to 31 January 2019), calculated for a five year regulatory period. For our final decision, we propose to use the following sampling dates to determine our current market parameters:

- ▼ For the current year, the sampling period ending 31 May 2019.
- ▼ For other years, the sampling period ending 31 May.

For more information about our standard WACC method, see our [2018 WACC method](#) on our website.

3.2.1 Our draft decision is to use an equity beta of 1.0 and gearing of 45%

The systematic risk of an asset is measured by its 'beta' factor. The beta reflects the extent to which future returns are expected to co-vary with the overall market. Gearing represents the amount of debt capital in a firm's capital structure. Where the business risk of a firm is high, it is expected that the firm will carry less debt and vice versa.

To estimate the equity beta and gearing for the rail networks covered by the Undertaking, we:

- ▼ Compiled a list of comparable transport infrastructure companies using publicly available information from the Thomson Reuters Datastream
- ▼ De-levered each company's equity beta to generate an asset beta, and re-levered the asset beta using the benchmark company's gearing ratio and corporate tax rate
- ▼ Calculated the median, re-levered equity beta and gearing level for the sample

- ▼ Compared the result to equity betas for other industries, and those determined by other regulators.

Our process for the first three steps is explained in more detail in **Appendix A**. Table 3.2 shows the results of our comparator company analysis.

Table 3.2 Summary of beta estimation results

Name	Listed Exchange	Levered beta	Unlevered asset beta	Relevered beta	Gearing
Genesee & Wyoming 'A'	US	1.5	1.1	1.7	36
Norfolk Southern	US	1.4	0.9	1.4	42
Canadian National Railway	US	1.0	0.8	1.2	31
PKP Cargo	Poland	1.0	0.7	1.2	34
CSX	US	1.3	0.7	1.1	54
Kansas City Southern	US	0.9	0.6	1.0	34
Canadian Pacific Railway	US	1.1	0.6	0.9	57
Union Pacific	US	1.0	0.6	0.9	52
Getlink	France	1.2	0.5	0.8	68
Aurizon Holdings	Australia	0.6	0.4	0.6	44
		Median	0.66	1.0	43

Source: Thomson Reuters Datastream and IPART analysis.

The equity beta is within the range for our reference industries

In 2014, we found that the equity betas of our reference industries ranged from 0.73 for mostly regulated water utilities to 1.12 for US and Canadian Class 1 railroads, which are more diversified and face greater competition from road transport and other railroads.¹²

While RailCorp's HVCN does not compete with road transport, other networks under the Undertaking, such as the Country Rail Network (CRN) and Metropolitan Freight Network (MFN) transport freight other than coal that competes with road and would face greater exposure to market risk.

We consider that taking into account the systematic risk of all rail networks that fall under the Undertaking, the equity beta would be similar to that of the US Class 1 railroads, rather than other regulated utilities.

¹² IPART, *NSW Rail Access Undertaking – Review of the rate of return and remaining mine life*, July 2014, p 17.

Our estimated equity beta is similar to what we have previously found in the electricity generation sector

The systematic risk faced by RailCorp's HVCN sector alone would be closely aligned with that of the electricity generation sector, given the relationship between the HVCN mines and the Eraring and Vales Point power stations.

In 2013, we found that the electricity generation sector had an equity beta of 0.95 to 1.15, with gearing of 40%, which is broadly in line with our findings (see Table 3.3).

Table 3.3 Comparison of gearing and midpoint equity betas for other industries

Business	Gearing	Equity beta (midpoint)	Asset beta (midpoint)
Electricity retail	0.20	1.00	0.87
Coal mining	0.24	0.99	0.84
Gas production/processing and LNG	0.25	0.95	0.80
Electricity generation	0.40	1.05	0.76
Gas transmission	0.52	0.90	0.58
Rail, bus, light rail ^b	0.60	0.90	n/a
Water industry ^a	0.60	0.70	n/a

a Includes Central Coast Council, Essential Energy, Hunter Water Corporation, Sydney Desalination Plant, Sydney Water, Water Administration Ministerial Corporation and WaterNSW.

b Rail, bus (metro and outer metro) and light rail.

Source: IPART, *Review of regulated retail prices and charges for electricity – Final Report*, June 2013, p 173; IPART, WACC *Biannual update*, February 2019.

As such, we consider an equity beta of 1.0 to be a reasonable estimate of the systematic risk faced by the RailCorp HVCN alone.

An equity beta of 1.0 is consistent with other regulator's findings

In recent years, other regulators have made similar assessments of the gearing and systematic risk faced by comparable rail businesses (see Table 3.4).

Table 3.4 Equity beta and gearing estimates for comparable rail entities

Organisation	Regulator	Gearing	Equity beta	Asset beta
ARTC Interstate Undertaking (2017 – withdrawn)	ACCC	50%	1.2	0.6
ARTC HVAU (2017)	ACCC	52.5%	0.94	0.45
Queensland Rail (2016)	QCA	55%	0.8	0.45
Arc Infrastructure (2017)	ERA	25%	0.9	0.7
Aurizon (2017)	QCA	55%	0.73	0.42
Public Transport Authority (2017)	ERA	50%	0.6	0.3

Source: ERA, *Determination on the 2017 Weighted Average Cost of Capital for the Freight and Urban Railway Networks, and or Pilbara railways, 2017*; ACCC, *Australian Rail Track Corporation's 2018 Interstate Access Undertaking*, December 2018; QCA, *Aurizon Network's 2017 draft access undertaking*, December 2018; QCA, *Queensland Rail's Draft Access Undertaking*, June 2016.

In its analysis for Aurizon (2017) and Queensland Rail (2016), the Queensland Competition Authority (QCA) relied largely on regulated energy and water companies as its key comparators to determine equity beta and gearing. Under our standard WACC method, our definition of the benchmark entity is 'a firm operating in a competitive market and facing similar risks to the regulated business'. So the rail networks under the Undertaking would be likely to have a higher equity beta than that determined by the QCA for Aurizon and Queensland Rail, and more similar to ARTC's HVCN.

4 Determining the remaining mine life

The Undertaking requires us to determine the useful life of a sector by reference to the remaining life of Hunter Valley coal mines using that sector. It is used as a proxy to calculate depreciation to determine compliance with the ceiling test and roll forward the RAB. The Undertaking requires depreciation to be levied on a straight-line basis.

This chapter sets out our draft decision on the remaining mine life, and explains how we reached our decision and implications for maximum prices. It discusses the current and potential coal traffic flows on the RailCorp HVCN sectors, the longest-lived substantial mines using the sectors, their reserves and output, and what this means for the terminal date.

4.1 Draft decision on remaining mine life

Draft Decision

- 4 That the remaining mine life from 1 July 2019 should be 21 years, resulting in a terminal date of 2040.

This brings the current terminal date of 2044 forward by four years, which would result in an increase in maximum prices of around 4.4% per annum. We consider that this is an appropriate balance between reducing the risk of asset stranding for the owner and mitigating customer price impacts.

4.2 Our approach to determining the remaining mine life

Our approach takes into account a number of relevant factors, including:

1. Current and potential uses of the line to transport coal¹³
2. The economic lives of the Eraring and Vales Point power stations
3. BlueScope Steel's likely demand for Hunter Valley coal
4. The outlook for other coal users of the line
5. The longest-lived substantial mines (LLSM) using the line, their marketable reserves and production levels.

We considered how the risks of asset stranding have changed since our 2014 review, and the relative price impacts of a change to the terminal date.

¹³ At our 2014 review, we considered that the relevant mines need not necessarily be located along the sector, but may include any mine with the production capacity to supply the power stations, whether it was currently supplying, or could potentially supply, the power station in the foreseeable future. See IPART, *NSW Rail Access Undertaking – Review of the rate of return and remaining mine life - Final Report*, July 2014, p 25.

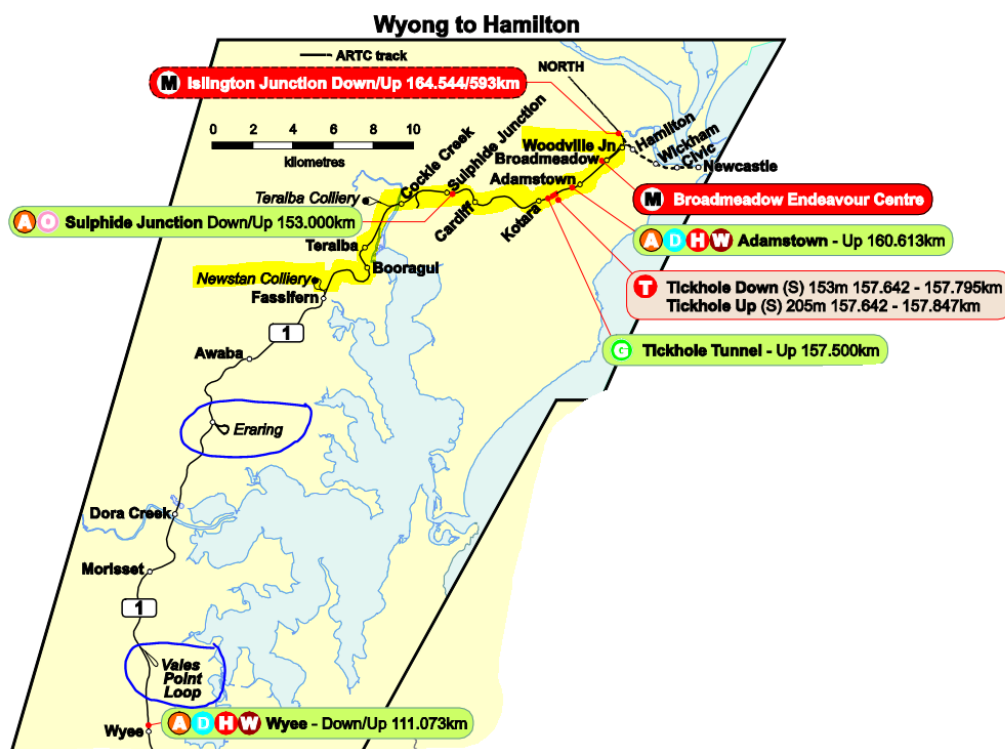
4.2.1 The line is used to transport coal from the Hunter Valley to the Eraring and Vales Point power stations, to BlueScope Steel and Port Kembla, as well as from south and western mines to export at Newcastle

The section of line in question runs south of Newcastle, from Woodville Junction to Newstan. Hunter Valley mines do not use the line to export coal at Newcastle, but they do use the line to transport coal to supply the two power stations at Eraring and Vales Point.

There are no operational mines located along the track as Newstan Colliery and Teralba Colliery have officially been closed since 2014 and 2001 respectively.¹⁴

Figure 4.1 shows a map of the line segment, including the location of the power stations, Newcastle and Newstan and Teralba mines.

Figure 4.1 RailCorp’s Hunter Valley Coal Network section of line



Data source: RailCorp, *TOC Operating Conditions Manual version 9.0*, April 2017, p 35.

Historically, BlueScope Steel at Port Kembla has purchased small amounts of coking and thermal coal from Hunter Valley mines.¹⁵ However, BlueScope currently sources all its coking coal from the Illawarra region.¹⁶

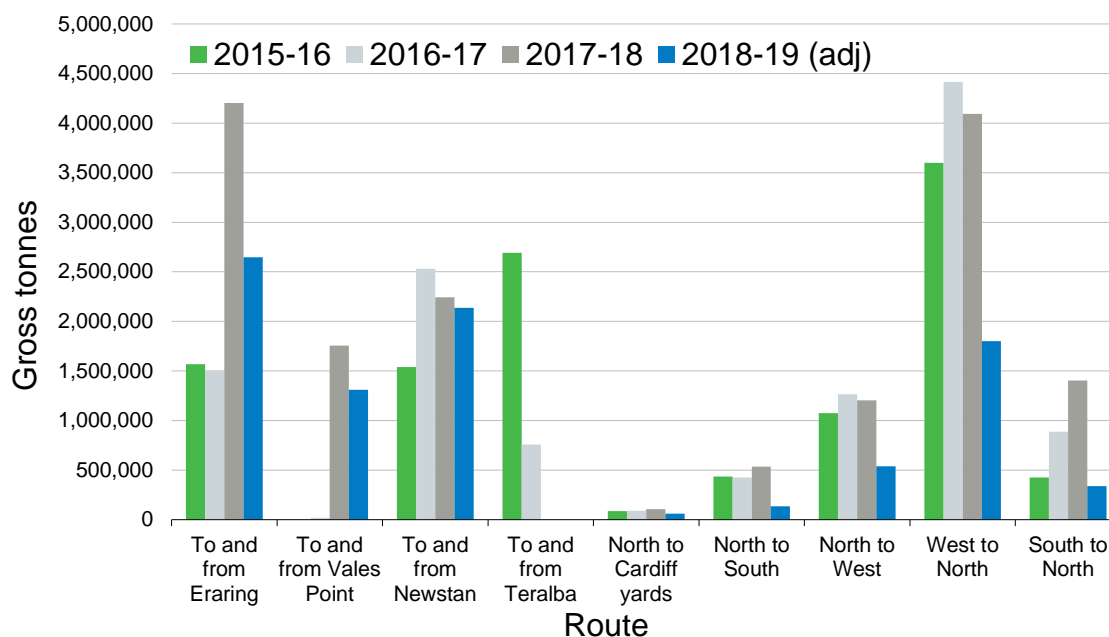
¹⁴ Centennial Coal states that there was no annual production for Newstan in 2017 and none planned for 2018 – see Centennial Coal, *Newstan Colliery Annual Review*, March 2018, p 9. However, Centennial Coal's website states that Newstan has recommenced operations in an area of the mine that provides a platform for a proposed future extension to its existing operations – see <https://www.centennialcoal.com.au/Operations/OperationsList/Newstan>, accessed 16 April 2019.

¹⁵ ACCC, *Statement of Issues – South32 – proposed acquisition of Metropolitan*, February 2017, p 5.

¹⁶ Ibid.

Some mines in the south-west transport coal along the main line and on to RailCorp’s network to the port at Newcastle. There is also a small amount of coal-related traffic that goes to and from Cardiff rail yards in the north-west.¹⁷ Figure 4.2 shows the annual coal traffic on the line over the last four years.

Figure 4.2 Coal traffic on RailCorp’s HVCN since 2015-16 (gross tonnes per annum)



a TfNSW advises that these figures include some coal traffic whose ultimate destination is Eraring, because the network configuration means that traffic heading into Eraring will often have to use the Newstan crossings.

Note: Data for 2018-19 has been extrapolated to give a full year forecast.

Data source: TfNSW.

In 2017-18 and 2018-19, the amount of coal traffic to Eraring and Vales Point increased, while the proportion of coal traffic from the southern and western mines to Newcastle decreased. Other coal traffic has remained mostly stable, in smaller volumes.

4.2.2 There is uncertainty about the future of coal-fired power stations beyond 2032

We consulted Delta Electricity about the economic outlook for Vales Point power station. Delta Electricity stated that the expected life of Vales Point was 2029, but this would depend on trends in electricity pricing and government policy.¹⁸ Origin has previously announced that it will exit coal fired generation by 2032.¹⁹

¹⁷ Based on the gross tonne weight per train, this does not appear to be coal traffic, but may be coal wagons being serviced at the Cardiff yards.

¹⁸ IPART consultation with Delta Electricity.

¹⁹ See <https://www.originenergy.com.au/blog/big-picture/commitment-renewables-gets-big-boost.html>, accessed 22 April 2019.

Since our 2014 review, a number of other coal-fired power stations have publicly announced their intention to close. In 2015 and 2017, AGL announced its intention to close the Liddell Power Station in 2022.²⁰ In November 2014, EnergyAustralia announced it would permanently close the newly acquired Wallerawang power station due to ongoing reduced energy demand, lack of access to competitively priced coal and the power station's high operating costs.²¹ Wallerawang power station has subsequently closed.

IBISWorld reports note the following regarding the fossil fuel generation industry:

The rising cost efficiency of renewable forms of energy, staunch environmental opposition to new coal mines and regulatory changes regarding carbon emissions are all significant impediments to the industry's growth. Investment in new fossil fuel generation plants has waned over the past five years due to regulatory uncertainty, while most new generation investment has been directed to wind and solar plants. Furthermore, energy usage per capita has fallen over the past decade due to increased energy efficiency of appliances, the uptake of photovoltaic solar panels and other measures, which have reduced long-term demand for fossil fuel generated power.²²

Origin intends to be out of coal by 2032

Origin has recently increased its output, but has announced that it will exit coal fired generation by 2032.²³ Origin currently uses more than 6 mtpa of coal, up from the 4 mtpa in 2014, reflecting higher production levels to support energy requirements, because of the closure of other power stations.²⁴

Origin currently has a number of short and medium-term contract arrangements with various mines for the supply of coal. Since 2014, it upgraded its rail to 30 tonne axle load and upgraded wagon trains to 120 tonnes and now purchases around 2 mtpa of coal from a number of Hunter Valley coal mines, including those in the lower, and upper Hunter Valley (Zones 1 and 2), as well as domestic coal from mines in the south-west region.²⁵ Origin noted that the future stated closure of Liddell power station could free up further rail capacity and thermal coal supply in the Upper Hunter, although coal from this zone has a range of logistical issues in supplying Eraring.

The continuation of the power station would therefore depend on the availability of a buyer and market conditions at the time, including emissions reduction and clean energy policies, as well as the status of the potential SA-NSW transmission interconnector²⁶, which may affect demand for local generation.

Delta Electricity's effective economic life for Vales Point is 2029

Delta Electricity uses a consistent volume of 3 mtpa of coal, of which two thirds is contracted locally from mines that do not use the RailCorp HVCN. Delta Electricity has contracts with

²⁰ See <https://www.agl.com.au/about-agl/how-we-source-energy/agl-macquarie>, accessed 10 April 2019.

²¹ See <https://www.energyaustralia.com.au/about-us/energy-generation/wallerawang-power-station-closure>, accessed 10 April 2019.

²² IBISWorld, Industry market research, Fossil fuel electricity generation, accessed April 2019.

²³ See <https://www.originenergy.com.au/blog/big-picture/commitment-renewables-gets-big-boost.html>, accessed 22 April 2019.

²⁴ IPART consultation with Origin Energy.

²⁵ Ibid.

²⁶ See <https://infrastructurepipeline.org/project/sa-to-nsw-high-capacity-interconnector/>, accessed 22 April 2019.

various Hunter Valley mines to supply 1.3 mtpa of coal per annum up to 2022, and often purchases ‘small bites’ of coal (around 500 kt at a time) on the spot market when the price is favourable. Delta Electricity stated that at the end of this contract, it could source up to 50% of its coal either locally or from the Hunter Valley. This could come from a number of mines, including Bengalla, Bulga, Mangoola, Airly and Wallarah 2.²⁷

Delta Electricity’s effective economic life for the Vales Point power station is 2029, but it is currently investing in capital expenditure on an annual basis for 2029 and potentially beyond.²⁸

BlueScope Steel has historically purchased coal from the Hunter Valley, but its demand is likely to decline

BlueScope operates the Port Kembla Steelworks in the Illawarra region of NSW. It uses both coking coal and thermal coal in its operations. Historically, BlueScope has sourced small amounts of both coking coal and thermal coal from the Hunter Valley.²⁹ There is a good supply of coking coal in the Illawarra region, and BlueScope has a long-term contract with South32 to supply coking coal until 2032.

In 2018, BlueScope signed a 7 year solar power purchasing contract to underpin a 500,000 panel solar farm in the Riverina district to reduce its rising energy costs. This would supply around 20% of BlueScope’s Port Kembla electricity needs.³⁰ This would be likely to reduce BlueScope’s potential future demand for Hunter Valley thermal coal.

IBISWorld reports the steel manufacturing industry to be in decline. It has benefited recently from decrease in Chinese steel capacity, higher global steel prices and government tax concessions. However, it faces risks in higher energy prices, raw material prices, exchange rate fluctuations and competition from other suppliers and materials in future.³¹

South-west mines export coal at Newcastle, but this unlikely to be long-term

Currently, there are a few mines in the south-west, such as Clarence and Springvale that use the line to transport coal to Newcastle. We consider that this is because:

- ▼ Global coal prices have improved since 2015-16 with tighter production regulations in China, which may make it economic for these mines
- ▼ Recent industrial action at Port Kembla,³² which may have reduced productivity at the port
- ▼ Price differences between Port Kembla and Newcastle, which are both privately owned.

²⁷ IPART consultation with Delta Electricity.

²⁸ Ibid.

²⁹ ACCC, *Statement of Issues – South32 – proposed acquisition of Metropolitan*, February 2017, p 5.

³⁰ BlueScope Steel, *BlueScope underwrites investment in 500,000 panel solar farm*, Media release, July 2018.

³¹ IBISWorld, *Industry market research – Iron smelting and steel manufacturing*, accessed April 2019.

³² Australian Financial Review, *‘No joy’: BlueScope steelworkers to strike at Port Kembla over pay*, January 2019; Illawarra Mercury, *Port Kembla Coal Terminal workers to strike after lockout ends*, January 2019; Illawarra Mercury, *Port Kembla Coal Terminal workers on strike until Monday*, February 2019; The Australian, *Port Kembla Coal Terminal industrial dispute: union claim win in bitter dispute*, April 2019.

However, this is unlikely to be sustained in the longer-term. These are smaller mines, with lower levels of production and comparatively shorter mine lives. They are likely to be highly price sensitive and, in the absence of other users on the line, RailCorp would be unlikely to recover its depreciation costs from these users alone.

4.2.3 The longest-lived substantial mines (LLSM) have an economic life until at least 2044

In our 2014 review, we determined remaining mine life by:

- ▼ Identifying mines whose annual production was **substantial** enough to supply the power stations (ie, their annual production was above a minimum threshold)
- ▼ Determining the **longest-lived** mines by dividing marketable coal reserves by annual production levels.

In this review, we have added a further step to consider the impact of regulatory uncertainty particularly around investment in fossil fuel, and increased energy efficiency and cost efficiency of renewable energy forms to determine an appropriate balance between reducing the risk of asset stranding and moderating customer price impacts.

For this review, we used a minimum threshold of 3 mtpa, which is what Delta Electricity advised us that Vales Point uses each year. This is slightly lower than our 2014 threshold of 4 mtpa. However, it does not make much difference to our sample of mines because most mines produce either a substantial amount of coal, or very small amounts.

We have used current (or most recent) annual production levels as a proxy for expected production levels, or the stated life of the mine. In our 2014 review, we obtained this information from the NSW Coal industry Profile 2013. However, this publication is no longer available. We have relied on various sources, including individual mining websites and annual reports, and submissions to the ACCC in relation to ARTC's access undertakings.

We have not included prospective or non-substantial mines

We have not included prospective mines where we do not have information about their reserves, production levels and commencement dates. Should new mines commence operations or extensions to existing mines be granted, we would consider them at our next review.

As such, we have not included Wallarah 2. While Wallarah 2 received approval in January 2018, its start date is uncertain. Once it commences operations, it is expected to produce around 5 mtpa for 28 years. Likewise, we have not included Watermark, which is still prospective and likely to produce around 3.3 mtpa.

Table 4.1 shows the list of relevant mines and their remaining life.

Table 4.1 Longest-lived substantial mines (LLSMs) in the HVCN

Name	Marketable coal reserves at 30 June 2018 (Mt)	Production 2018 (Mt)	Marketable reserves / production 2018 (Mt)	Estimated remaining mine life at 30 June 2019 (years)	Implied terminal date
Wambo UG and OC	257	5.4	47.4	46	2065
Maules Creek	440	9.7	45.5	45	2064
Hunter Valley Operations OC	554	12.8	43.3	42	2061
Narrabri	222	5.8	38.0	37	2056
Wilpinjong OC	148	5.0	29.6	29	2048
Bengalla OC	187	8.9	21.1	20	2039
Mount Thorley / Warkworth OC	225	12.0	18.8	18	2037
Mt Arthur OC	328	19.0	17.3	16	2035
Boggabri	119	7.1	16.7	16	2035
Ravensworth Narama & North	148	9.5	15.6	15	2034
Ulan UG and West	140	11.5	12.2	11	2030
Bulga OC	90	8.1	11.1	10	2029
Moolarben OC	148	17.6	8.4	7	2026
Mangoola	84	10.6	8.0	7	2026
Mt Owen	51	8.6	5.9	5	2024

Note 1: OC = open cut. UG = underground.

Note 2: Production for 2018 may include a combination of forecast and actuals, based on company reports.

Source: See Appendix B. IPART calculations.

The longest-lived mine is the Wambo open cut and underground complex, with a terminal date of 2065. Maules Creek and Hunter Valley Operations also have longer expected lives, due to increased estimates of marketable reserves since our 2014 review, and lower than expected production at Maules Creek. Along with Narrabri, the terminal dates for these mines are later than the next LLSMs, which are mostly clustered around terminal dates in the 2030s.

It appears likely that, even with increased output due to high coal prices since 2016, a number of mines could continue to supply coal up to and beyond the current terminal date of 2044. However, we consider that the more relevant factor for determining the depreciation rate for RailCorp's HVCN is how long the power stations would continue to have demand for coal.

Western coal mines are not substantial and long-lived

The mines in the west that transport coal north via the HVCN include Clarence, Airly and Springvale. Airly is the longest-lived mine in this group. It was placed on 'care and maintenance' in 2012, but re-opened in 2014 and currently transports a small amount of coal

annually - less than 0.9 mtpa. Springvale and Clarence have higher levels of annual production, but shorter lives. None of these mines would use the RailCorp line to transport coal to the power stations as they are located south of the power stations (see Table 4.2).

Table 4.2 Reserves and production of western mines

Name	Marketable coal reserves (Mt) at 30 June 2018	Production (Mt)	Reserves / production (Mt)a	Implied end year	Remaining mine life at 30 June 2019 (years)
Clarence	38	2.5	15	2033	14
Airly	31	0.9	34	2052	33
Springvale	26	4.4	6	2024	5

Source: Source: See Appendix B. IPART calculations.

We consider that the longest-lived use of the line would be to transport coal from the Hunter Valley south to the power stations.

4.2.4 Changing the terminal date would have implications for prices

We have concluded that while a number of mines could continue to supply coal to the power stations up to and beyond the current terminal date of 2044, this is likely to be limited by the economic life of the power stations.

If power stations close before 2044, it is unlikely that the line would be able to recover its full economic costs. Even if there were smaller mines using the line to transport coal to Newcastle, or BlueScope in Port Kembla, the necessary increase in prices to cover return on capital would probably make it uneconomic for those users to continue to use the line.

There may be more certainty when we next undertake this review in 2024. At that stage, we can adjust the remaining mine life and depreciation schedule to reflect the longer or shorter remaining life. However, if we wait until our next review, in 2024, when there may (or may not) be more certainty about the future of coal-fired generation, we would create substantial price shocks for access seekers if we reduce our terminal date.

Alternatively, reducing the remaining mine life now spreads the price increase over a longer period. If we find at the next review that the power stations are likely to continue beyond the terminal date then we can adjust the depreciation schedule at that time.

In making our draft decision, given the above uncertainty we have reviewed the price impacts of different options and selected one that provides an appropriate balance between ensuring that our decision does not create stranded assets for RailCorp or unnecessary price impacts for access seekers.

We have reviewed a number of different scenarios (Table 4.3) and calculated the impact on RailCorp's ceiling prices.

Table 4.3 Different options for terminal dates

Scenario	Description
Base case	Maintain the current terminal date of 2044
Option 1	Bring forward the terminal date to 2032, Origin's announced exit from coal fired generation
Option 2	Bring forward the terminal date to 2036
Option 3	Bring forward the terminal date to 2040
Option 4	In 2024, bring forward the terminal date to 2032
Option 5	In 2024, bring forward the terminal date to 2036
Option 6	In 2024, bring forward the terminal date to 2040

We have used RailCorp's operating costs from their most recent, published compliance assessment and adjusted the depreciation component, assuming all other costs remain constant.³³

The results are shown in Table 4.4.

Table 4.4 Impact of a change of terminal date on ceiling prices

	Review date	Terminal date	Depreciation rate	Total depreciation (\$2014-15pa)	Increase in allowed revenue %
Base case	2014	2044	3.3%		
Option 1	2019	2032	7.7%	1,201,112	13.5%
Option 2	2019	2036	5.9%	918,497	7.9%
Option 3	2019	2040	4.8%	743,546	4.4%
Option 4	2024	2032	12.5%	1,951,807	28.3%
Option 5	2024	2036	8.3%	1,301,205	15.4%
Option 6	2024	2040	6.3%	975,904	9.0%

Source: IPART, Compliance with the NSW Rail Access Undertaking 2014-15 – Information Paper, 2017; IPART calculations.

Bringing forward the terminal date now would result in an increase in RailCorp's allowed revenue of 4.4 to 13.5%. However, waiting until 2024 could result in a much larger increase of 9.0 to 28.3%, because of the shorter time period until termination to recover costs.

These calculations represent the maximum ceiling revenue that RailCorp could recover. According to its most recent compliance statement, RailCorp is recovering more than its full economic costs (ceiling revenue) on the line and has an over recovery balance in its unders and overs account. Railcorp is required to manage this account so that its balance should not exceed +/-5% of forecast access revenue. This over recovery amount could be used to offset the impact of the reduction in the terminal date for current access seekers.

On balance, given the price impacts, we consider that bringing forward the terminal date to 2040 would provide an appropriate balance between reducing the risk of stranding the line and moderating price impacts for access seekers. However, we welcome stakeholder views on this draft decision.

³³ On 16 April 2019, TfNSW submitted overdue compliance statements for 2015-16 to 2017-18 financial years.



Appendices

A Proxy company selection and beta estimation

The industry of the benchmark efficient firm is a proxy for the risk profile of that firm. That is, all firms within a common industry group face the same or similar business risks. To determine a list of proxy firms, we searched for firms in the Thomson Reuters Datastream that:

- ▼ Operate in the nominated industry (in this case, 'Industrial transportation - Railroads')
- ▼ Undertake their activities in markets that are sufficiently similar to Australia.

We then considered whether the firm's sovereign government bond and equity markets were sufficiently deep and liquid. This excluded some firms operating in China, Russia and some African companies.

We further excluded:

- ▼ Firms that are no longer trading
- ▼ Thinly traded stocks, as these could produce distorted estimates due to stale price data
- ▼ Firms that don't earn revenue predominantly in the nominated industry (most of our comparators are diversified and have several business segments, which span different activities in transport logistics and services).

Our list of proxy firms consists of 10, mainly US and Canadian firms which own and operate railway infrastructure as their primary business activity (see Table A.1).

The modelled beta estimate (levered beta) incorporates financial leverage which can affect a company's performance. Higher levels of debt tend to increase the volatility of a firm's stock price and therefore influence its beta. This variability reflects financing decisions rather than any fundamental difference in operational risk. For this reason, the estimate is unlevered to generate an asset beta which reflects a capital structure with no debt. This asset beta is then relevered using the benchmark firms gearing ratio and corporate tax rate.

Table A.1 shows a median relevered equity beta estimate of 1.0 for the final sample of proxy firms. This is based on a target gearing ratio of 45%.

Table A.1 Summary of beta estimation results

Name	Listed Exchange	Levered beta	Unlevered asset beta	Relevered beta	Gearing
Genesee & Wyoming 'A'	US	1.5	1.1	1.7	36
Norfolk Southern	US	1.4	0.9	1.4	42
Canadian National Railway	US	1.0	0.8	1.2	31
PKP Cargo	Poland	1.0	0.7	1.2	34
CSX	US	1.3	0.7	1.1	54
Kansas City Southern	US	0.9	0.6	1.0	34
Canadian Pacific Railway	US	1.1	0.6	0.9	57
Union Pacific	US	1.0	0.6	0.9	52
Getlink	France	1.2	0.5	0.8	68
Aurizon Holdings	Australia	0.6	0.4	0.6	44
		Median	0.66	1.0	43

Source: Thomson Reuters Datastream and IPART analysis.

B Mine reserves and production sources

Table B.1 Mine data sources

Mine name	Majority shareholder	Reserve source	Production source
Hunter Valley Operations OC	Yancoal/Glencore	Yancoal, <i>Global offering Volume 1</i> , November 2018, p 8.	Yancoal, <i>Global offering Volume 1</i> , November 2018, p 8.
Maules Creek	Whitehaven	Whitehaven Coal, <i>Annual Report 2018</i> , p 55.	Whitehaven Coal, <i>Annual Report 2018</i> , p 33.
Narrabri	Whitehaven	Whitehaven Coal, <i>Annual Report 2018</i> , p 55.	Whitehaven Coal, <i>Annual Report 2018</i> , p 33.
Ravensworth Narama & North	Glencore	Glencore, <i>Resources and Reserves as at 31 December 2018</i> , p 48.	Glencore, <i>Ravensworth Open Cut Annual Review 2017</i> , December 2017, p 32.
Bulga OC / Blakefield South UG	Glencore	Glencore, <i>Resources and Reserves as at 31 December 2018</i> , p 48.	Glencore, <i>Bulga Coal 2018 Annual Review</i> , March 2019, p 16.
Mount Thorley / Warkworth OC	New Hope	Yancoal, <i>Global offering Volume 1</i> , November 2018, p 8.	Yancoal, <i>Global offering Volume 1</i> , November 2018, p 8.
Bengalla OC	New Hope Group	New Hope Group, <i>Annual Report 2018</i> , p 14.	Hansen Bailey, <i>Bengalla Annual Review 2017</i> , p 16.
Mt Arthur OC	BHP	BHP, <i>Annual report 2018</i> , p 268.	BHP, <i>Mt Arthur Coal Annual Environmental Management Review FY18</i> , p 13.
Moolarben OC	Moolarben Coal	Yancoal, <i>Global offering Volume 1</i> , November 2018, p 8.	Yancoal, <i>Global offering Volume 1</i> , November 2018, p 8.
Wambo UG and OC	Peabody Energy	Peabody, <i>Wambo Coal Mining Operations Plan 2018 - 2020</i> , December 2017, p 5.	Peabody, <i>Wambo Coal Pty Limited 2017 Annual Review</i> , March 2018, p 11.
Boggabri	Idemitsu	Castalia Strategic Advisors, <i>Mine Life Analysis Data and Methodology</i> , August 2016, p 7.	Idemitsu, <i>Boggabri Coal Mine 2017 Annual Review</i> , March 2018, p 19.
Ulan UG	Glencore	Glencore, <i>Resources and Reserves as at 31 December 2018</i> , p 48.	Glencore, <i>Ulan Complex Annual Review 2017</i> , June 2018, p 19.

Mine name	Majority shareholder	Reserve source	Production source
Wilpinjong OC	Peabody Energy	Peabody, <i>Wilpinjong Coal Project Open Cut Operations Mining Operations Plan 2017 – 2019</i> , June 2017, p 21.	Peabody, <i>2017 Annual Review Wilpinjong Coal Mine</i> , December 2017, p 10.
Mt Owen	Glencore	Glencore, <i>Resources and Reserves as at 31 December 2018</i> , p 48.	Glencore, <i>Mt Owen Complex Annual Review 2018</i> , March 2019, p 28.
Mangoola	Glencore	Glencore, <i>Resources and Reserves as at 31 December 2018</i> , p 48.	Glencore, <i>Mangoola Open Cut Annual Review</i> , March 2019, p 12.
Newstan	Centennial	Centennial Coal, <i>Statement of Resources and Reserves as at 31 December 2015</i> , p 1.	Centennial Coal, <i>Newstan Colliery Annual Review</i> , March 2018, p 9.
Clarence	Centennial	Centennial Coal, <i>Statement of Resources and Reserves as at 31 December 2015</i> , p 1.	Centennial Coal, <i>Clarence Colliery Annual Review</i> , March 2018, p 22.
Airly	Centennial	Centennial Coal, <i>Statement of Resources and Reserves as at 31 December 2015</i> , p 1.	Centennial Coal, <i>Airly Colliery Annual Review 2017</i> , May 2018, p 19.
Springvale	Centennial	Centennial Coal, <i>Statement of Resources and Reserves as at 31 December 2015</i> , p 1.	Centennial Coal, <i>Springvale Colliery Annual Review 2017</i> , March 2018, p 25.
Wallarah 2	Kores	n/a	http://www.wallarah.com.au/project-description
Watermark	Shenhua Watermark	n/a	http://www.shenhuawatermark.com/shaus/1382705825865/The_Project.shtml