IPART Independent Pricing and Regulatory Tribunal | NSW

NSW rail access undertaking – review of the rate of return and remaining mine life 2024-2029

Final Report

September 2024

Transport »

Acknowledgment of Country

IPART acknowledges the Traditional Custodians of the lands where we work and live. We pay respect to Elders both past and present.

We recognise the unique cultural and spiritual relationship and celebrate the contributions of First Nations peoples.

Tribunal Members

The Tribunal members for this review are:

Carmel Donnelly PSM, Chair
Jonathan Coppel
Sharon Henrick
Dr Darryl Biggar

Enquiries regarding this document should be directed to a staff member:

Mike Smart	(02) 9113 7728
Gerard O'Dea	(02) 9290 8495

The Independent Pricing and Regulatory Tribunal

IPART's independence is underpinned by an Act of Parliament. Further information on IPART can be obtained from IPART's website.

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1 Executive Summary

The NSW Rail Access Undertaking (the Undertaking) provides for third party access to the rail networks in NSW. It includes 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.

Also, every five years, IPART must review the rate of return and depreciation that rail owners must apply when setting maximum prices. This report presents our final assessments on these matters reflecting stakeholder feedback.

The current methods for determining mine life and rate of return have been part of the Undertaking since its inception in 1999. Since that time, it has become apparent that a different approach to estimating the mine life might better promote efficient outcomes.[1] In May 2023, IPART concluded a Review of the Undertaking and made a number of recommendations pertinent to the depreciation estimate, among other issues.

In April 2024 the Government released a consultation paper on Freight Policy reform. This covered both road and rail. It included rail access and refers to our Final report on the NSW access undertaking[i]. As the current NSW Rail Access Undertaking requires a review of mine life and rate of return every 5 years (with last the review completed in 2019) we have undertaken this review under the existing methodology.

1.1 Rate of Return

To estimate the rate of return, we have used IPART's standard WACC model, but not applied the trailing average to the cost of debt. That choice is consistent with past precedent for these 5-yearly reviews.

Also consistent with past practice, we have applied an equity beta of 1.0 and a target gearing of 45%.[ii] We have examined more recent market evidence on beta for related industries, which is broadly consistent with these settings. We note that our work in 2020[2] following on from our last review of the WACC method established a high threshold for a change to the beta estimate. This high threshold has not been met for this review.

This WACC calculation leads to our final decision that the rate of return for the period 2025-2029 will be 4.9% post-tax real. It is 10 basis points lower than the 5.0% rate of return in our draft report earlier this year because of changes in market observations between April and July.

This figure is lower than the 2019 rate of return of 5.3% post-tax real.[iii]

[1] For example, the depreciation rate can only be revisited once every 5 years, but the likely economic life of some coal railway lines is now quite short and estimates of that life are frequently revised.

[2] Estimating Equity Beta for the Weighted Average Cost of Capital (see final decision 5)

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1.2 Mine Life

The NSW Rail Undertaking's pricing principles state that for Hunter Valley coal access prices, the depreciation component of the full economic cost should be estimated on a straight-line basis.[iv] The remaining Regulatory Asset Base is to decrease to a value of zero at the end of the economic life of the relevant line sectors. The economic life is to be determined by IPART having regard to the life of the Hunter Valley coal mines utilising the sectors.

The Hunter Valley Coal Network consists of 37 sections of track, the majority of which are operated by ARTC, while a smaller number is operated by TAHE. Figure 5.1 shows the full HVCN. The 32 sections to the northwest of Newcastle are leased to ARTC. These sections are regulated by the ACCC.

Under the NSW Rail Undertaking IPART is required to estimate the remaining mine life of the coal mines that use the 5 sections of track called the TAHE Hunter Valley Coal Network (TAHE HVCN), which extends from Woodville Junction to Newstan Junction (south of Newcastle). This is shown in green highlight in Figure 5.1 and in more detail in Figure 5.2.

At present, and for the foreseeable future, the only Hunter Valley coal traversing the TAHE HVCN is coal transported southward to the power stations at Eraring and Vales Point. It has recently been announced that both of these power stations are expected to close at some point before 2033.[v&vi] In Eraring's case, we understand it is contractually required to close before April 2029.[vii]

We have taken the view that the economic life of the TAHE HVCN will come to an end when both of these power stations close. This view is consistent with the wording of the Undertaking. Once the power stations have closed, there will be no Hunter Valley coal mine that utilises these sectors.

While acknowledging that there remains some uncertainty about Eraring's operation post August 2027, and more uncertainty about the closing date for Vales Point, we have come to the final decision that the economic life of the TAHE HVCN will come to an end on 30 June 2029.

1.3 Impacts on stakeholders

Our 2019 review of mine life established a terminal date of 2040. The terminal date of 30 June 2029 represents a mine life that is 11 years shorter. This change will lead to an access revenue ceiling that is higher because the depreciation charge will increase by 220%.[3] The depreciation component of the Full Economic Cost was approximately 9% in FY23.[4] The shorter mine life will lead to a ceiling that is higher than the present ceiling by approximately 20%.[5]

[3] 2040 is 16 years from now. 2029 is 5 years from now. The depreciation charge each year is RAB/remaining life. Depreciation (2040) = RAB/16. Depreciation (2029) = RAB/5. Depreciation (2029) / Depreciation (2040) = 16/5 = 320%.

[4] See https://www.ipart.nsw.gov.au/sites/default/files/cm9_documents/Final-Report-TAHEs-compliance-with-the-NSW-Rail-Access-Undertaking-2022-23-May-2024.PDF (Table 5, p 16). Full Economic Cost for 2022-23 was $7,883,341 and depreciation was $700,565, representing 9% of FEC. Increasing annual depreciation by 220% therefore leads to an increase in the ceiling of 9% of 220% = 20%.

[5] 100% - 9% + (3.2 x 9%) = 120%

The reduced rate of return will lessen the net price impact somewhat. Return on assets represents approximately 8% of the Full Economic Cost. Reducing the rate of return from 5.3% to 4.9% will reduce the ceiling by 0.5%.[6]

The net effect of these two changes will be an increase of 19% to the ceiling revenue. If all else was held constant (i.e. traffic volumes and starting prices), then this changed ceiling would lead to a 19% increase in coal access prices relative to what they would have been between now and 2029.

Access prices for other freight on the TAHE HVCN should be unaffected. We note that coal is normally the only type of freight that can afford to pay access charges high enough to generate a positive rate of return. For this reason, access prices for non-coal freight tend to be significantly lower than coal access prices. TAHE made this point in their Overs and Unders Policy.[7]

The impacts of our final decisions on TAHE will be:

- If the terminal date turns out to be 2029, then TAHE would have the opportunity to recover its remaining RAB from future access prices.
- If the terminal date turns out to be sooner than 2029, then TAHE would under-recover its RAB from future access prices. However, we note that TAHE has an over-recovery balance of approximately $7m at present in its Overs and Unders Account. This represents 56% of the RAB.
- If the terminal date turns out to be later than 2029, then TAHE would over-recover its RAB before then. However, the Overs and Unders Account provides a mechanism for that over-recovery to be returned to customers.

[6] See https://www.ipart.nsw.gov.au/sites/default/files/cm9_documents/Final-Report-TAHEs-compliance-with-the-NSW-Rail-Access-Undertaking-2022-23-May-2024.PDF (Table 5, p 16). Full Economic Cost for 2022-23 was $7,883,341 and return on assets was $662,852, representing 8% of FEC. Decreasing annual return on assets by 5.7% (=0.3/5.3) therefore leads to a reduction in the ceiling of 8% of 5.7%% = 0.5%.

[7] https://www.ipart.nsw.gov.au/documents/document/tahe-hvcn-unders-and-overs-explanatory-note-november-2023 (see p3), which notes the price difference between coal and general freight.

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

Schedule 3 of the Undertaking sets out the pricing principles that rail infrastructure owners must apply in negotiating access prices. These principles require prices to include both a return on capital and depreciation of rail assets.

The pricing principles sets out a process that each rail infrastructure owner must follow to estimate the value of their assets in each year (the asset valuation roll forward principles). In doing this, the Undertaking requires them to use:

- **For all networks covered by the Undertaking**, the rate of return determined by IPART
- **For the Hunter Valley Coal Network (HVCN) only,** depreciation calculated using the useful life of rail assets, estimated by IPART.

We are required to review and revise these two measures every five years. We are required to estimate the useful life of the HVCN sectors with reference to the estimated remaining mine life of the coal mines that use them.

Specifically, 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.

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.

As well as revising these elements every five years, we are also responsible for assessing compliance with the Undertaking, including ensuring that the correct rate of return and depreciation have been used.

Box 2.1 Assessing compliance with the Undertaking

We assess compliance against the requirements of Schedule 3 of the Undertaking annually. The compliance obligations on rail infrastructure owners differ depending on whether the network is part of the HVCN and how much access revenue is received relative to the cost of providing services.

TAHE's HVCN is the only part of the Hunter Valley coal system that is currently subject to the NSW Rail Access Undertaking. The other parts are leased by ARTC and subject to an access undertaking with the Australian Competition and Consumer Commission. For the TAHE sectors, we review compliance under Schedule 3, section 5(b) of the Undertaking, which involves determining TAHE's compliance with both Asset Valuation Roll Forward Principles (including return of and on capital) and the Ceiling Testa, having regard to the operation of an 'Unders and Overs' account. The HVCN is subject to greater monitoring than other parts of the TAHE network as it is more likely, given the volumes of coal traffic, to potentially over-recover costs.

For non-HVCN rail networks, we review compliance under Schedule 3, section 5(f) of the Undertaking. Essentially, this requires the rail infrastructure owners, TAHE and the ARTC, to demonstrate to our reasonable satisfaction that access revenue is not more than 80% of the full economic cost of providing access under the Ceiling Test for any group of access seekers.

Rail infrastructure owners must submit documents demonstrating compliance with the Undertaking over the past financial year by 31 October each year.

Our five yearly revisions of the rate of return and remaining mine life form the basis for the return on capital for **all** of TAHE's networks and depreciation for the HVCN.

a. For any access seeker or group of access seekers, access revenue must not exceed the full economic costs of the sectors which are required on a standalone basis for the access seeker or group of access seekers.

2.1 Which rail networks are covered by this review?

Our final decision on the rate of return applies to all of TAHE's networks covered by the Undertaking. However, the estimated remaining mine life applies only to the five sectors of the HVCN covered by the Undertaking.

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-HVCN sectors and the five sectors of the HVCN owned by TAHE.

The Hunter Valley coal system comprises 37 track sectors of which 32 are leased to the ARTC for 60 years from 5 September 2004.[viii] The ARTC has a separate undertaking with the Australian Competition and Consumer Commission (ACCC) (Hunter Valley Access Undertaking 2011 (HVAU))[ix] and these sectors are regulated under the national access regime.

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

Table 2.1 TAHE 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, Schedule 6

2.2 Previous decisions on the rate of return and estimates of the remaining mine life

In 1999, we made our first determination of 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 years[x]
- A balance between stakeholder views, which ranged from 30 to 50 years.[xi]

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

2.2.1 2014 review

At the time of our 2014 review, the ARTC Hunter Valley coal system sectors no longer fell under the Undertaking, which changed the configuration of coal mines under consideration. Further, the two mines located on the remaining non-ARTC sections of track, Newstan and Teralba, were no longer operational and so were not using the line to export coal from Newcastle.

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.[xii] We found that the median terminal date of the subset of longest-lived substantial mines was 2044.[xiii] 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.[xiv] As such, we extended the estimate of the remaining mine life by five years from the initial terminal date of 2039 to 2044.[xv]

At our 2014 review, we also moved from a pre-tax to a post-tax WACC, following an IPART-wide change in our WACC method.[xvi]

2.2.2 2019 review

In our 2019 review we reduced the estimate of the mine life from 2044 to 2039. There were several factors that influenced this decision, including the closing of Wallerawang Power station in 2014[xvii] and the then proposal to close Liddell Power Station in 2022.[xviii,8] Further, we became aware that BlueScope Steel at Port Kembla had stopped purchasing coking and thermal coal from Hunter Valley mines and was sourcing all its coking coal from the Illawarra Region.[xix]

Table 2.2 shows IPART's previous decisions on the rate of return and estimated remaining mine life since the initial review in 1999.

[8] Liddell Power Station subsequently closed on 28 April 2023. https://www.agl.com.au/about-agl/media-centre/asx-and-media-releases/2023/april/agls-liddell-power-station-closes-after-52-years-of-operation accessed 21 May 2024

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%
2019	20 years (to 2039)	real post-tax WACC 5.3%

Source:
(1) IPART, *Aspects of the NSW Rail Access Regime, Final Report*, April 1999;
(2) IPART, *Report on the determination of remaining mine life and rate of return from 1 July 2004*, May 2005;
(3) 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;
(4) 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.
(5) *NSW Rail access undertaking – review of the rate of return and remaining mine life from 1 July 2019, Final report and decision*, July 2019

2.3 Our 2023 review of the NSW Rail Access Undertaking

In 2023 IPART completed a review of the NSW Rail Access Undertaking and its surrounding regulatory framework, given changes in the ownership, scope and complexity of the networks covered by the NSW rail access framework, and evolving regulatory practices.

The NSW rail access framework was developed to implement the NSW Government's obligations under the Competition Principles Agreement. It provides for access seekers to negotiate price and non-price terms and conditions of access to monopoly rail infrastructure. It aims to encourage the efficient use of, operation, and investment in rail infrastructure and promote competition in upstream and downstream markets (i.e. markets that produce products that need to be transported by rail and those that sell or use those products as an input).

The NSW Undertaking remains largely unchanged since it first came into effect under the NSW Rail Access Regime in 1999.

We made 33 recommendations which would increase the efficient use and investment in rail, and drive competition with road to lower freight costs and improve productivity.

In April 2024 the Government released a consultation paper on Freight Policy reform covering road and rail including rail access and referred to our Final report on the NSW access undertaking.

2.4 Review process

We released a Fact Sheet for this review on 16 February 2024. We received one submission only and that was from TAHE. TAHE's submission was received before the NSW Government's announcement that Eraring Power Station would operate until at least August 2027 but would cease operations by April 2029.[xx]

TAHE contended at the time that while there was uncertainty about the closure dates of Eraring and Vales Point Power Stations the termination date of the mine life should be reduced to no later 2033.

TAHE also contended that coal companies were facing higher risk premia than before because of the transition away from fossil fuels.

We addressed both of these issues in the Draft Report and address them again here in our Final Report.

We released our Draft Report on 13 June 2024. We received two submissions. One from TAHE and another from the Hunter Rail Access Task Force (HRATF). Both submissions addressed the Rate of Return and the Remaining Mine Life.

We also held a public hearing on 15 August 2024 with 14 participants along with IPART members and staff. The next chapter provides a summary of submissions and public hearing comments and our response.

3 Consultation

In this chapter we discuss the 2 submissions we received to our Draft Report, the comments made at the subsequent public hearing and our responses to them.

3.1 Rate of Return

Transport Asset holding Entity (TAHE)'s submission[xxi]

TAHE recognises that the rate of return is not unreasonable but considers that there are arguments that may support a rate of return above the midpoint of the range. They further submitted that due to the broad range of rate of return outcomes arising from the wide variability of several parameters, and the potential debt risk premium for coal businesses that the rate of return could be increased within the range.

In relation to the debt risk premium TAHE notes that IPART stated in our Draft Report that their 45% debt gearing ratio takes this higher risk into account, but TAHE notes that this debt gearing position is unchanged from the 2019 Final Report where this matter was not raised.

Hunter Rail Access Task Force (HRATF)'s submission[xxii]

HRATF recognised that the rate-of-return review mainly represents an uncontroversial update of market data using the standard IPART methodology and noted that this is a reasonable approach for the purposes of the NSW Rail Access Undertaking.

However, HRATF was surprised that IPART materially changed the articulation of the reasons for the choice of the gearing ratio. In previous review, IPART adopted 45% debt to 55% equity ratio for the NSW rail networks. This is a substantially lower level of debt ratio than is typically used for regulated entities and is less than that used for the ARTC (while the ACCC have not formally considered ARTC WACC since 2017, their previous assumption was 60% debt) or Aurizon Undertakings (which has 55% debt in UT5).

HRATF further noted that in IPART's final report for the 2019-2024 Rate-of-Return and Mine Life Review, IPART simply referenced the market comparators. At the time, IPART justified its 45% gearing by simply noting that the median gearing ratios were 48% for coal mining, 47% for electricity generation and 38% for rail transport. The median of all three industries is a gearing ratio of 45%.

Additional HRATF said that in our Draft Report we linked the gearing ratio to the coal sector risk in response to the TAHE's submission, which refers to a 2016 report by the Competition Economists Group for Aurizon Network (Debt risk premium of coal transporters). That report argued for a 'coal' premium being priced in by debt investors who were supposedly concerned about Aurizon's ability to recover its fixed and sunk investments.

HRATF submitted that IPART appeared to acknowledge that the 'coal' premium should be recognised by setting a low debt ratio and that implied that a benchmark coal rail company would not be able to achieve BBB rating if it were to gear up to the same level as other infrastructure businesses with similar revenue cap regulations.

HRATF considered that this new rationale is not based on any underlying research or market analysis. Such analysis would require a much more fundamental review of the rate-of-return approach than the periodic review. While it does not result in any change to the gearing ratio, if it is left in the Report, it will create an analytical precedent.

HRAFT also notes that the rate-of-return determination applies to all rail networks in NSW. The total RAB for the coal sectors covered by the NSW Rail Access Undertaking is less than $20m—a very small fraction of the total asset base of the NSW rail networks. HRAFT considered that it would make no sense to select a gearing ratio on the basis of the 'coal' premium and then apply it to all other networks.

Public hearing

At our public hearing for this review the HRATF restated its view that any evidence for a coal risk premium was anecdotal and should not be included. This was supported by another interstate coal freight operator.

Aurizon Networks considered that there was a debt risk premium in the market for refinancing beyond 5 years. However, as a practical matter the relatively small RAB of the TAHE HVCN made the point moot.

IPART responses

Our choice of a 45% gearing ratio for the rate of return in the Undertaking was based on an analysis of proxy firms that was conducted before the financial riskiness of coal businesses was so salient. We maintain our decision to use a 45% gearing ratio.

The heightened debt risk premium for coal businesses relates to various types of stranding risks that coal-related businesses with sunk investments now face. This risk also applies to coal rail infrastructure.

Through the mechanism of an increased depreciation allowance, driven by a reduced mine life estimate, the Undertaking makes a specific provision for this stranding risk and therefore no risk premium is necessary for the TAHE HVCN.

3.2 Remaining Mine Life

TAHE's submission

TAHE supported the Draft Decision to set the mine life expiration date as 30 June 2029 based on the available information on the expected lives of Eraring and Vales Point power stations.

HRATF's submission

HRATF submitted that we should reconsider our mine life termination date because:

1. While it considers 30 June 2029 to be a reasonable estimate of when coal will cease to be carried on the HVCN to the power plants this is not necessarily the end of life for the coal mines.

2. The HRATF also said that our Draft Report gives no weight to the northward movement of coal on the 5 segments of the TAHE HVCN from the mines located south of Newcastle to deliver to the port. Such movements currently account for around 40% of the volume on the segments. IPART excludes those volumes because the mines are not located in the Hunter Valley. IPART should consider whether the 40% of the current volume which comes from the southern mines could continue to sustain the segments in question beyond 2029.

Public Hearing Comments

There was a general consensus among public hearing participants, including from the HRATF, that given the current available information around both Eraring and Vales Point power stations it was reasonable to use a termination date of 30 June 2029 for the purpose of this review as we are required to do by the Undertaking.[xxiii]

HRATF acknowledged that the Undertaking required IPART to only consider Hunter Valley coal traffic heading south on TAHE's HVCN, but asked IPART to consider north bound traffic on the HVCN going to the Port of Newcastle or seek to have the Undertaking revised.

HRATF also considered that different types of coal freight would be impacted differently by the reduced mine life. They noted that current HVCN operators could face an increase in access charges until 2029 (because the shorter mine life will increase the ceiling), but coal from the Illawarra and Western coal fields heading north to Newcastle might benefit from lower access prices after 1 July 2029 (if the HVCN RAB had been completely depreciated). Whether these outcomes occur depends on the pricing strategy TAHE chooses to employ.

IPART's responses

We have carefully considered all submissions and feedback from the public hearing. We have decided to maintain our decision of a termination date of 30 June 2029. The NSW Rail Undertaking does not permit IPART to take account of the life of mines outside the Hunter Valley for the purpose of calculating the depreciation allowance. Clause 3.2 (c) of Schedule 3 of the Undertaking sets this out clearly, as noted in section 5.4 below.

We note that HRATF's submission indicates that access revenues from coal exported through Newcastle from the Southern and Western coalfields could extend the life of the HVCN beyond the terminal date. However, the NSW Rail Undertaking does not permit IPART to consider the life of those non-Hunter mines.

It is clear that the purpose of Sch 3 Cl 3.2 of the Undertaking requiring IPART to revise the remaining mine life at least every five years is to, as far as possible, ensure that TAHE does not have any stranded assets on the HVCN at the end of the mine life.

It should be noted that in our May 2023 Review of the Undertaking we made recommendations for changes to the Undertaking on how depreciation should be assessed (See Box 5.1)

4 Determining the Rate of Return

We 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. We use this rate of return to calculate the full economic cost of a group of line sectors for the ceiling test.

Since our 2014 review, we have used a real post-tax WACC to estimate the rate of return, and a standard method for determining most market-based parameters.[xxiv]

This chapter outlines our final 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 that should apply to the networks under the Undertaking.

4.1 Final decision on the rate of return

Final Decision

1. The rate of return that should apply from 1 July 2024 is 4.9% 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 4.1 below shows the parameters used in our WACC final decision.

This is 40 basis points lower than the rate of return that applied from 1 July 2019 of 5.3% per annum on a real, post-tax basis. It is 10 basis points lower than the 5.0% rate of return in our draft report earlier this year because of changes in market observations between April and July.

Table 4.1 Final 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	4.3%	2.6%			
Inflation	2.7%	2.7%			
Implied debt margin	1.8%	2.3%			
Market risk premium	6.1%	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)	10.4%	8.6%			
Cost of equity (real post-tax)	7.5%	5.7%			
Cost of debt (nominal pre-tax)	6.1%	4.9%			
Cost of debt (real pre-tax)	3.3%	2.1%			
Nominal Vanilla (Post-tax nominal) WACC	8.5%	6.9%	6.9%	7.7%	8.5%
Post-tax real WACC	**5.6%**	**4.1%**	**4.1%**	**4.9%**	**5.6%**
Pre-tax nominal WACC	10.1%	8.3%	8.3%	9.2%	10.1%
Pre-tax real WACC point estimate	7.2%	5.5%	5.5%	6.3%	7.2%

4.2 Our approach to estimating WACC parameters

Consistent with the requirements of the Undertaking, we 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 2024.

We estimated the industry parameters - equity beta and gearing - using a proxy company analysis. To determine the appropriate market parameters, we applied our standard 2018 WACC method. For our final decision, we used the following sampling dates to determine our current market parameters:

- The sampling period ending 31 July 2024, which is the last available whole month.
- For other years (current and long-term debt), the sampling period ending 31 July.
- Consistent with past practice for calculating the rail access WACC for Mine Life and Rate of Return reviews, we assume that the whole of the current debt would be refinanced at the rates applying at the end of July 2024.

4.3 Debt risk premium for coal businesses

In its submission to our Fact Sheet TAHE referred to evidence suggesting that coal and coal infrastructure providers incur a debt risk premium (DRP) above other similarly rated businesses.

TAHE's submission refers to a 2016 report by the Competition Economists Group for Aurizon Network (Debt risk premium of coal transporters). That report (p 5) noted that there are periods in which Aurizon's debt is perceived to be higher risk. CEG said:

> We consider that this likely reflects a 'coal' premium being priced in by debt investors who are concerned about Aurizon's ability to recover its fixed and sunk investments (primarily in below rail assets) serving the expanded coal sector.
>
> While the operation of a revenue cap does provide Aurizon with some short term protection against its coal customers' declining usage and/or bankruptcy, regulation cannot shield Aurizon from the longer term risks to recovery of sunk costs. Specifically, the risk that coal prices fall to a level where a shrinking base of coal volumes cannot support the full recovery of Aurizon's sunk infrastructure expenditure.

In our draft report, we did not include any additional debt risk premium for coal rail infrastructure businesses. Our reasoning for that decision in the draft report suggested that the low target gearing of 45% reflected the additional risks claimed by TAHE and CEG.[xxv] However we did not mean to imply that our gearing and equity beta were adjusted to reflect this risk. We have applied our standard methodology to estimate WACC.

It is therefore important for us to clarify our reasons for not including a specific debt risk premium.

In its submission and at the public hearing the HRATF argued that CEG's conclusions were based on anecdotal evidence.

Aurizon Network while still supporting the presence of a debt risk premium for coal in the market did indicate at the public hearing that no coal risk premium was observed in debt maturing in less than 5 years.

We agree with the HRATF and other stakeholders' comments at the public hearing that more analysis and research would need to be undertaken to make conclusions on coal driven risk more broadly and that this is outside the scope of this review.

However, even if there is a market risk premium for coal assets due to an increased risk of stranding, we consider the Undertaking provides for stranding risk by having the mine life updated every 5 years. We consider that our decision to reduce the remaining mine life from 16 years to 5 years all but eliminates any stranding risk on the HVCN, and therefore no risk premium is necessary for the TAHE HVCN.

This is also consistent with Aurizon's comment, as a coal rail infrastructure owner, that it did not see any debt risk premia in the market for loans with less than 5-year maturity.

A further separate reason for not adjusting the rate of return for a coal risk premium is that the Undertaking requires IPART to determine a **single** rate of return that applies to all of TAHE's networks.[xxvi] The TAHE HVCN's Regulatory Asset Base (RAB) is valued at around $13 million while the Metropolitan Passenger Network RAB is $22,019 million.[xxvii] Clearly it would be inappropriate to determine a rate of return for this much larger network on the basis of coal stranding risks.

TAHE also asked IPART to consider whether TAHE's transition from a State Owned Corporation to a Public Non-Financial Corporation by 1 January 2025 will have an effect on its WACC parameters. In keeping with IPART's longstanding practice, we estimate the WACC for an efficient benchmark firm operating in a competitive market and facing similar risks to the regulated business (see, for instance, final decision 1 from our 2018 final report on the WACC method).

TAHE's status as either a State-Owned Corporation or a Public Non-Financial Corporation would not affect the efficient benchmark entity we consider. Therefore, we do not consider that this change to TAHE's governance arrangements would affect the cost of capital we allow.

4.4 We decided 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.

In 2018, we reviewed our WACC method, taking into account a wide range of stakeholder views, including those of the ARTC and published our Final Report.

Our final decision 25 from that report was that we would continue to re-estimate equity betas at each price review to inform our assessment of whether the existing estimates remain appropriate.

Our final decision 32 from that report was that we would continue to re-estimate the gearing of the benchmark entity at each price review to inform our assessment of whether the existing estimates remain appropriate.

Noting how influential beta and gearing can be on the overall WACC result and how uncertain proxy company analysis can be, several stakeholders submitted that we should place limits on how quickly standard values for beta and gearing could be changed. Responding to those suggestions, we published our Estimating Equity Beta for the Weighted Average Cost of Capital Final Report in August 2020:

Notably, that report contained the following decision 5 that IPART will:

- Adopt the decision rule that before considering any revision to an established beta value for a price review:
  - The prior beta estimate is more than one standard deviation from mean of current sample, and

– There is persistent evidence over long period (i.e. a regulatory period or longer) of changed beta.

This decision rule creates a high hurdle to changing the equity beta estimate from its prior established value. In 2019 we adopted an equity beta of 1.0 and a matched gearing level of 45% for coal rail access providing businesses.

Professor Damodaran of the Stern School at New York University is an expert in financial economics. He publishes beta estimates for a range of industries and countries. The table below presents his recent beta estimates for several industries in Australia, New Zealand and Canada that face similar systematic risks to the coal rail access industry in NSW:

Table 4.2 Beta Estimates for a Range of Industries

Date updated:	5-Jan-24					
Created by:	Aswath Damodaran, adamodar@stern.nyu.edu					
What is this data?	Total Beta (beta for completely undiversified investor)			Australia, NZ and Canada		
Home Page:	http://www.damodaran.com					
Data website:	https://pages.stern.nyu.edu/~adamodar/New_Home_Page/data.html					
Companies in each industry:	https://pages.stern.nyu.edu/~adamodar/pc/datasets/indname.xls					
Variable definitions:	https://pages.stern.nyu.edu/~adamodar/New_Home_Page/datafile/variable.htm					
Industry Name	**Number of firms**	**Average Unlevered Beta**	**Average Levered Beta**	**Average correlation with the market**	**Total Unlevered Beta**	**Total Levered Beta**
Coal & Related Energy	85	1.42	1.26	22.46%	6.30	5.59
Metals & Mining	1275	1.00	1.05	16.68%	5.99	6.31
Steel	52	0.73	0.72	19.07%	3.81	3.78
Transportation (Railroads)	3	0.70	0.81	52.70%	1.33	1.54

The column "Average Levered Beta" corresponds to the equity beta we wish to estimate. The simple average of these four equity beta estimates is 0.96 which is very close to our existing equity beta estimate of 1.0.

We consider that this result does not meet the high threshold for change and therefore our final decision is to maintain the equity beta estimate of 1.0 for this review.

Final Decision

2. IPART's estimate of the equity beta is 1.0, which represents no change from the prior value

Similarly, we make the final decision not to change the target gearing assumption, noting that gearing and beta are usually estimated together. The equity beta is affected by gearing.

Final Decision

3. IPART's estimate of the target gearing is 45%, which represents no change from the prior value

5 Estimating the remaining mine life

The Undertaking requires us to estimate the useful life of a rail sector or group of sectors by reference to the remaining life of Hunter Valley coal mines that use those sectors. It is used as a proxy to calculate depreciation to determine compliance with the ceiling test and roll forward the Regulatory Asset Base (RAB). The Undertaking requires depreciation to be calculated on a straight-line basis.

This chapter sets out our final decision on our estimate of the remaining mine life, explains how we reached our conclusion and the implications for maximum prices. It discusses the current and potential coal traffic flows on the TAHE HVCN sectors.

Final Decision

4. IPART's estimate of the remaining mine life from 1 July 2024 is 5 years, based on a terminal date of 30 June 2029

Our estimate is based on an expected terminal date that is 11 years earlier than the current terminal date of 2040.

5.1 Our recent review of the NSW Undertaking recommended changes

In 2023 IPART completed a review of the NSW Rail Undertaking. We recommended amending the existing requirements to provide IPART with more flexibility when determining the rate of return and asset lives. Our recommendations are intended to:

- ensure that these inputs are able to capture improvements to methodologies reflecting changes to broader regulatory practices
- more effectively respond to changing circumstances such as climate change (for example, significant changes to power station closure dates).

For the depreciation allowance (see Box 5.1), we recommended:

- that IPART should set useful asset lives, rather than mine lives
- allowing for more frequent updates to asset lives in certain circumstances
- clarifying that IPART can determine different asset lives for different line sectors (rather than a network as a whole).

Box 5.1 Recommendations from our 2023 review of the Undertaking that relate to depreciation estimates

We conducted a comprehensive review of the Undertaking in 2023. We made 33 recommendations for changes.

Two of those recommendations are relevant to the estimate of depreciation in this review.

Recommendation 19b

Access providers must charge access seekers competing in the same end market the same access price for the same service unless there are cost differences.

Recommendation 23a

That the provisions for how IPART sets the inputs to depreciation are updated to specify that IPART would set the asset life, rather than the mine life.

5.2 Impact of our final decision

Our 2019 review of mine life established a terminal date of 2040. The proposed terminal date of 2029 represents a mine life that is 11 years shorter. This change will lead to an access revenue ceiling that is higher because the depreciation charge would increase by 220%.[9] The depreciation component of the Full Economic Cost was approximately 9% in FY23.[10] The proposed shorter mine life would lead to a ceiling that is higher than the present ceiling by approximately 20%.[11]

The reduced rate of return would lessen the net price impact slightly. Return on assets represents approximately 8% of the Full Economic Cost. Reducing the rate of return from 5.3% to 4.9% will reduce the ceiling by 0.5%.[12]

The net effect of these two changes would be an increase of 19% to the ceiling revenue. If all else was held constant (i.e. traffic volumes and starting prices), then this changed ceiling would lead to a 19% increase in coal access prices relative to what they would have been between now and 2029. Of course, we would expect that TAHE would use some of the current over recovery to reduce the impact so for 2024-25 we would not expect coal access charges to increase by 19%.

9 2040 is 16 years from now. 2029 is 5 years from now. The depreciation charge each year is RAB/remaining life. Depreciation (2040) = RAB/16. Depreciation (2029) = RAB/5. Depreciation (2029) / Depreciation (2040) = 16/5 = 320%.

10 See https://www.ipart.nsw.gov.au/sites/default/files/cm9_documents/Final-Report-TAHEs-compliance-with-the-NSW-Rail-Access-Undertaking-2022-23-May-2024.PDF (Table 5, p 16). Full Economic Cost for 2022-23 was $7,883,341 and depreciation was $700,565, representing 9% of FEC. Increasing annual depreciation by 220% therefore leads to an increase in the ceiling of 9% of 220% = 20%.

11 100% - 9% + (3.2 x 9%) = 120%

12 See https://www.ipart.nsw.gov.au/sites/default/files/cm9_documents/Final-Report-TAHEs-compliance-with-the-NSW-Rail-Access-Undertaking-2022-23-May-2024.PDF (Table 5, p 16). Full Economic Cost for 2022-23 was $7,883,341 and return on assets was $662,852, representing 8% of FEC. Decreasing annual return on assets by 5.7% (=0.3/5.3) therefore leads to a reduction in the ceiling of 8% of 5.7%% = 0.5%.

Access prices for other freight on the TAHE HVCN should be unaffected as the depreciation calculated using the useful life of rail assets only applies to coal freight.

The impact of our final decision on TAHE include:

- If the terminal date estimate turns out to be 2029, then TAHE should have the opportunity to recover its remaining RAB from future access prices.
- If the terminal date turns out to be sooner than 2029, then TAHE would under-recover its RAB from future access prices. However, this conclusion is moderated as TAHE has an over-recovery balance of approximately $7m at present in its Overs and Unders Account. This represents 56% of the RAB.
- If the terminal date turns out to be later than 2029, then TAHE would over-recover its RAB before then. However, this conclusion is moderated in the customers' favour as the Overs and Unders Account provides a mechanism for that over-recovery to be returned to customers.

5.3 Our approach to estimating remaining useful life of the HVCN

The pricing principles state that for Hunter Valley coal access prices, the depreciation component of the full economic cost should be estimated on a straight-line basis. The remaining RAB is to decrease to a value of zero at the end of the economic life of the relevant line sectors. The economic life is to be determined by IPART having regard to the life of the Hunter Valley coal mines utilising the sectors.

The Hunter Valley coal-specific pricing principles apply only to a short section of track called the TAHE Hunter Valley Coal Network (TAHE HVCN), which extends northward from Newstan Junction to Woodville Junction. (see Figure 5.1 and Figure 5.2)

At present, and for the foreseeable future, the only Hunter Valley coal traversing the TAHE HVCN is coal transported southward to the power stations at Eraring and Vales Point. The NSW Government recently announced that both of these power stations are expected to close at some point before 2033. In Eraring's case, there is only certainty of operation to August 2027 and Eraring's contractual agreement with the NSW Government is that it will close before April 2029 to help meet the NSW Government's greenhouse gas reduction target.[xxviii]

We have taken the view that the economic life of the TAHE HVCN will come to an end when both of these power stations close. This view is consistent with the wording of the Undertaking. Once the power stations have closed, there will be no Hunter Valley coal mine that utilises these sectors.

While acknowledging that there remains some uncertainty about Eraring's operation post August 2027, and more uncertainty about the closing date for Vales Point, our final decision is that the economic life of the TAHE HVCN will come to an end on 30 June 2029.

5.4 The Undertaking requirements

The Undertaking sets out what is to be determined in this review at Schedule 3, clause 3.2 (c). Referring to the Hunter Valley Coal Network, that section notes that, for the purposes of calculating the Depreciation allowance in any year:

(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 **Hunter Valley coal mines** utilising that Sector or those Sectors.

Our task is to estimate the remaining useful life of the TAHE HVCN assets. In doing so, we must refer to the remaining mine life of Hunter Valley coal mines utilising that sector or sectors.

5.5 Coal traffic on the HVCN

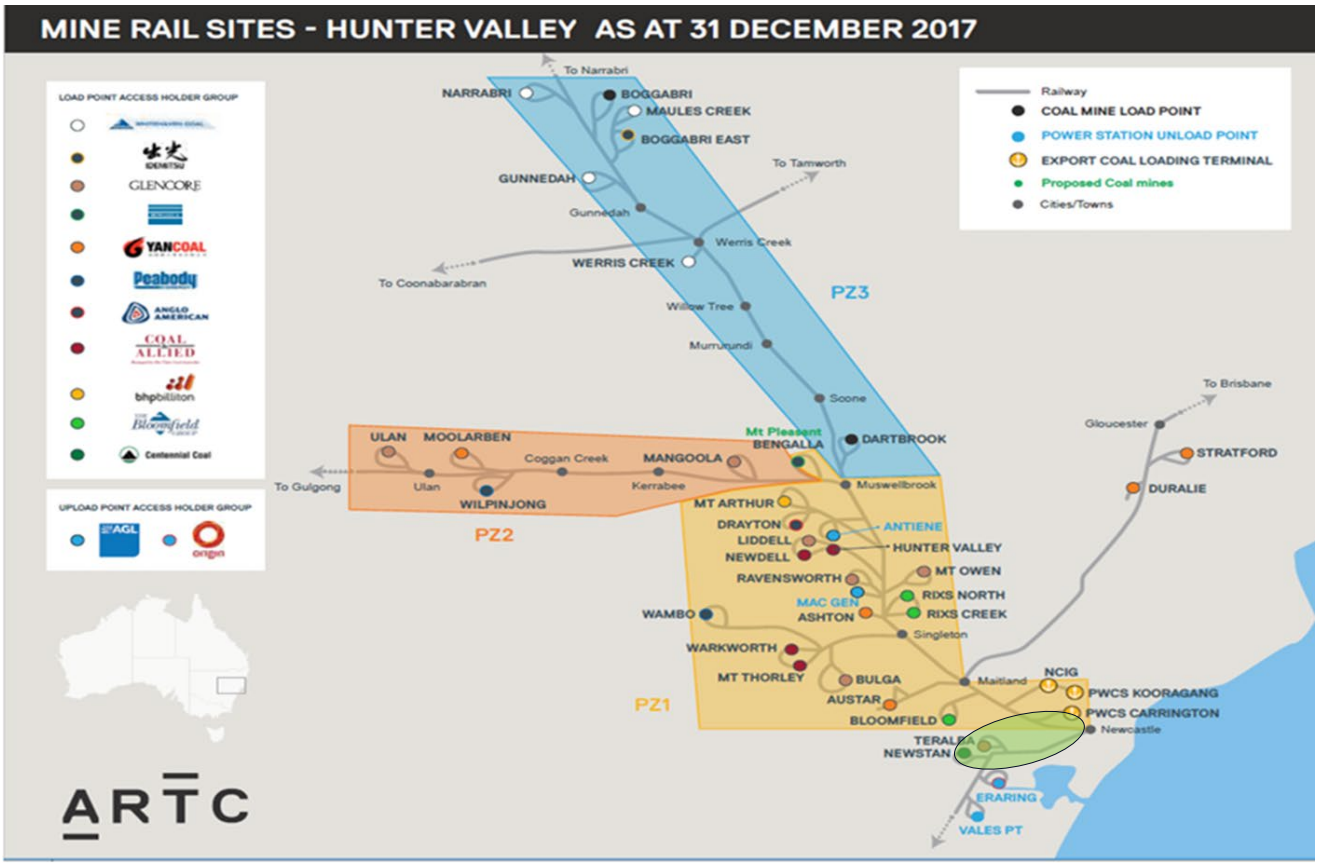
The HVCN, which is the subject of our estimate of the remaining mine life, runs south of Newcastle, from Woodville Junction to Newstan. The line is used to transport coal from the Hunter Valley to the Eraring and Vales Point power stations. In our 2019 Draft report we noted that BlueScope Steel now sources its coking coal from the Illawarra. As such we are unaware of any material amount of coal heading south on the HVCN that isn't going to either Eraring or Vales Point.

Hunter Valley mines do not use the line to export coal at Newcastle as the TAHE HVCN is south of the Port of Newcastle. However, some coal from the southern and western mines is transported north along the HVCN to Newcastle for export.

Figure 5.1 shows all 37 sectors of the HVCN with the 5 sectors of the TAHE HVCN in green highlight.

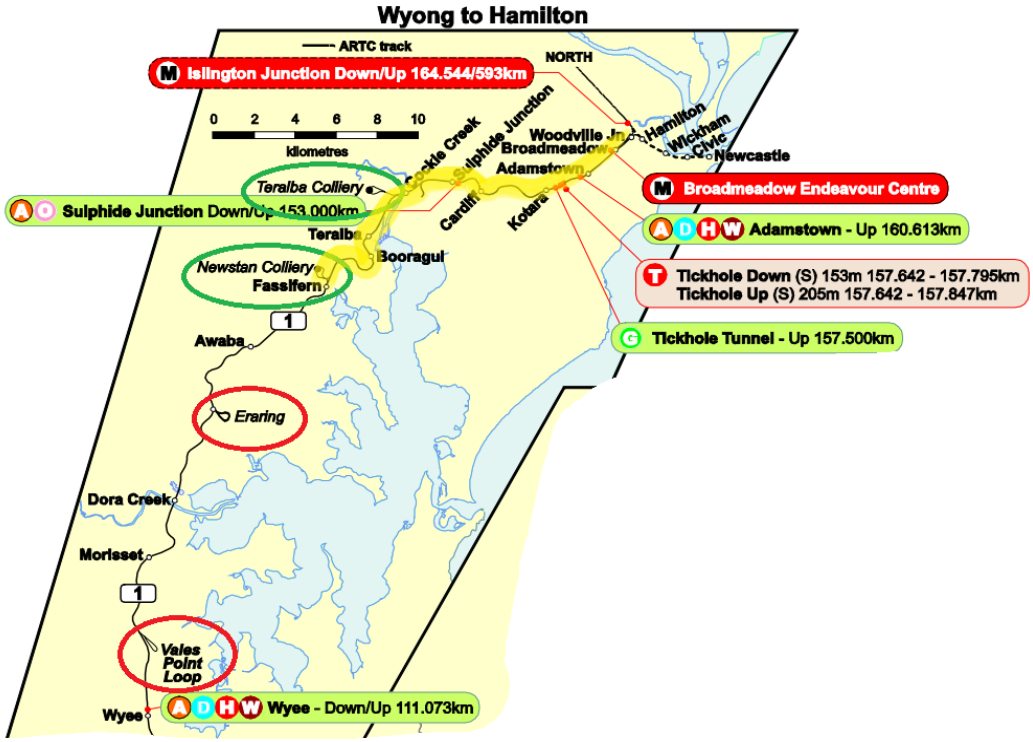
Figure 5.2 shows a map of the HVCN line segment, including the location of the power stations, Newcastle and Newstan and Teralba mines.

Figure 5.1 The 37 sections of the Hunter Valley Coal Network



Source: ACCC Draft Decision – ARTC's March 2021 variation to the Hunter Valley Coal Network Access Undertaking, April 2021 p.11.
(With IPART Highlight for the 5 segments of the HVCN south of Newcastle)

Figure 5.2 TAHE's HVCN rail line showing the location of the power stations and mines



Source: RailCorp, *TOC Operating Conditions Manual version 9.0*, April 2017, p 34

5.5.1 Coal movement volumes on the HVCN

Table 5.1 shows the coal train movements on the HVCN to Vales Point and Eraring Power Stations and the other coal movements through the HVCN (predominately coal transports from southern and western mines to the Port of Newcastle.

Table 5.1 Coal Train Movements on HVCN

	2019-20	2020-21	2021-22	2022-23	2023-24 (Projected Year)[a]	Total 2019-2024
Total HVCN Coal Trains	**3856**	**2290**	**2829**	**4097**	**4333**	**17405**
From Vales Pt	236	68	228	378	481	1391
To Vales Pt	244	69	217	385	493	1408
Vales Pt Total	**480**	**137**	**445**	**763**	**975**	**2800**
As % of Total HVCN Coal	12.4%	6.0%	15.7%	18.6%	22.5%	16.1%
From Eraring	801	451	647	1014	1053	3966
To Eraring	811	445	635	1076	943	3910
Eraring Total	**1612**	**896**	**1282**	**2090**	**1996**	**7876**
As % of Total HVCN Coal	41.8%	39.1%	45.3%	51.0%	46.1%	45.3%
Total Vales Pt + Eraring	**2092**	**1033**	**1727**	**2853**	**2971**	**10676**
As % of Total HVCN Coal	54.3%	45.1%	61.0%	69.6%	68.6%	61.3%
Non-Power Station Coal	**1764**	**1257**	**1102**	**1244**	**1363**	**6730**
As % of Total HVCN Coal	45.7%	54.9%	39.0%	30.4%	31.4%	38.7%

a. TAHE supplied 9 months of data. We extrapolated to the full year.

Source: Data return from TAHE by email 3 May 2024

Table 5.1 indicates that over the last 5 years approximately 60% of the coal volume transported on the HVCN travels from Hunter Valley coal mines to the two power stations Eraring and Vales Point. Eraring accounted for around 45% of the total coal movements and Vales Point around 16%.

There is uncertainty about the exact remaining life of these power stations, but all estimates lead to a shorter life than the Hunter Valley coal mines that produce the coal.

We consider that, once these two power stations close, there will be no existing Hunter Valley coal mines that utilise the HVCN. At that point the remaining life of Hunter Valley coal mines utilising the HVCN would be zero. This is the termination date for the mine life.

5.5.2 Southern and Western coal mines use of the HVCN

Some export coal from the Southern and Western coal mines traverses the TAHE HVCN en route to the Port of Newcastle. In recent years, this coal has represented approximately 40% of the coal volume transported on the HVCN.

Under the NSW Rail Undertaking coal from these mines is not Hunter Valley coal. Therefore, the Undertaking does permit us to consider the life of these mines.

5.6 Estimates of remaining power station life

The NSW Undertaking requires IPART to estimate the useful life of a rail sector or group of sectors by reference to the remaining life of Hunter Valley coal mines that use that sector. This requires us to consider the likely life of the Eraring and Vales Point power stations, because the main use of the HVCN rail sectors is now transporting coal to those power stations. The estimates we considered were all based on publicly available information.

5.6.1 The future of Eraring Power Station

Eraring was built in 1982 and fully commissioned in 1984 with an expected technical life of 2032. It has 4 power units with a maximum capacity of 2880 MW. It currently supplies about 25% of NSW's power. It is owned by Origin Energy.[xxix]

In our 2019 review we referenced Origin Energy saying that it intended to exit coal fired generation by 2032.[xxx]

In February 2022 Origin Energy gave AEMO the mandatory 42 months' notice of its intention to close Eraring Power Station. This gave Origin the ability but not the obligation to close Eraring any time from August 2025 onwards.[xxxi]

In late April AEMO released its Medium-Term Projected Assessment of System Adequacy. This assessment assumed that Eraring would close at the earliest possible date i.e. August 2025. The Assessment concluded.

- Between May 2025 to May 2026 there would be likely breaches of the reliability standards due to lack of excess capacity.
- Between November 2025 to March 2026 not only would reliability standards likely be breached but it was possible that demand would exceed supply in some instances.

On 21 May 2024 AEMO released its update to the 2023 Electricity Statement of Opportunities (ESOO). It stated that:

> *Reliability risks are forecast higher than the 2023 ESOO between 2025-26 – when Eraring Power Station is advised to retire – and 2027-28, due to advised delays to previously considered battery projects*[xxxii]

On 23 May 2024, the NSW Government announced that it had reached agreement with Eraring's owner Origin Energy to extend the power station's life to August 2027. In connection with that announcement, Origin also stated:[13]

> *"Origin retains the right to determine the final timeline for retirement of all four units of Eraring Power Station. However, under the terms of the Generator Engagement Project Agreement (GEPA), no State compensation will be payable after FY2027, and the plant must retire in full no later than April 2029."*

As mentioned above over the last 5 years approximately 45% of all coal freight traffic on the HVCN is going to or coming from Eraring Power Station.

5.6.2 The future of Vales Point Power Station

Vales Point Power Station was built in 1979 with an expected technical life of 2029. It has 2 power units with a maximum capacity of 1320 MW. It can currently supply about 10% of NSW's power. It is owned by Delta Electricity.

In July 2023 Delta advised AEMO that it had reassessed the capability of the station and the technical life was subsequently extended to 2033[xxxiii]. As mentioned above over the last 5 years just over 16% of all coal train movements on the HVCN were to or from Vales Point Power Station.

5.6.3 Stakeholder submissions

TAHE's submission to our Draft Report supported setting the termination date as 30 June 2029. HRATF's submission to our Draft reported considers 30 June 2029 to be a reasonable estimate of when coal would cease being carried on the HVCN to Eraring and Vales Point power stations. However, the HRATF contended that we should consider coal coming north from the Illawarra and Western coal fields in determining the termination date.

At the public hearing the HRATF acknowledged that the wording in the Undertaking was clear but suggested that the Undertaking be changed to include consideration of north bound coal in determining the termination date.

5.6.4 Conclusion on power station life

As we have mentioned earlier (Box 5.1) while we have made recommendations for changes to the Undertaking regarding the assessment of depreciation, the Undertaking currently requires IPART to assess depreciation based on when coal will no longer be transported from Hunter Valley coal mines south on the HVCN.

[13] https://www.originenergy.com.au/about/investors-media/origin-and-nsw-government-agree-to-delay-closure-of-eraring-power-station/ accessed 12 June 2024

Therefore, taking account of the latest public information about Eraring's closure by April 2029 and the uncertainty that Vales Point would also extend beyond 2029, our final decision is that a terminal date of 2029 represents a reasonable balance between the risk of asset stranding (if power stations close earlier and remaining depreciation is unable to be recovered from customers), and the risk of higher than necessary access prices in the near term if power stations close later.

If power stations close later than the termination date, then the coal access users will see a significant fall in access prices of approximately 50% from 1 July 2029 as TAHE's full efficient costs for the HVCN will not include any rate of return or depreciation allowance as the RAB will have been depreciated to zero.

[i] TFNSW *Freight Policy Reform Consultation Paper* April 2024.
[ii] IPART, *NSW Rail Access Undertaking – Review of the rate of return and remaining mine life – Final Report*, July 2019, p.7 and footnote 13 p8.
[iii] IPART, *NSW Rail Access Undertaking – Review of the rate of return and remaining mine life – Final Report*, July 2019, p.7.
[iv] *NSW Rail Access Undertaking. Pursuant to Schedule 6AA of the Transport Administration Act 1988 NSW* Sch3 cl (3) (c) (i).
[v] https://www.environment.nsw.gov.au/news/nsw-government-secures-2-year-extension-to-eraring-power-station accessed 15 July 2024.
[vi] https://www.de.com.au/media/media-release-station-technical-life-assessment/media-release.
[vii] https://www.environment.nsw.gov.au/news/nsw-government-secures-2-year-extension-to-eraring-power-station accessed 15 July 2024.
[viii] https://www.artc.com.au/uploads/2023-HVCCS-Final.pdf p3 accessed 22 May 2024.
[ix] https://www.accc.gov.au/regulated-infrastructure/rail/artc-hunter-valley-access-undertaking, version 8 accessed 22 May 2024.
[x] IPART, *Aspects of the NSW Rail Access Regime – Final Report*, April 1999, p 44.
[xi] Ibid p.45.
[xii] IPART, *NSW Rail Access Undertaking – Review of the rate of return and remaining mine life – Final Report*, July 2014, p 2.
[xiii] Ibid p.27.
[xiv] Ibid, pp 31-32.
[xv] Ibid, p 2.
[xvi] Ibid, p 12.
[xvii] https://www.gem.wiki/Wallerawang_power_station accessed 22 May 2024.
[xviii] IPART, *NSW Rail Access Undertaking – Review of the rate of return and remaining mine life – Final Report*, July 2019, p 17.
[xix] IPART, NSW Rail Access Undertaking – Review of the rate of return and remaining mine life – Final Report, July 2019, p 17.
[xx] https://www.environment.nsw.gov.au/news/nsw-government-secures-2-year-extension-to-eraring-power-station accessed 15 July 2024.
[xxi] https://www.ipart.nsw.gov.au/sites/default/files/cm9_documents/Online-Submission-Transport-Asset-Holding-Entity-of-NSW-Name-suppressed-15-Jul-2024-092805955.PDF.
[xxii] https://www.ipart.nsw.gov.au/sites/default/files/cm9_documents/Online-Submission-Hunter-Valley-Rail-Task-Force-Name-suppressed-15-Jul-2024-125021697.PDF.
[xxiii] NSW Rail Access Undertaking Sch 3 Cl (3) (c).
[xxiv] IPART, *NSW Rail Access Undertaking – Review of the rate of return and remaining mine life – Final Report*, July 2014, p 12
[xxv] IPART, *NSW Rail Access Undertaking – Review of the rate of return and remaining mine life 2024-2029 – Draft Report*, May 2024, pp15-16.
[xxvi] NSW Rail Access Undertaking Sch 3.
[xxvii] TAHE's compliance with the NSW Rail Access Undertaking 2022-23 Final Report. p8 & p18.
[xxviii] https://www.environment.nsw.gov.au/news/nsw-government-secures-2-year-extension-to-eraring-power-station accessed 15 July 2024.
[xxix] https://www.originenergy.com.au/about/who-we-are/what-we-do/generation/eraring-power-station/ accessed 22 May 2024.
[xxx] IPART, *NSW Rail Access Undertaking – Review of the rate of return and remaining mine life – Final Report, July 2019*, p 18.
[xxxi] https://www.originenergy.com.au/about/who-we-are/what-we-do/generation/eraring-power-station/ accessed 22 May 2024.
[xxxii] AEMO May 2024 Update to the 2023 Electricity Statement of Opportunities. P.15.
[xxxiii] https://www.de.com.au/media & https://www.smh.com.au/business/companies/vales-point-coal-plant-could-stay-open-for-longer-20230714-p5doc1.html.

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