



AUSTRALIAN COMPETITION
& CONSUMER COMMISSION

Hunter Valley Coal Network Access Undertaking annual compliance

Background and ACCC approach

November 2024

Acknowledgement of country

The ACCC acknowledges the traditional owners and custodians of Country throughout Australia and recognises their continuing connection to the land, sea and community. We pay our respects to them and their cultures; and to their Elders past, present and future.

Australian Competition and Consumer Commission

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Purpose of this document

The Hunter Valley Coal Network Access Undertaking (the Undertaking) provides for the Australian Competition and Consumer Commission (ACCC) to undertake an annual assessment of the Australian Rail Track Corporation's (ARTC's) compliance with the financial model as set out in the Undertaking. The Undertaking sets out the terms on which access seekers can access ARTC's Hunter Valley network.¹

This document sets out:

- background information on the Hunter Valley network and the ACCC's role as outlined in the Undertaking
- an explanation of the financial model outlined in Schedule J of the Undertaking
- the ACCC's approach for assessing ARTC's net capital expenditure and operating expenditure under the Undertaking
- an explanation of the true up test requirements under the Undertaking.

We intend to update this document only when there is a change in our approach or if there is a new undertaking applicable to the Hunter Valley network.

All capitalised terms in this document are defined in version 8 of the Undertaking, unless stated otherwise. Some definitions and explanations are included in footnotes where appropriate. Furthermore, all references to the Undertaking in this document are to version 8, unless stated otherwise.

¹ The Hunter Valley Rail Network is referred to as the Hunter Valley network throughout this document. The Hunter Valley Coal Network Access Undertaking is also referred to as the 'HVAU'.

1. Background on the Hunter Valley network

1.1. ARTC and the Hunter Valley network

ARTC is an Australian Government-owned corporation, established in 1998 to be the single point of contact for parties seeking to run trains on the Australian Interstate network and the Hunter Valley network in New South Wales.

The Hunter Valley network forms part of the Hunter Valley coal chain, which is the largest export coal supply chain in the world. The Hunter Valley network is predominantly used to transport coal from mines in the Hunter Valley region to the Port of Newcastle for export to international customers and to domestic consumers, such as power stations. It is also used by non-coal traffic, including general and bulk freight services (such as grain) and passenger services. ARTC has a natural monopoly over the below-rail infrastructure in the Hunter Valley through to the Port of Newcastle.²

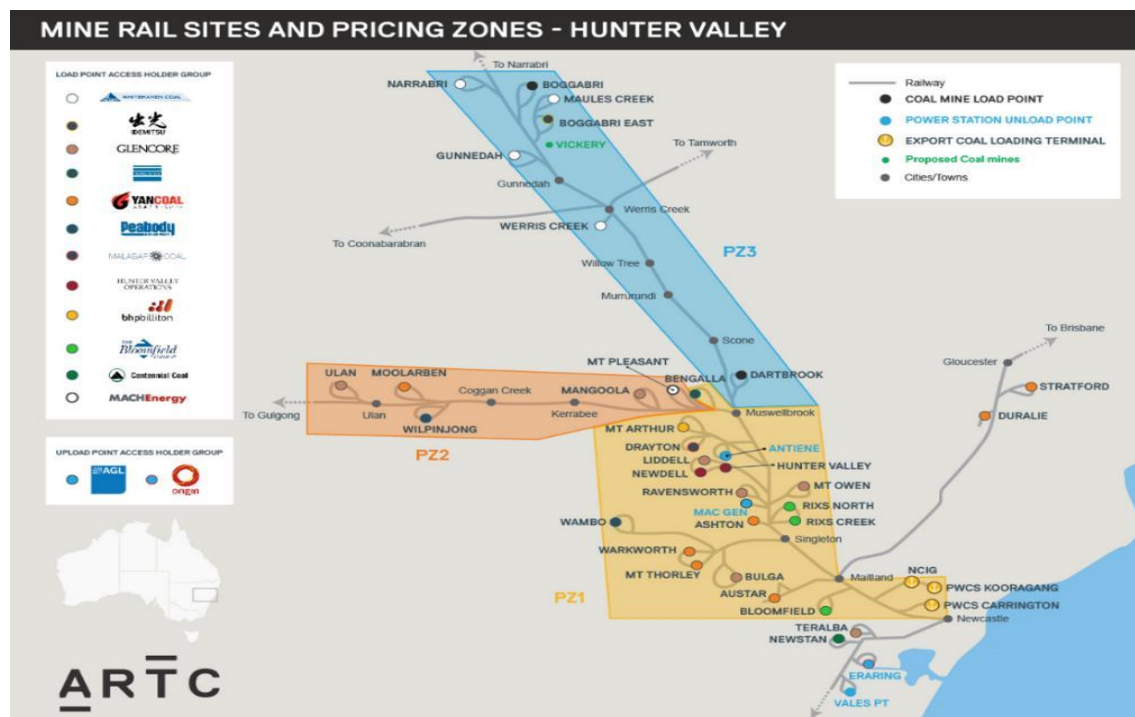
The Undertaking divides the Hunter Valley network into numerous individual sections of rail, called Segments.³ These Segments are then grouped into Pricing Zones (Zones), as illustrated in Figure 1, where:

- Zone 1 extends from the Port of Newcastle to Muswellbrook. It contains the oldest mines in the Hunter Valley. Traffic from the other zones must traverse Zone 1 to reach the port.
- Zone 2 extends east from Muswellbrook to Ulan.
- Zone 3 extends from Muswellbrook north to Narrabri. It includes the newer mines.

² 'Below-rail' relates to the provision of rail track and associated infrastructure. Conversely, 'above-rail' relates to running rolling stock (trains) on the below-rail infrastructure.

³ The Segments are specified in Schedule E of the Undertaking.

Figure 1: Hunter Valley rail network – Pricing Zones



Source: Provided by ARTC

As set out in Schedule E of the Undertaking, Zone 1 comprises 24 individual Segments, Zone 2 has 4 Segments, and Zone 3 has 8 Segments. Zone 1 does not include Islington Junction (Newcastle) south to Vales Point, nor Telarah (Maitland) to Stratford.⁴

1.2. The Undertaking

ARTC was required to submit an access undertaking to the ACCC as a condition of ARTC's 60-year lease of the Hunter Valley network from the NSW Government.⁵ Prior to the existence of the Undertaking, the Hunter Valley network was subject to the NSW Rail Access Undertaking, which the Independent Pricing and Regulatory Tribunal administers.

The ACCC accepted ARTC's original Undertaking on 29 June 2011 and has since accepted multiple variations and extensions, most recently version 8. All variations and extensions to the Undertaking are available on the ACCC's website at <https://www.accc.gov.au/regulated-infrastructure/rail/hunter-valley-rail-network-access-undertaking>.

Version 8 of the Undertaking is operational from 1 July 2021 until 31 December 2026. Section 4A.1(c) of version 8 specifies that Schedule J applies to the 2021 and 2022 compliance assessments, and that Section 4 of the Undertaking applies from 2023 onwards, after loss capitalisation for Zone 3 ended on 31 December 2022.

⁴ These segments are regulated under the NSW Rail Access Undertaking.

⁵ ARTC, *Memorandum between The Commonwealth of Australia and The State of New South Wales and Australian Rail Track Corporation Ltd*, 4 June 2004, p. 8.

The key changes introduced by version 8 include:

- from 1 July 2021 onwards, a reduction in the Rate of Return and increase in useful life, which will result in lower Access Charges
- improved transparency and reporting, including improved consultation on maintenance expenditure with the Rail Capacity Group⁶
- the ending of loss capitalisation for Pricing Zone 3 Access Holders on 31 December 2022.

To transport coal on the network, access seekers must enter into an Access Agreement with ARTC. An Indicative Access Holder Agreement (Indicative Access Agreement) is provided as Annexure A to the Undertaking and sets out the standard terms on which ARTC grants an access seeker the right to transport coal on the network. The Indicative Access Agreement requires access seekers to enter into an Operator Sub-Agreement. This is a tripartite agreement between ARTC, the access seeker and the train operator, which sets out the terms on which ARTC will provide access to the train operator. The train operator obtains train paths on the network through an Access Holder's access agreement.

⁶ The Rail Capacity Group is a representative group made up of a range of stakeholders, including Access Holders and, in a non-voting capacity, above-rail operators, and the Hunter Valley Coal Chain Coordinator.

2. The financial model

2.1. Overview

Section 4J of the Undertaking sets out key elements of ARTC's financial model for customers covered by the Undertaking. This prescribes how ARTC's allowable revenue and charges are calculated and reconciled to recover the efficient costs of providing its rail services.

The main elements to be calculated are:

- the asset base (the RAB and RAB Floor Limit)
- capital charges, which comprise return on capital and return of capital (depreciation) components, both of which are based on the asset base⁷
- the Ceiling Limit, which equals the Economic Cost (comprising operating expenditure and capital charges).

Figure 7 provides an overview of the key components of the financial model and the relationship between those components.

2.2. The Constrained Network and Pricing Zone 3

A key aspect of the financial model is the different reconciliation between Access revenue and Economic Cost for the Constrained Network and Pricing Zone 3.

The Constrained Network

As defined in the Undertaking, the Constrained Network means the group of Segments wholly in the Hunter Valley network where Access revenue earned on those Segments is likely to reach or exceed the Economic Cost of those segments. The Undertaking 'constrains' revenue for these segments to no more than the maximum revenue ARTC is allowed to receive (i.e. its Economic Cost).

The Constrained Network currently comprises the majority of Segments in Zone 1 and all Segments in Zone 2.

The majority of Access Holders in Zones 1 and 2 are Constrained Coal Customers (i.e. they begin and end their train journey entirely within the Hunter Valley network, among other factors) and are included in the reconciliation of Access revenue against Economic Cost.⁸ Access Holders that begin or end their train journey (or both) outside the Hunter Valley network are not Constrained Coal Customers and are not included in the reconciliation.

⁷ Sections 4J.1 and 4J.2 of the Undertaking also prescribe a Floor Contribution that is the minimum revenue that ARTC should recover from various types of customers. However, the Undertaking does not prescribe an explicit compliance mechanism for this.

⁸ 'Constrained Coal Customers' means an Access Holder who holds an Access Agreement with ARTC to carry coal on the network, pay more than the minimum revenue ARTC should earn, pay charges for the Constrained Network and their coal trains start and end their journeys within the Network covered by the Undertaking – see section 14.1 of the Undertaking for a full definition.

The Undertaking specifies that Access revenue obtained from Constrained Coal Customers in any calendar year must be reconciled with Economic Cost, so that:

- any under-recovery (insufficient revenue to meet costs) can be recouped from Constrained Coal Customers by ARTC, or
- any over-recovery (excess of revenue over costs) must be refunded to Constrained Coal Customers by ARTC.⁹

The unconstrained network and Pricing Zone 3 reconciliation

The group of Segments that form Zone 3, plus 3 Segments in Zone 1, are currently unconstrained. This means that ARTC can recover revenue exceeding or less than Economic Cost for these segments.

The Undertaking includes a 'loss capitalisation' mechanism for Zone 3 Access Holders.¹⁰ In the initial years of the Undertaking, coal mines in Zone 3 were in their start-up phase and Zone 3 Access Holders had limited ability to pay for their use of the network (particularly capital costs). Access revenue from Zone 3 therefore did not cover ARTC's Economic Cost.

The loss capitalisation mechanism enables any shortfall in revenue from Zone 3 Access Holders (i.e. revenue below Economic Cost) to accumulate into a loss capitalisation account. Since 2015, ARTC has recovered Access revenue in excess of Economic Cost from Zone 3 Access Holders to pay down this loss capitalisation balance. This arrangement ended on 31 December 2022, but is still applicable for the 2021 and 2022 compliance years.

2.3. Calculating the asset base

The Undertaking's financial model links ARTC's allowable revenue to its asset base, as is typically done under a building block model. The Undertaking requires 2 Regulatory Asset Base (RAB) calculations: the RAB Floor Limit and the RAB. The RAB Floor Limit is the value of ARTC's rail assets, and in other industries, is commonly referred to just as the 'RAB'. In the case of this Undertaking, the RAB is defined as the total asset value of Zone 3.

Under section 4J.4(a) of the Undertaking, the RAB is a separate calculation undertaken for only Zone 3 to account for loss capitalisation.

2.3.1. RAB Floor Limit

ARTC calculates separate RAB Floor Limits for the Constrained Network and Zone 3. The RAB Floor Limit for the Constrained Network is used to calculate components of Economic Cost (return on assets and depreciation). The Zone 3 RAB Floor Limit is used to determine if Zone 3 remains subject to loss capitalisation.

⁹ Sections 4J.3(a1) and 4J.9 of the Undertaking.

¹⁰ 'Pricing Zone 3 Access Holder' means an Access Holder with Coal Access Rights relating to a Train Path traversing segments in both Pricing Zone 1 and 3 but only to the extent of that Train Path – see section 14.1 of the Undertaking.

Figure 2 illustrates the components of the RAB Floor Limit and how it is rolled forward.

Figure 2: RAB Floor Limit



Source: ACCC, based on section 4J.4(b) of the Undertaking.

Calculation of the RAB Floor Limit involves:

- The **opening RAB Floor Limit**: the value of the closing RAB Floor Limit from the previous year.
- **Consumer Price Index (CPI) indexation**: used to maintain the real (underlying) value of assets.¹¹
- **Net Capex**: the sum of ARTC's Capital Expenditure commissioned during the year, including interest incurred during construction of capital projects, less the written down value of disposed assets.¹²
 - **Depreciation** (also referred to as 'return of assets'): accounts for the consumption of the asset. Section 4J.7 of the Undertaking sets out that depreciation will be calculated for each year on a straight-line basis; that is, annual depreciation equals the opening asset value (RAB Floor Limit) divided by the remaining number of years of its useful life. The useful life of assets is based on the remaining mine life, which changed during 2021 due to the change in operation from Version 7 to Version 8 of the Undertaking. Version 8 reset the useful life to be 21 years commencing 1 July 2021.
- The **closing RAB Floor Limit**: calculated by adding CPI and net capital expenditure to the opening RAB Floor Limit and deducting depreciation.

The RAB Floor Limit is the basis for calculating the capital charge components of Economic Cost (return on assets and depreciation).

2.3.2. RAB

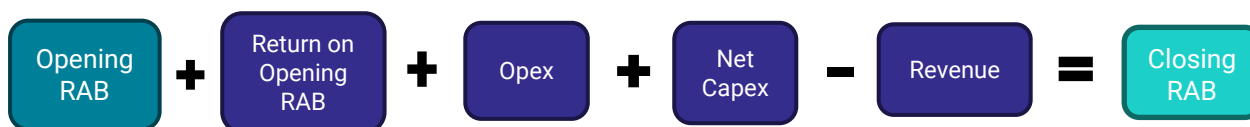
The Zone 3 RAB includes the Zone 3 RAB Floor Limit and the balance of capitalised losses incurred by ARTC. As discussed above, these losses occurred when revenue recovered from Zone 3 Access Holders did not cover their Economic Cost during earlier years of the Undertaking.

¹¹ The asset base is adjusted by the percentage change in the ABS's All Groups CPI for Sydney for the September quarter of the year under assessment over the September quarter of the previous year.

¹² See section 4J.4 of the Undertaking.

Figure 3 illustrates the RAB components and how it is rolled forward.

Figure 3: RAB



Source: ACCC, based on section 4J.4(a) of the Undertaking.

Calculation of the RAB involves:

- The **opening RAB**: equal to the closing value at the end of the previous year.
- The **return on opening RAB**: the product of the nominal pre-tax Rate of Return and the opening RAB. The pre-tax Rate of Return from July 1, 2021 onwards is set at:
 - The nominal pre-tax rate of return is 6.4%
 - The real pre-tax rate of return is 4.6%.
- **Operating expenditure (opex)**: primarily ARTC's infrastructure maintenance, business unit management, corporate overhead and network control costs, and net loss on disposals, for Zone 3 only.¹³
- **Net capital expenditure (capex)**: the same as the net capital expenditure in the RAB Floor Limit for Zone 3.
- **Revenue**, which refers to the gross Access revenue paid by Access Holders originating in Zone 3, net of the Floor Contribution attributed to Zone 3 Access Holders for their use of Zone 1.¹⁴ It includes revenue from charges for all Segments they use – both in Zone 1 and Zone 3.¹⁵
- The **closing RAB**, which is calculated by adding to the opening RAB the return on the RAB, operating expenditure, net capital expenditure and return on net capital expenditure; and deducting revenue.

2.4. Cost categories

At the most general level, expenditures incurred by ARTC are broadly grouped into 'capital expenditure' and 'operating expenditure'. However, the Undertaking provides more detailed cost categories.

Costs, whether operating or capital costs, are categorised according to whether they can be directly attributed to a particular Segment or group of Segments:

- **Segment Specific Costs** – operating costs that ARTC can directly attribute to a particular Segment or group of Segments, such as costs to repair a particular section of track.

¹³ Net loss on disposals is the written down value of the assets disposed of, less any sale proceeds (scrap value) for the assets.

¹⁴ See section 4J.2 of the Undertaking.

¹⁵ As discussed further below, coal from Zone 3 Access Holders traverses through Zones 3 and 1 to reach the Port of Newcastle. It does not traverse Zone 2.

- **Non-Segment Specific Costs** – operating costs that ARTC cannot directly attribute to a Segment or groups of Segments, such as overhead costs. Schedule I of the Undertaking outlines how ARTC must allocate these costs across Segments and zones.
- **Depreciation of Segment Specific Assets** – refers to the value of Segment Specific Assets divided by the applicable depreciation rate in section 4J.7 of the Undertaking.¹⁶
- **Return on Segment Specific Assets** – this cost is equal to the *real pre-tax Rate of Return* × (opening RAB Floor Limit + closing RAB Floor Limit) × 0.5.

The Segment attribution allows ARTC to determine costs separately for the Constrained Network and Zone 3.

Costs are also categorised according to the extent to which they vary with network usage:

- **Variable Maintenance Costs** are the parts of maintenance expenditure (including major periodic maintenance) that vary with usage of the rail network. This is part of operating expenditure.
- **Incremental Capital Costs** are costs in Zone 1 that are avoidable in the long term, excluding all capital costs incurred before 1 July 2008 and those specifically endorsed by the Rail Capacity Group as being Fixed Costs. Track strengthening, for example, is considered primarily an Incremental Capital Cost.¹⁷
- **Fixed Costs** are costs other than Variable Maintenance Costs and Incremental Capital Costs. Operating expenditure required for the whole network (Network Control, Business Unit Management and Corporate Overheads) and Capital Expenditure that does not vary with network usage (such as bridges and signalling equipment) are Fixed Costs.

The network usage categorisation, in conjunction with the segment attribution categorisation, allows ARTC to calculate costs that contribute to the relevant revenue constraint.

Any given cost will be categorised according to both methods above. For example, expenditure to conduct ballast cleaning in Segments fully within Zone 3, which falls under operating expenditure (specifically, infrastructure maintenance), would be categorised as both a Segment Specific Cost and Variable Maintenance Cost.

2.4.1. Cost adjustments for cross-zone usage

The Hunter Valley network includes shared assets that all Access Holders use. As shown in the map in Figure 1, Access Holders in Zones 2 and 3 also need to use Zone 1 track to reach the Port of Newcastle, meaning Zone 1 assets are common to all Access Holders. However, Constrained Coal Customers (from Zones 1 and 2) are charged differently for their use of Zone 1 compared to Zone 3 Access Holders.

Constrained Coal Customers contribute their share of Variable Maintenance Costs, Incremental Capital Costs and Fixed Costs incurred for their use of Zone 1.

¹⁶ Section 14.1 of the Undertaking defines 'Segment Specific Assets' as assets that form part of the RAB Floor Limit or RAB and either: (a) ARTC can attribute the assets to a particular Segment because they are physically or functionally part of the Segment; or (b) ARTC has otherwise directly attributed the assets to a Segment having regard to the recovery of relevant costs associated with those assets consistent with the beneficial use of those assets.

¹⁷ Costs are not necessarily categorised as 100% Variable Maintenance, Incremental Capital or Fixed Costs. For example, track strengthening is typically categorised as 75% Incremental Capital Cost (allocated in proportion to Gross Tonne Kilometres), because volumes have a greater impact on track weakening than time. The remaining 25% is a Fixed Cost.

In contrast, Zone 3 Access Holders contribute only their Variable Maintenance Costs and Incremental Capital Costs associated with their use of Zone 1. This is another special arrangement, like the loss capitalisation mechanism, that was included for Zone 3 mines in the original Undertaking.

Zone 3 Access Holders commenced paying a share of Zone 1 fixed costs on 1 January 2023, as loss capitalisation ended on 31 December 2022. Under version 8 of the Undertaking, Zone 3 Access holders pay:

- 33% of their share of Zone 1 fixed costs in 2023
- 100% of their share of Zone 1 fixed costs from 2024 onwards.

2.5. Revenue constraints

The Undertaking provides 2 revenue constraints for ARTC when calculating charges for Access Holders. These are the Ceiling Limit and the Floor Contribution. The way these constraints are calculated and the extent to which these constraints impact ARTC's revenue vary across different customer groups.

2.5.1. Ceiling Limit

The Ceiling Limit allows ARTC to recover operating costs, depreciation and a return on assets. The Ceiling Limit is designed to allow ARTC to earn a rate of return commensurate with the regulatory and commercial risks it faces, while constraining its ability to earn monopoly profits.

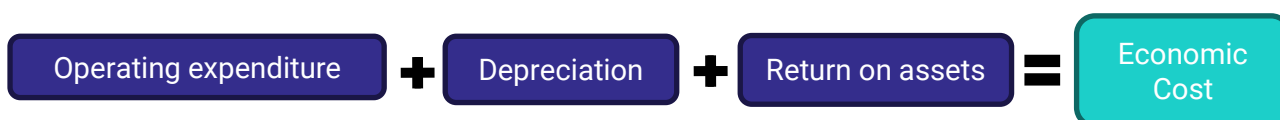
The Ceiling Limit for the Constrained Network is the maximum amount of revenue that ARTC is entitled to recover from Constrained Coal Customers in that network. The Ceiling Limit does not constrain revenue ARTC earns from Zone 3 in practice but is instead used to calculate the amount to add to or subtract from the Zone 3 loss capitalisation balance.

The Ceiling Limit is equal to the Economic Cost of providing services.¹⁸

2.5.2. Economic Cost

The Economic Cost is the sum of return on assets, return of assets (depreciation) and efficient operating expenditure, as illustrated in Figure 4.

Figure 4: Components of Economic Cost



Source: ACCC, based on section 4J.5 of the Undertaking.

Economic Cost is calculated using a building block model and involves:

- **Operating expenditure:** ARTC's infrastructure maintenance, business unit management, corporate overhead and network control costs, and net loss on disposals. Operating expenditure includes Segment Specific Costs and Non-Segment Specific Costs.
- **Depreciation** is calculated in the same manner as set out for the RAB Floor Limit.

¹⁸ Section 4J.3(a1) of the Undertaking.

- The **return on assets** is calculated by multiplying the real pre-tax Rate of Return by the average RAB Floor Limit. The average RAB Floor Limit is the average of the opening and closing asset values for the year. The pre-tax Rate of Return from 1 July, 2021 onwards is set out in section 4J.8 of the Undertaking as:
 - The nominal pre-tax rate of return is 6.4%
 - The real pre-tax rate of return is 4.6%.

ARTC calculates the Economic Cost separately for the Constrained Network and for Zone 3.

Figure 4 is a simplification of how ARTC must calculate Economic Cost. Section 4J.5 of the Undertaking outlines detailed steps ARTC must follow to calculate Economic Cost, using the more detailed cost categories discussed above in section 2.4.

2.5.3. Floor Contribution

In general, a floor contribution is the minimum revenue amount a regulated entity should receive from its customers to ensure it covers its marginal costs.

Sections 4J.1 and 4J.2 of the Undertaking prescribes a Floor Contribution that is the minimum revenue that ARTC should aim to recover from various types of customers.

- For Access Holders that are Constrained Coal Customers from Zones 1 or 2 (i.e., most of the Constrained Network customers), the Floor Contribution is equal to the Variable Maintenance Costs and Incremental Capital Costs they impose when traversing Zones 1 and 2.
- For Zone 3 Access Holders, the Floor Contribution is equal to the Variable Maintenance Costs they impose when traversing Zones 1 and 3, plus the Incremental Capital Costs they impose when traversing Zone 1.¹⁹
- For non-Coal and other Access Holders, the Floor Contribution is equal to the Variable Maintenance Costs they impose when traversing any of Zones 1, 2 and/or 3.

2.6. Revenue recovery and reconciliation

Section 4J.1(b) of the Undertaking requires ARTC to set access charges with the objective that those charges from:

- Coal Customers who are likely to be Constrained Coal Customers for the Constrained Network meet the forecast Ceiling Limit
- Zone 3 Access Holders meet their Floor Contribution, plus a contribution to the Zone 3 forecast Economic Cost and a proportion of the Capitalised Losses
- all other Access Holders at least meet their forecast Floor Contribution.

The Constrained Network is subject to a Ceiling Limit test that determines whether ARTC has earned its maximum allowable revenue. Any under or over recovery of revenue is reconciled after the ACCC completes its annual compliance assessment for that year.

¹⁹ As set out in section 4J.8A of the Undertaking, the incremental costs attributable to Zone 3 Access Holders for their usage of Zone 1 are effectively charged to Zone 3 Access Holders by:

- removing the amount from the Economic Cost for Constrained Coal Customers (i.e., Zone 1 and 2 Access Holders),
- deducting the Incremental Capital Costs from the amount of actual revenue attributed to Zone 3 Access Holders in the calculation of the RAB.

Zone 3 is subject to a different test, being the comparison of the Zone 3 RAB Floor Limit and RAB. If the RAB exceeds the RAB Floor Limit, then loss capitalisation applies (as Zone 3 Access Holders have not yet fully repaid losses ARTC incurred). While this is the case, the loss capitalisation balance is adjusted each year by the loss or surplus revenue accrued on Zone 3 and ARTC is not required to reconcile Zone 3's access revenue against Zone 3's Ceiling Limit.²⁰

There is no reconciliation process for revenue from other Access Holders.

2.6.1. The Constrained Network ceiling test ('unders and overs')

The Undertaking applies a ceiling test for the Constrained Network, comparing Access Revenue with the Economic Cost, as illustrated in Figure 5. If Access Revenue exceeds the Economic Cost (being the Ceiling Limit) in a compliance period, there is an over recovery and ARTC must refund the amount to Access Holders. If Access Revenue is less than Economic Cost, ARTC can recoup the under-recovered revenue from Access Holders.

Figure 5: Ceiling test



Source: ACCC, based on sections 4J.8A and 4J.9 of the Undertaking.

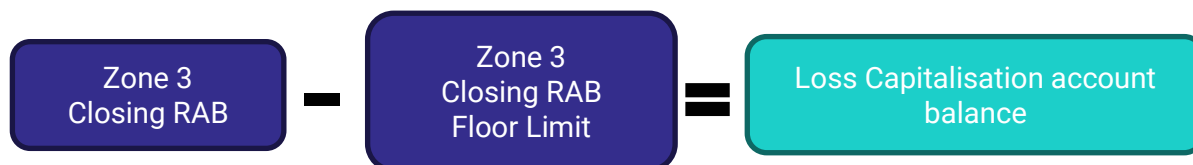
Section 4J.9 of the Undertaking details the method by which ARTC calculates the overs or unders amounts to be refunded or charged to individual Access Holders. The amount assigned to each Access Holder is based on the proportion of Access Revenue paid by that Access Holder. Only Constrained Coal Customers are entitled to a refund, or are liable to make payment, for an over or under recovery, respectively.

2.6.2. Zone 3 loss capitalisation

The Undertaking requires the ACCC to determine whether Zone 3's RAB exceeds its RAB Floor Limit, in which case loss capitalisation continues to apply for Zone 3 Access Holders.²¹

The balance of the loss capitalisation account equals Zone 3's RAB minus its RAB Floor Limit. The balance can be viewed broadly as the accumulated sum of ARTC's losses, including a return. The loss capitalisation balance peaked at \$86.3 million in 2015. Since then, Zone 3 Access Holders have paid revenue greater than Economic Cost to ARTC. The surplus revenue has been used to pay down the loss capitalisation balance.

Figure 6: Loss Capitalisation account balance



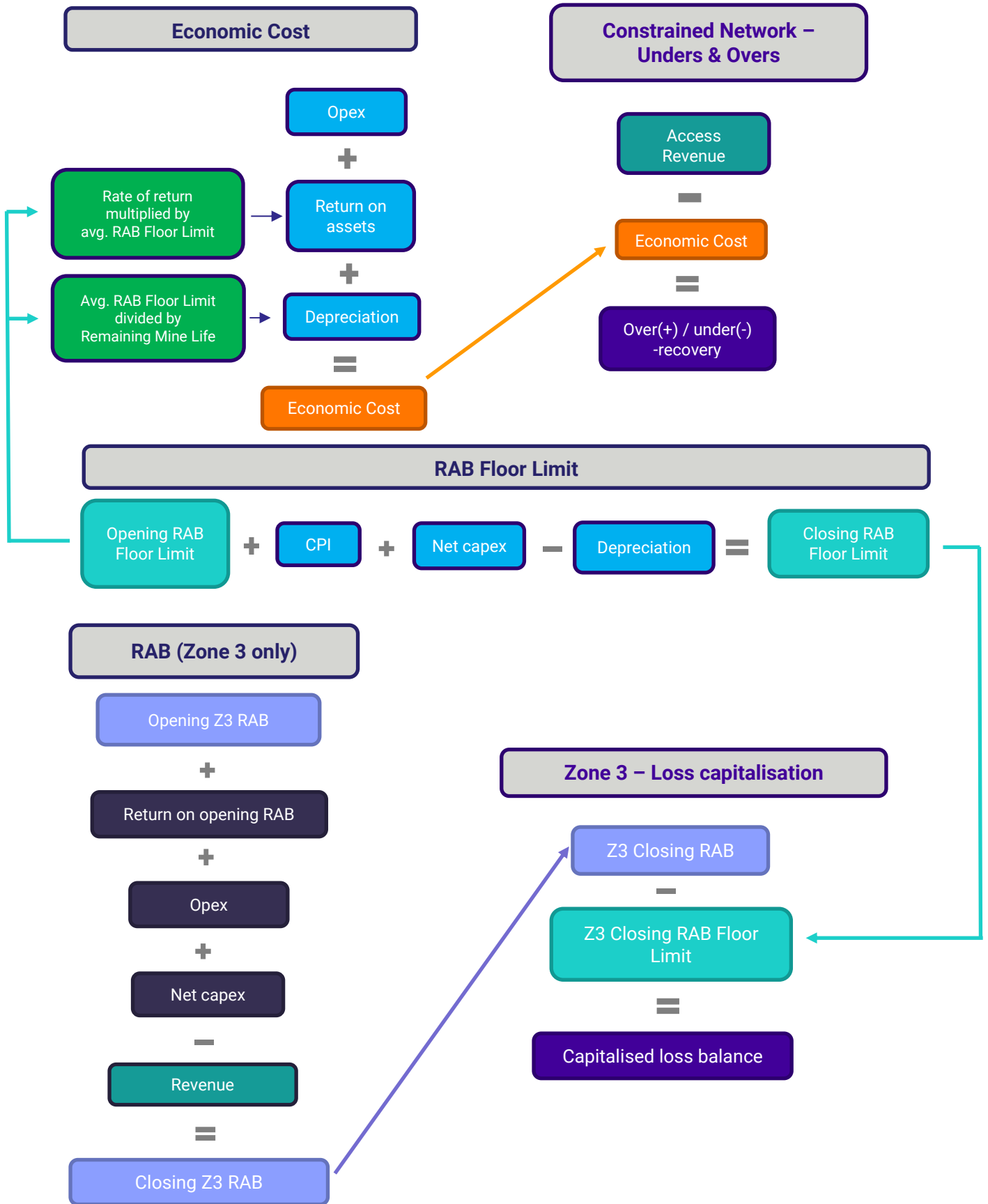
Source: ACCC, based on sections 4J.4(a), 4J.4(b) and 4J.9(g) of the Undertaking.

²⁰ No additional losses have been added to the loss capitalisation account since 2015.

²¹ Section 4J.9(g) of the Undertaking.

The loss capitalisation balance was set to zero on 31 December 2022, as required under section 4J.9(g) of the Undertaking. Zone 3 Access Holders will need to pay any remaining loss capitalisation amount in 12 equal monthly instalments from the date of the ACCC's 2022 annual compliance final determination (if it was not already paid in full by 31 December 2022). Zone 3 joined the Constrained Network as of 1 January 2023, which means there is now a single Ceiling Limit for all 3 zones. However, the single Ceiling Limit for all zones does not apply to the 2021 or 2022 annual compliance processes.

Figure 7: Summary of the Undertaking financial model



3. Assessing ARTC's net capital expenditure

ARTC's net capital expenditure in respect of the Hunter Valley network is equal to the sum of Expansion Capital (major capital), Sustaining Capital (minor/corridor capital) and interest incurred during construction, less the written down value of disposals (see Figure 8).

Figure 8: Components of net capital expenditure



Source: ACCC, based on section 4J.4 of the Undertaking.

If the ACCC determines that ARTC has incurred net capital expenditure in accordance with the Undertaking, then this expenditure is included in the RAB Floor Limit for the Constrained Network and the RAB and RAB Floor Limit for Zone 3. Moreover, if we determine that ARTC's Capital Expenditure²² is Prudent, then the Incremental Capital Cost portion of Capital Expenditure is included in the Floor Contribution for each Pricing Zone.

The ACCC's approach for assessing each component of net capital expenditure differs and is explained below. Under section 14.1 of the Undertaking, 'Prudent' has a broad definition (see below) applying to Capital Expenditure that has been endorsed by the Rail Capacity Group or, for expenditure not endorsed by the Rail Capacity Group, that encompasses elements of efficiency, the economic life of the network, demand, and other factors.

Section 14.1 of the Undertaking defines the term 'Prudent' as follows:

- *"Prudent" means in relation to Capital Expenditure, capital and renewals projects identified, and expenditure incurred, that is:*
 - (a) *taken as prudent in accordance with section 9.7(b); and*
 - (b) *otherwise, prudent having regard to:*
 - (i) *need to meet market demand for Capacity and performance of the Network, or the need to extend the economic life of the Network;*
 - (ii) *whether the scope of works is consistent with that identified in the Hunter Valley corridor capacity strategy, where applicable, current as at the Commencement Date or as varied from time to time;*
 - (iii) *what is considered to represent an efficient means to achieve that demand or extend that economic life;*

²² 'Capital Expenditure' is defined in section 14.1 of the Undertaking and includes Expansion Capital and Sustaining Capital.

- (iv) *what is consistent with existing standard and configuration of adjacent and/or existing infrastructure with similar utilisation and market requirements, or its modern engineering equivalent;*
- (v) *expenditure incurred efficiently in implementing the project, where efficient costs will reflect the costs incurred by a prudent service provider on an Efficient basis;*
- (vi) *adjustments in relation to the timing of commencement and/or commissioning of projects;*
- (vii) *the importance to the industry of anticipated timing for completion of projects having regard to the impact on Coal Chain Capacity and commercial arrangements; and*
- (viii) *where applicable, support by the relevant industry participants.*

3.1. Expansion Capital

Expansion Capital relates to projects that create Additional Capacity in the network.²³ Under section 4J.10(d)(iii) of the Undertaking, if expenditure on Expansion Capital projects is within the budget endorsed by the Rail Capacity Group, then the ACCC is not required to check whether this expenditure is Prudent.²⁴ If expenditure on the project exceeds the endorsed budget, then we check whether ARTC has reported the overspend to the Rail Capacity Group and if it has accepted the reasons for the overspend. If the Rail Capacity Group has not endorsed the overspend, then the ACCC will assess whether the expenditure satisfies the definition of Prudent in section 14.1 of the Undertaking.

3.2. Sustaining Capital

The Undertaking defines Sustaining Capital (or minor capital) as Capital Expenditure that is not Expansion Capital. Sustaining Capital typically relates to ongoing annual programs for asset replacement, cost reduction or safety-related projects, rather than projects that create Additional Capacity in the network.

Pursuant to section 9.1(e)(ii) of the Undertaking, where ARTC considers a project is minor in scope or cost it will consult on a group of Sustaining Capital projects, rather than each project individually. ARTC adopts this approach because the Sustaining Capital program is typically subject to a greater degree of variation at the project level than the Expansion Capital program.²⁵ ARTC submits a program of Sustaining Capital projects to the Rail Capacity Group for review and endorsement, generally for a range of purposes in a particular zone or a particular activity, such as re-railing.²⁶

The process for checking whether ARTC incurred Prudent Sustaining Capital expenditure is similar to the process we adopt for Expansion Capital. However, given the Rail Capacity Group typically approves spending for a bundle of Sustaining Capital Projects by zone in a single endorsement document, we check whether spending is within the approved budget for that bundle of projects, rather than at the individual project level.

²³ Section 14.1 of the Undertaking

²⁴ See section 4J.10(d)(iii) of the Undertaking. Note that we exclude interest during construction from the total project spend.

²⁵ ARTC, [Hunter Valley Coal Network Access Undertaking – 2021 Compliance Assessment Submission](#), 11 April 2023, p. 3.

²⁶ ARTC, [Hunter Valley Coal Network Access Undertaking 2021 Annual Compliance Assessment, Attachment 2: Capital consultation](#), 11 April 2023, pp. 3, 5.

3.3. Interest during construction

Interest during constructions refers to interest costs that ARTC incurs in financing the construction of its capital.

The ACCC must check if interest during construction has been calculated in accordance with the Undertaking. The calculation of interest during construction will be in accordance with the Undertaking if:

- the capital project meets the requirements of section 9.6(e) of the Undertaking, and
- the interest has been calculated using the correct Rate/s of Return.

Pursuant to section 9.6(e)(ii) of the Undertaking, interest incurred during construction of a stage in a capital project will be deemed Prudent at the date of completion of that stage where the following criteria have been met:

- the delivery timeframe for the project is more than 12 months
- the Rail Capacity Group consents to a staged delivery of the project
- the stage has been completed.²⁷

Interest incurred during construction that is deemed Prudent will be included in the RAB and RAB Floor Limit in the year the asset was commissioned.²⁸

Under section 4J.4(a) and (b) of the Undertaking, interest during construction is calculated by reference to the relevant Rate of Return. The nominal pre-tax Rate of Return for the period from 1 July 2021 onwards is 6.43%.²⁹

3.4. Written down value of disposals

Disposals are assets that are removed from the asset base because of works. For example, when ARTC undertakes re-railing works, it removes and disposes of old rail components.

The ACCC determines whether disposals were a necessary consequence of capital works. The written down value of disposals is removed from the asset base (or subtracted from the asset base) in the year that the item has been disposed of.

²⁷ The criteria are set out at section 9.6(e)(ii) of the Undertaking. Furthermore, ARTC is not entitled to recover interest during construction in respect of a capital project if the project is commissioned after the later of the dates set out in section 9.6(e)(iii) of the Undertaking.

²⁸ Section 4J.4 (a) and (b) of the Undertaking.

²⁹ Section 4.8(b) of version 7 of the Undertaking; section 4J.8 of version 8 of the Undertaking.

4. Assessing ARTC's operating expenditure

Operating expenditure comprises ARTC's Infrastructure Maintenance, Business Unit Management, Corporate Overhead and Network Control costs, and net loss on disposals.

Infrastructure maintenance includes:

- Major periodic maintenance (major cyclical or planned activities that maintain the operating performance and asset life of operational infrastructure), such as:
 - ballast cleaning
 - rail grinding
 - turnout maintenance
 - full track reconditioning.
- Routine corrective and reactive maintenance (minor scheduled activities used to inspect or service asset condition on a routine basis), such as:
 - rail defect removal
 - inspection and minor repairs of points.

Further information on infrastructure maintenance activities is at Appendix A.

ARTC categorises its overhead costs into 3 categories:

- Network control: costs associated with managing train movements on the Hunter Valley network.
- Business unit management costs: direct costs relating to the Hunter Valley corridor, including executive management, customer service, operations and asset management.
- Corporate overheads: costs associated with the ARTC-wide corporate functions.

Finally, ARTC's operating expenditure includes the net loss on asset disposals, calculated as the written down value of the disposed assets, minus sales proceeds (scrap value) from the assets. Broadly, the net loss on disposal becomes an immediate expense charged to users, whereas users would have otherwise paid capital charges over the life of the asset if there had been no early disposal.

4.1. Efficient operating expenditure

Section 4J.10(e) of the Undertaking provides for the ACCC to determine whether ARTC has incurred Efficient operating expenditure.³⁰ Under section 4J.5(b) of the Undertaking, only Efficient operating expenditure is included in the Economic Cost calculations for the ceiling test.

³⁰ ARTC's operating expenditure comprises maintenance costs, business unit management costs, corporate overheads, network control costs, net losses on disposals and expensed project costs.

The term 'Efficient' is defined in section 14.1 of the Undertaking as:

... costs incurred by a prudent service provider managing the Network, acting efficiently, having regard to any matters particular to the environment in which management of the Network occurs including:

- a) the Hunter Valley Coal Chain where a key objective in maintenance planning is to maximise coal chain throughput and reliability;*
- b) ARTC's obligations to maintain the Network having regard to terms of applicable Access Agreements and Access Holder Agreements existing at the time; and*
- c) ARTC's obligations under the law, applicable legislations (including regulations) or the NSW Lease.³¹*

In previous compliance assessments, we have accepted expenditure as being Efficient for a variety of reasons, including if the expenditure:

- leads to improved safety and reliability
- improves track utilisation and throughput
- relates to works that are necessary to rectify damage brought about by extreme weather events
- improves the productivity of a particular activity, for example, procuring a rail grinder to increase rail grinding scope at a lower cost
- leads to the automation of system, which will provide long term benefits to users.

The ACCC has also accepted expenditure that has been endorsed by users as Efficient.

4.2. Overhead cost allocation

Where costs are unable to be directly allocated to a Segment, they are allocated in accordance with an overhead cost allocation model (Undertaking, Schedule I).

The overhead model shows the allocation of the Non-Segment Specific costs including the categories of an overhead nature in operating expenditures – Corporate Overheads, Business Unit Management and Network Control.

The model shows total overhead costs for the whole company for different functions, and the allocation of cost for each function to different parts of the business by various drivers. It includes the size of the drivers and the allocation formulae, with the following steps that follow those set out in Schedule I of the Undertaking:

- Allocation to a corridor by:
 - direct attribution of costs to a corridor where possible; for example, most Hunter Valley business unit management costs can be directly attributed to the Hunter Valley corridor
 - for the remaining overheads, allocation between Hunter Valley and Interstate corridors according to allocation methods appropriate to each cost category: for example, People costs according to Full Time Equivalent staff numbers, Communications according to train kilometres.
- Allocation of Hunter Valley costs between the coal network and non-coal:

³¹ Undertaking version 8, section 14.1.

- if the costs are associated with indirect maintenance or operational costs – according to Gross Tonne Kilometres
- otherwise – according to Direct Stay in Business costs.
- Allocation of the coal network costs between zones and segments:
 - if maintenance-based – according to Gross Tonne Kilometres (as the volume carried on tracks typically determines maintenance requirements)
 - otherwise – according to Train Kms.

The ACCC reviews the overhead cost allocation model submitted by ARTC as part of its compliance documentation to ensure that ARTC has allocated its overhead costs in accordance with Schedule I of the Undertaking.

4.3. Maintenance Plan

As of the 2022 compliance year, ARTC is required to produce a budget and maintenance plan (the plan) for each calendar year³². The plan will identify the ten largest maintenance activities for each pricing zone and illustrate the indicative maintenance budget for the relevant calendar year.

The Plan also needs to set out an overview of:

- The forward 10 year asset management strategy linked to ARTC’s asset strategies;
- the timing of cyclical maintenance activities, ARTC maintenance practices and ARTC’s approach to procuring suppliers for maintenance work.

³² Section 9.11 of the Undertaking

5. True up test audit

The terms 'Total Path Usages Required', 'Network Path Capability', 'Functional Coal Paths', 'Availability Exceptions' and 'System Availability Shortfall' used in this section are defined in clause 1.1 of the Indicative Access Agreement, rather than in the Undertaking.

The Undertaking incorporates liability arrangements for the payment of rebates to users where ARTC fails to deliver contracted path capacity. The payment of these rebates occurs following the completion of an annual reconciliation process, which is informed by a true up test audit. The ACCC determines whether rebates are owed to, or recoverable by, ARTC.³³

ARTC's true up test audit obligations are set out in Schedule 2 (System True Up Test) of the Indicative Access Holder Agreement. Section 4.10A(b) of the Undertaking stipulates the true up test auditor must have the requisite skills to conduct the audit and is independent of ARTC.³⁴ ARTC must engage an auditor that has not been objected to by the ACCC or, if the ACCC has objected, an auditor identified by the ACCC.³⁵ Section 4.10A(k) of the Undertaking requires the ACCC to review the true up test audit report, and determine and notify ARTC of, any amounts of underpayment of rebates that are owing to Access Holders or amounts of overpayment of rebates ARTC is entitled to recover.

The true up test determines whether there was sufficient capacity available on ARTC's rail network to meet all contracted entitlements. This involves a comparison of:

- Total Path Usages Required, which includes base (contracted) and ad-hoc train paths, maintenance requirements, non-coal trains, system losses and a tolerance allowance.
- Network Path Capability, which is the number of Functional Coal Paths being made available in a period after accounting for Availability Exceptions (i.e., things beyond ARTC's control, such as emergencies, passenger priorities or material safety considerations).³⁶

The calculation is conducted on a Pricing Zone basis. If Total Path Usages Required exceeds Network Path Capability within a Pricing Zone, a System Availability Shortfall has occurred and ARTC has failed the true up test for that month or quarter in that zone. If a System Availability Shortfall has occurred and an Access Holder has experienced an Individual Shortfall, whereby the number of train paths used by the Access Holder during the period was less than the number of train paths contracted during that period, then that Access Holder will accrue a rebate for charges on unavailable paths in that Pricing Zone during that period. These are known as 'accrued system rebates under Schedule 2' of the Indicative Access Holder Agreement.

ARTC is required to publish the results of its monthly and quarterly true up tests on its website within 3 weeks of the end of the given period.³⁷ It must also notify Access Holders of any rebates accrued during the period.

³³ Section 4.10A(k) of the Undertaking.

³⁴ The true up test auditor is typically a consulting firm that has been engaged by ARTC. Grant Thornton conducted the true up test for the 2021 compliance process.

³⁵ Section 4.10A(c) of the Undertaking.

³⁶ A Functional Coal Path is one capable of being used by a coal train which adheres to certain Relevant System Assumptions, including section running times, maximum train length, maximum train axle load and maximum train speed as defined in section 1.1. of the IAHA.

³⁷ Test results are available at: <https://www.artc.com.au/customers/access/access-hunter-valley/compliance-with-agreements/system-true-up-test-results/>. Note that some reports, such as those for Zone 3, are not published to protect customer confidentiality. ARTC provides these results directly and individually to relevant Access Holders.

Section 5.4 of the Indicative Access Holder Agreement outlines how Take Or Pay Rebates for contracted paths are calculated in the annual reconciliation process. If the number of train paths actually used during a year is less than the number of train paths contracted, then an 'annual deficiency in contracted Path Usages' has occurred. If this occurs and a rebate has been accrued as described above, the Access Holder is entitled to a rebate on the Take Or Pay charges it paid for those unused paths.

The rebate is the lesser of:

- the average Take Or Pay charge for a train path multiplied by the annual deficiency in contracted Path Usages, and
- the sum of accrued system rebates under Schedule 2 of the Indicative Access Agreement.

This 'lesser of' requirement means that a rebate is only owed where an Access Holder cannot access contracted paths in a particular zone due to ARTC failing the true up test. If the Access Holder opts not to use its contracted train paths, then no rebate is owed.

6. Presentation of data

In our annual compliance assessment documents, we present monetary values in nominal dollars, unless stated otherwise. Nominal values include inflation and are used when ARTC reports financial information in its annual reports, publishes prices and reports values within its submission for compliance assessments, among other instances. This allows easier comparison between our determination and ARTC's submission documents. We may also present monetary values in nominal terms in text, followed by a statement that further explains the figure in real terms.

However, for charts comparing expenditures over several years we present values in real dollars, that is, values excluding inflation. When comparing values over time, particularly during periods of high or volatile inflation, real values enable comparisons of underlying data without the impact of inflation. Some tables may include figures that are in both nominal and real terms.

We present estimates in charts and tables rounded to one decimal place. However, we calculate all percentages shown in this determination using exact figures as submitted by ARTC. This rounding may result in slight differences between the values presented in the determination and actual calculations.

If you have queries about matters raised in this document, you can contact the ACCC's Regulated Access – Rail team at: transport@acc.gov.au.

Appendix A

ARTC's infrastructure maintenance activities

ARTC incurs a significant portion of its operating expenditure on maintaining the Hunter Valley network's infrastructure.

ARTC categorises its maintenance activities as major periodic maintenance or routine corrective and reactive maintenance.

Major periodic maintenance refers to major cyclical or planned activities that ensure the operating performance and asset life of operational infrastructure. Major periodic maintenance activities aim to reduce rail infrastructure defects and the need for corrective maintenance. Major periodic maintenance activities are largely delivered within the network closedowns and are predominantly outsourced.³⁸

Routine corrective and reactive maintenance refer to minor scheduled activities used to inspect or service asset condition on a routine basis. Routine corrective and reactive maintenance include reactive and corrective activities that are required because of inspections or defect identification that, because of their nature, are dealt with at short notice or as soon as practicable.³⁹

Major periodic maintenance typically comprises around 70% to 80% of ARTC's infrastructure maintenance expenditure, while routine corrective and reactive maintenance comprises the remainder.

Each year, ARTC reports the top 10 infrastructure maintenance activities by cost in its annual compliance submission. The discussion below provides a brief explanation of infrastructure maintenance activities that frequently fall within the top 10 activities. The below descriptions of maintenance activities have been taken from Attachment 1 to ARTC's 2021 compliance submission.⁴⁰

Major periodic maintenance activities

Ballast cleaning

Ballast cleaning involves replacing 'dirty', worn ballast (i.e. the rocky material that forms the track bed under the rail tracks) with fresh ballast. This activity is critical for maintaining track geometry and ensuring efficient drainage.

To maintain confidentiality, ARTC does not report the expenditure amount for ballast cleaning in its public documentation. However, it reports the percentage change in expenditure each year in its public annual compliance submission and provides the actual expenditure as a confidential submission to the ACCC.

³⁸ ARTC, [Hunter Valley Coal Network Access Undertaking 2021 Annual Compliance Assessment Attachment 1: Hunter Valley Network Operating Costs](#) (2021 Submission – Att. 1: Operating Costs), p. 13.

³⁹ ARTC, *2021 Submission – Att.1: Operating costs*, p. 13.

⁴⁰ See ARTC, *2021 Submission – Att.1: Operating costs*.

Rail grinding

Rail grinding is the periodic grinding of rail to manage its profile and stress-related defects. Grinding improves wheel and rail interface to reduce rail and wheel wear and propagation of rail defects. Rail grinding frequency depends on rail and traffic type, tonnages and track curvature, and is a cyclical activity. Similar to ballast cleaning, ARTC provides actual expenditure to the ACCC confidentially, but reports percentage changes in its public submission.

Full track reconstruction (reconditioning)

Full track reconstruction (also known as mudhole full track reconditioning) involves the removal and reconstruction of the track formation to rectify deterioration in the track geometry. It includes subgrade treatment, the installation of structural earthworks, a capping layer and new ballast, followed by track and drainage restoration. Full track reconstruction works that are 200 metres or more in length are categorised as Sustaining Capital.

Track reconstruction scope is heavily dependent the condition of the track formation, which means scope can vary significantly from year to year. Wet weather can cause rapid deterioration of the track formation.

Turnout steel component replacement

A turnout is a track configuration that enables trains to move from one track to another, such as at crossing loops.⁴¹ Turnout steel component replacement involves replacing worn and defective turnout rail components, which reduces the risk of turnout rail component failure and therefore potential derailment. Turnout components need to be replaced when they are damaged beyond the extent to which defects can be addressed by turnout grinders, hand grinding teams or wire feed welding repair (or build up) activities. The scope of this activity varies from year to year and depends on asset degradation and environmental factors at each location.

Maintenance resurfacing and turnout resurfacing

Maintenance resurfacing (tamping) restores the track geometric parameters of top, line, superelevation, and curvature by mechanised on-track machinery to the 'as designed' condition of the track. The volume of tamping works is primarily determined by the tonnage being carried on the track over time.

Turnout resurfacing refers to resurfacing of turnouts rather than straight sections of the track.

Ballast undercutting

Ballast undercutting aims to rectify localised ballast defects on sections of track typically less than 100 metres in length. This activity is undertaken by using an excavator and cutter bar to remove a mud-hole or area of fouled ballast which impedes drainage. Ballast undercutting reduces the likelihood of rail breaks occurring. Even though this activity is

⁴¹ ARTC, [What is a turnout? ... X marks the spot!](#), ARTC website, accessed 6 November 2023.

classified as a major periodic maintenance activity, ARTC has said it is somewhat reactive in nature.

Turnout grinding

Turnout grinding involves grinding turnouts to manage rail profile and stress-generated rail defects. Grinding improves the interface between the wheel and the rail reducing wear on both surfaces and slows the propagation of rail defects, thereby minimising the need for premature replacement of turnout components. Turnout grinding cycles are determined according to the requirements of the asset and the logistical considerations associated with delivering the works program. These cycles vary from 4 times per year through to once every 4 years.

Routine corrective and reactive maintenance activities

Rail defect removal

Rail defect removal involves the removal of surface and internal defects through replacement with new rail, generally 6 to 8 metres in length. Removing rail defects reduces the likelihood of rail breaks occurring, which pose a substantial derailment risk. This activity is a condition-based corrective maintenance activity, whereby defects are identified through visual or ultrasonic inspections.

Inspection and minor repairs of points

This activity relates to the minor and routine maintenance of the point machines and their moving parts. A point machine is a device used for operating turnouts. Vibrations of moving trains and environmental factors can impact the performance of the point machines. Environmental factors include wet weather, the large difference in temperature between night and day, as well as sand, dust and coal debris generated from train movements. To keep the point machines in working order, they need to be regularly inspected and maintained (which can include cleaning, lubrication, adjustment, repair and/or replacement of life expired components).