Hunter Valley Coal Network Access Undertaking

Further Submission for ARTC's 2019 and 2020 Joint Compliance Assessment

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ARTC

Table of Contents

1 Introduction

ARTC provides this further submission relating to the 2019 and 2020 Joint Compliance Assessment in response to matters raised in a submission by the Hunter Rail Access Task Force (HRATF) provided to ARTC.

2 HRATF Submission

2.1 Context 2019 and 2020

High coal prices and strong market sentiment throughout 2018 was reflected in customer volume forecasts received in July 2018 for the 2019 calendar year and resulted in the Hunter Valley (HV) network achieving a record total coal transportation volume in 2019. This initial enthusiasm declined as did demand through 2019 saw a significant decrease in the price of export thermal coal from a high of around US$100 per metric tonne in January, to a low of US$65 per metric tonne in August which held steady for the remainder of the year.

With weakened demand and external factors impacting track accessibility, actual coal throughput fell short of initially forecasted volumes for the period. Coal prices, already weak, were initially negatively impacted further by COVID-19 in 2020. Spot prices fell to a low of US$48 per metric tonne by August putting additional cost pressure on the HV Coal Producers. By the back end of 2020, customers sought to capitalise on the rising export coal prices brought about by the resumption of industry post wave one of the global pandemic. The decrease in coal price across the two periods sharpened Customers' cost focus and further strengthened collaboration efforts between ARTC and all coal chain participants to develop enhancements to the existing assets and processes aiming to increase efficiency of the network without the need for significant capital expenditure.

The impact of falling coal prices resulted in varied levels of negative demand sentiment amongst the customer base representing the mixed sensitivity and strategies in response to the economic outlook. In the Constrained Network this translated to softening coal volumes predominantly due to declines in Pricing Zone 1, while in comparison GTKs in Pricing Zone 3 increased. The trend of a higher proportion of the volume originating from the extremities of the Network remained constant and the cumulative effect continued to influence the maintenance activities undertaken at a zonal level in combination with the individual operational, historical and geotechnical characteristics unique to each Pricing Zone.

During 2019, the ANCO Project reached significant milestones in the planned staged implementation of the technology solution "Movement Planner" with the foundation capabilities commissioned network wide. Full commissioning of the ANCO technology infrastructure was completed in November 2020. This achieved end-to-end digital train planning across the entire HV heavy haul network with interfaces to HVCCC, the coal terminals and a number of load points.

The level of transparency provided to the RCG on ARTC's cost performance for both high level maintenance costs and sustaining capital expenditure remained constant with prior periods. Reporting to RCG was ongoing, detailing the commissioning of the Quirindi and Joseph and Jacobs Bridge and the progress of the Waratah to Sandgate Resignalling Project. Infrastructure Maintenance Expenditure was influenced by the heated contract labour market with fewer resources available at

higher rates coupled with higher transitional training and retention costs associated with accelerated training programs for internal candidates. The implementation of ARTC's People Strategy has provided a combination of local and national expertise to ensure ARTC is well positioned to manage staffing constraints to the overall benefit of customers.

In the two-year period of 2019-2020, the HV Network had continual extensive external influences which affected network performance and maintenance costs. The heat and bushfires over the 2019 summer period impacted the rail corridor resulting in numerous power supply failures, destroyed equipment and caused other heat related issues. ARTC acted to further reduce the risk to personnel and property by determining that all non-essential hot work activities in the November closedown would be deferred. The deferred scope of capital and maintenance activities in 2019 was completed in 2020. Also in 2019, isolated storms producing short periods of extremely heavy rain created challenges impacting track formation in areas of the Lower Hunter. Emergency maintenance and additional capital projects were completed during the year to ensure the safety and reliability of the network and to reduce the need for continued maintenance in and around Hexham, Farley and Lochinvar. Meteorological conditions significantly shifted during 2020 breaking the prolonged drought with extreme weather and storms. Heavy sustained rain in the HV in February caused extensive flooding in Zones 1 and 3.

The effect of the COVID-19 pandemic during 2020 has required ARTC to be agile in its approach to ensuring the ongoing safe and reliable operation of the network. ARTC prioritised the safety and well-being of all employees and the community with all staff in offices transitioned to working from home, restrictions on travel and modifications to the working processes of network control centres and employees on the network. To minimise risk of transmission to employees, contractors and communities, it was determined that the full program of planned works scheduled for the April 2020 major closedown would not be completed during that period. The scope which was deferred in April was achieved within the remaining closedowns over the course of 2020 with operational risk managed through targeted smaller maintenance interventions augmented by remote monitoring and targeted visual inspection. COVID-19 also had the impact of tightening the supply of labour and specialised equipment required for the maintenance and operation of the network.

ARTC again had a strong regulatory focus throughout the 2019 and 2020 years. The new HVAU concept of path-based pricing was implemented in 2019 and negotiations started for the 2022 renewal of the HVAU being a key focus for ARTC and Customers. ARTC engaged extensively with Customers, Operators and the ACCC resulting with ARTC submitting HVAU Version 8 to the ACCC with full Customer support in December 2020 and the ACCC subsequently accepted the variation in June 2021. In parallel, work continued to progress on submission of historical Compliance Submissions with lodgement and final determination of 2015 Compliance Assessment in April 2019, 2016 Compliance Assessment in December 2019, 2017 Compliance Assessment in September 2020 followed by lodgement of the 2018 Compliance Assessment on 23 December 2020.

2.2 Access to the ARTC financial and tariff models

ARTC acknowledges the various stakeholder feedback regarding the transparency of the financial model and has been proactively assessing how further information can be provided without compromising the confidentiality of customer information.

In October 2021, ARTC provided an in-depth workshop and accompanying excel workbook on the pricing calculation underpinning 2022 tariffs to customers as part of the 2022 pricing consultation process. This information was well received by stakeholders and will be refreshed again as part of the consultation on 2023 pricing which will occur in October 2022.

To expand on this foundation and provide further transparency, ARTC is preparing a further series of workshops and accompanying material to be provided to customers over the coming months. Review of stakeholder submissions on the subject express three focal areas in regard to the mechanics of the regulatory model and thus workshops have been structured to address these concerns:

Workshop 1: Operating Expense allocation (Maintenance & Overheads)

Workshop 2: Regulatory Asset Base calculation

Workshop 3: Ceiling Test calculation

For each topic, supporting excel excerpts from the regulatory model will be provided to customers to demonstrate the working calculations and for use in subsequent scenario analysis. Depending on the component, this information will be accompanied by either realistic mock data or data at an appropriately anonymised level in accordance with existing confidentiality requirements.

ARTC is mindful of the complexity of the regulatory model. The intent of holding workshops is to break down and explain in detail the various component calculations to address transparency concerns while mitigating the potential for confusion and misinterpretation by customers who are unfamiliar with the complexities of the regulatory model.

ARTC has given thorough consideration to both confidentiality obligations and the considerable complexity of the regulatory model and concluded that the workshop approach outlined above is the most appropriate avenue to increase transparency and provide useful information to stakeholders at this time. Given the need to redact or change data to ensure confidentially, it is not possible for ARTC to publish the compliance model as lodged and ARTC respects the role of the ACCC, as the independent regulator, and its responsibility for the assessment of ARTC's annual compliance submission under the current HV Access Undertaking (of which submission of the regulatory compliance model is a fundamental component).

ARTC has noted the references to regulatory "best practice" in customer submissions in respect of the publishing of financial models. ARTC has undertaken a desktop review of different industries and believes that the Gas Transmission market is a model, closely comparable to the HV Coal network, particularly in respect of the number of contracting parties (circa ten compared to millions for essential services). Even then, there are significant differences in the asset, commercial and regulatory structures that do not make a like for like comparison possible. However, the models that are published as part of non-scheme pipeline requirements (or AER regulatory considerations) provide an aggregated level of detail, consistent with information already published by ARTC. Given the confidentiality and complexity issues raised above, ARTC believes that the approach it is taking to improve transparency exceed these developments by providing access to both information and context to improve customer understanding.

ARTC is confident that the above approach will provide customers with adequate training, data and insight into the regulatory model whilst further increasing transparency and confidence in the robustness of the calculations that underpin it. As always ARTC will seek feedback from customers following the workshops as to future steps or improvements that can be made to the information provided.

2.3 Overall trends in ARTC operating expenditure

ARTC notes HRATF's comments in regard to operating expenditure and further notes that the size of the HV business, its services and its requirements have also grown substantially throughout the period

from 2012. Contracted coal GTK has increased significantly in the period from 2013-2020 notably; Pricing Zone 1 30%, Pricing Zone 2 76% and Pricing Zone 3 189%.

As well as the additional correlated maintenance and operational costs resulting from the increased volumes, there has also been a significant growth in safety maturity, leadership efficacy and an increased focus on providing customer service, engagement, and outcomes in line with growing expectations throughout the period. ARTC has continually undertaken process improvement initiatives, capacity building projects, technology upgrades and developed enhanced reporting tools which has enabled the technological maturing of the overall coal supply chain. The efficiencies gained result not only in outcomes that are measurable by ARTC, such as increased capacity and efficiency, but also contributes to improved service and lower cost outcomes from other service providers benefiting from the coal supply chain as a whole.

ARTC has an ongoing commitment to safety, and the expenditure obligations in relation to this have increased. Safety, community relations and environment have been and will continue to be areas of focus for improvement to ensure that the rail network servicing the Hunter region and wider is of an international safety standard and ARTC's, and its Customers social licence to operate remains solid across the region. Work throughout 2019 and 2020 on the "Pathway to Zero" and Safety Work Improvement Program (SWIP) has resulted in the advancement and automation of real time protection of ARTC's front line workforce with further development continuing into 2021.

Access to skilled labour has been a recurring challenge for ARTC on and off the track. The People Strategy in recent years has aimed at providing a more specialised and accessible approach across the HV Business Unit, transferring Human Resources roles into the Business Unit itself. Given the current labour shortage, not only in maintenance and engineering roles, but in broader business functions such as safety, finance, commercial and administration, longer-term investment into staff development and internal growth opportunities are now being created by a strong HR function.

HVAU regulation has also grown extensively since 2012, with an increased level of development, engagement and transparency expected by both the regulator and customers. In response ARTC has employed specialised roles and consulting expertise to speed up the lodgement of historical Compliance submissions, development and implement thorough RCG reporting processes and engage on the ongoing framework development for each variation of the HVAU.

ARTC has expended a significant amount of time and resources to gain access to, and surety of supply for equipment and labour in a market where the scarcity of resources has been causing delays and continually increasing costs. As access to resources decreased throughout 2019 and 2020, improvement of the procurement function within ARTC has not only focused on the longer-term goal of decreasing costs for maintenance and capital works but has also been essential to providing flexibility and availability of labour and materials in a tightly constrained and COVID impacted local market.

The increased spending on safety, reliability and logistics has enabled ARTC to respond to customer flexibility requests to support the delivery of peaking volumes and/or above contract volumes. The ACCC have issued an amendment to Figure 5 in their Consultation Paper that was referenced in HRATF's submission. ARTC note that the real operating expenditure per GTK was revised to $4.74/ GTK as at 2020 (error caused by double counting of some costs by the ACCC in their calculations) and acknowledge the trending of Cost/GTK remains consistent with the originally commented on graph.

Customer forecasted demand for 2019 was in line with very optimistic market sentiment at that time with customer focus on the necessity of a reliable and flexible HV rail network. ARTC prepared maintenance plans, sustaining capital submissions and business improvement projects for this period focusing on servicing the customer needs to be delivered for the forecasted volume in the most efficient and safest manner possible.

From this starting position and assumptions of high forecasted demand in 2019, there were various influences which have impacted the operating expenditure per GTK result:

- Coal Prices tumbled mid-2019 which led to Customer demand profiles softening. Customers each experienced this differently, and feedback from the coal supply chain to ARTC was divided between ensuring the HV network was able to deliver the current record level of forecasted GTKs and others were more focused on achieving cost reductions across the industry. ARTC provided a balanced response through creating cost efficiency whilst delivering planned maintenance to ensure track reliability to meet customer forecasted demand.
- The catastrophic bushfires of 2019 resulted in deferred maintenance works being pushed into the next calendar year. Costs in 2020 were impacted by this carryover of work from 2019 with some costs effectively shifting across the periods.
- The low coal price was reduced further in April 2020 by COVID-19, with customer demand weakening even more due to the global uncertainty of markets. Restrictions and difficulties of supply due to COVID-19 in terms of labour and materials coupled with the extreme wet weather of 2020 impacted the timing of works and costs during the 6 scheduled closedowns.
- As the world's supply chains and industries adapted to the COVID-19 pandemic, market confidence and coal prices rose steadily at the back end of 2020. Reliability and flexibility of the rail network again become the most paramount focus of customers to boost their coal exports after an extremely challenging 18 months, with ARTC at short notice increasing resources and expenditure to improve track performance and reduce delays.
- 2019 saw a GTK result that was below previously forecasted by customers and GTK's in 2020 were further impacted by extreme weather, COVID-19, customer demand and coal supply availability which resulted in a reduction of actual GTK's of 2.3% across the network from 2019.

In combination these influences created fluctuations in network demand and varied customers focus (and therefore ARTC's response) over the two-year period. ARTC's maintenance spend was influenced by bullish customer forecasts that indicated sustained demand well above contract which did not peak as high or sustain as expected, changes in timing of works between the years and the costs required to ensure reliability and flexibility in times of fluctuating demand. These impacts have influenced the uptick of real operating expenditure per GTK in the 2020 year.

2.4 The HRATF are unclear on the long-term benefits attributed to the increase in real operating expenditure

Rail Defect Removals:

Rail Defect Removal is a Routine, Corrective and Reactive Maintenance (RCRM) activity and encompasses a range of tasks of varying complexity and spend. As previously noted in earlier submissions, due to the reactive nature, ARTC does not generally plan and scope RCRM activities like it would for other MPM and CAP programs. ARTC's increased spend on rail defect removal is directly correlated to the volume of defects being removed.

To clarify a common misconception, rail breaks are not the major cause of increased spend for the rail defect removal activity. Rather, addressing more rail defects to proactively remove them before they deteriorate and result in a rail break is the driver of the increase in spend.

The three main factors that have contributed to an increase in the number of rail defects removed are:

- Development and implementation of the strategy to increase response and management of rail defects. As rail defects are the root cause of rail breaks, the HVAU 2017 Rail Break Strategy (previously provided to the ACCC) was aimed at reducing rail breaks. Rail breaks are a leading cause of network disruption and therefore a key focus of network reliability. This strategy identified improving the proactive management of rail defects that lead to rail breaks as a key tactic in to reduce their prevalence which was then actioned.
- Ongoing improvements in diagnostics through expanding the use of the SPENO, Instrumented Coal Wagons (ICW) and rail stress testing practices improved the identification of rail defects.
- Whilst simultaneously, improved asset management processes implemented via AMIP have developed systems for documenting, prioritising, and planning of rail defect removal to ensure that asset conditions are appropriately risk managed prior to a failure occurring.

The successful combination of these factors in increasing the number of defects removed is evidenced by the reduction in rail break numbers over the same period.

Rail Breaks	2014	2015	2016	2017	2018	2019	2020
Number	128	87	80	91	75	61	38

It should be also noted that cost is not the only consideration in detecting rail defects. Rail defects also trigger significant safety considerations. Rail breaks pose a substantial derailment risk and therefore the potential to cause injury and further damage to the track and train infrastructure. The process of assessment and removal of rail defects contributes to a safer ARTC network for all users.

Maximising track availability is key to maximising throughput and customer revenue. The level of network losses created by a rail break will vary depending on:

- Time to respond which is influenced by the remoteness of the location the rail break occurs, the nature of the terrain and ease of access to the site by maintenance staff.
- Complexity of the break or track where the rail break occurs. For example, a rail break occurring on single straight piece of track will be a quicker fix then a break on a swing nose turnout requiring significant modification or replacement of the whole component. Variability in complexity will result in large variation of the time needed as well as the overall cost of the repair.
- The intensity of traffic that traverses the section of line will have a significant impact on the network losses reported. A rail break in Zone 1 close to the port where a high volume of rail traffic is continually passing through, can have the ability to cancel large numbers of trains in a relatively short period of time.

Whilst the number of rail breaks recorded annually does not have a linear relationship with time and paths lost on the network (given the variabilities listed above), increasing activity and expenditure to remove known defects and thereby reduce the incidence of rail breaks improves network reliability thereby maximising network availability and throughput opportunities for customers.

ANCO Project:

In November 2019, the ANCO project reached a significant milestone in the staged implementation Plan. The foundational capabilities were completed with the Go Live of Movement Planner in Zones 2 and 3 and a portion of Zone 1. In 2020, the technological infrastructure, systems and dynamic planning were operational network-wide creating an end-to-end integrated supply chain.

In the HRATF correspondence, a question is raised as to whether any purported benefits of the major expenditure program (ANCO) are being realized. The tangible outcomes and benefits that the ANCO project has achieved are as follows:

- **Increase in Asset Utilisation -** ARTC has increased saleable capacity with utilisation on the single lines of the network rising from 65% to 70%. This increase in capacity has been embedded as part of the network's capacity assumptions, with ARTC actively delivering this additional contracted volume to customers since 1 January 2020. Each additional tranche of capacity has been assessed by HV Coal Chain Coordinator (HVCCC).
- **Capital Cost Avoidance -** The targeted cost avoidance from deferred capital has been realised with the circumvention of previously forecasted infrastructure loops in Zone 3 and in Zone 1 at Muswellbrook. As stated in the ANCO Business Case the net present value of this deferred capital benefit was $45.2M.
- **Business as Usual cost reductions** - Targeted cost savings within ARTC as outlined in Attachment 1 of the project feasibility Tangible Benefits are yet to be realised. The ANCO costs that are reported in the 2019 and 2020 submission relate to temporary Network Control resources remaining in place to support the transition and intensive training regimens of the business-as-usual operators. In addition to this, changes to the Network Control organisation and leadership structure and the significant costs to ensure business continuity during COVID-19 have prohibited costs savings. The systematic efficiencies that have been achieved to date have been offset by the need to increase staffing levels to address concerns relating to manning levels and fatigue identified in 2017 ONSR recommendations.

The realisation of the opportunity value of ANCO is ongoing with change management activities with above rail operators, the HVCCC and coal export terminals continuing as the coal chain seeks to adapt and gain the latent capability which the project has enabled. Since November 2019, the network has seen improvements in train dwell, cycle times in some pricing zones, unproductive train hours and losses. The details of these improvements will be detailed in the Phase 1 ANCO close out report which will be presented to the RCG in the coming months.

The ANCO project not only sought advancement in regard to tangible and opportunity value benefits, but also considered the technological and system maturity levels of the participants and of the coal supply chain as a whole. ARTC and their stakeholders recognised that to move the network progressively toward a state of coal chain integration, the technology used across the entire chain needed to have the capability of creating mutually beneficial efficiencies. With the ANCO system now established, ARTC has implemented the foundational move from an inefficient and archaic paper-based planning system to a live dynamic environment making further progression toward an advanced integrated supply chain now achievable.

During 2021 ARTC has continued constant consultation with customers, RHPs, HVCCC and the terminals to identify any ongoing issues or improvements and increased transparency to ensure any additional opportunities that the ANCO Project can provide are fully realised.

Other improvement initiatives:

In the 2019 and 2020 joint submission, ARTC notes that the new tamping approach, ballast undercutting program and new rail grinding machine have been assessed and selected at a higher cost to produce a superior result, less subsequent intervention and to ensure longer maintenance time frames between activities. Assessment of the full impact of these methodologies and trade-offs will extend over future periods. Increased expenditure in the current submission year which aims to improve the long-term quality of maintenance results and reduce the frequency of intervention is unable to be accurately assessed at this time.

ARTC have recently improved maintenance reporting and engagement with customers. The inaugural report which was presented for the March 2022 quarter included detailed data on actual and forecasted unit rates and addressed the key drivers of maintenance activities. The evolution and

development of these quarterly reports will continue with ARTC taking on board the improvements and suggestions that customers raise at the RCG meetings. ARTC will include further historical trending and results of new strategies as detailed above in future Maintenance Plan and Compliance Submissions.

2.5 Maintenance Expenditure

ARTC agrees with HRATF's assertion that maintenance costs were the most significant increase in operating expenditure in 2019 and 2020 (apart from Loss on Disposal in 2020). However, ARTC does not agree with the percentage increases outlined by HRATF in relation to this maintenance expenditure. HRATF states "On top of the 31% increase experienced in 2018, there was a further 11% and 6% increase for 2019 and 2020 respectively." ARTC sought clarification with the ACCC about these percentages. The ACCC advised that it confirmed HRATF obtained the percentages by combining two different sources of information:

- 2018 costs and percentage increase in RCRM costs (ACCC 2018 Final Determination: Figure 12: Major Periodic Maintenance and Routine Corrective and Reactive Maintenance expenditure (real $2018)) paragraph 2, pg 22.
- 2019 and 2020 costs and percentage increase in TOTAL maintenance costs (ACCC Consultation Paper (for 2019 and 2020) Table 3: Operating expenditure by category ($million), 2019 and 2020).

In response to ARTC's queries of HRATF's figures, the ACCC has provided the following **"nominal"** increases year on year of maintenance expenditure:

Maintenance costs *Total HV coal*	**2017**	**2018**	**2019**	**2020**
Expenditure (m)	106.6	111.6	116.5	123.3
Growth		5%	4%	6%
Source	*ARTC 2018 Amended Compliance Submission p.5 (Infrastructure Maintenance minus Non-Coal Allocation)*		*ACCC 2019 and 2020 Consultation paper p.17 (As published)*	

ARTC notes that HRATF were notified of this error by the ACCC and have provided a revised submission on 18 November 2022 amending its growth figures from 31% for 2018 and 11% for 2019, to 6% and 4% respectively. ARTC notes that the above percentage analysis movement on costs is based on Nominal Cost totals for Maintenance provided in the ACCC Consultation Paper (for 2019 and 2020) Table 3: Operating expenditure by category ($million), 2019 and 2020. ARTC also notes, as per 1.6 in the ACCC consultation paper it states "In contrast (to nominal dollars), real dollars allow a comparison of values over times, as they remove the impact of inflation in the values".

Noting that using "real" costs eliminates any distortion caused by inflation, deriving from the ACCC Consultation Paper Figure 6 on page 18, ARTC has calculated the following **"real"** value percentage increases year on year of maintenance expenditure to be significantly lower than the HRATF's original submission analysis as per the below:

Table 2: Real Maintenance Costs Movement HV Coal Network 2017 – 2020

	2017	2018	2019	2020
Maintenance	110.8	113.9	117.1	123.3
$ Change Year on Year		3.1	3.2	6.2
% Change Year on Year		2.8%	2.8%	5.3%

Explanation of Table 2: Real Maintenance Cost Movements

In the 2019 and 2020 joint submission and in response to stakeholder feedback, ARTC provided further detailed information in relation to asset strategy, activity performance, cost justification and unit rates. There were various internal and external influences which impacted costs during this two-year time frame. Whilst HRATF noted that the sole justification of increased maintenance expenditure provided was the "tight contract labour market" further factors were in fact detailed in the submission and are summarised below.

COVID-19's impact throughout 2020 resulted in government guidelines in relation to social distancing and travel restrictions and required ARTC to adapt to accommodate staff working from home, social distancing of maintenance crews in the rail corridor, the implementation of rotating shifts and segregated teams in Network Control (given the criticality of those positions) and reduced scope of works in the April closedown. Additionally, the effect on the world economy and supply chain increased the scarcity of supplies and the cost for items requiring import from overseas.

Due to the COVID -19 restrictions ballast cleaning in Zone 1 planned for the April 2020 closedown could not be completed. This resulted in a loss of 5kms of the yearly planned scope whilst still incurring a significant portion of fixed cost of equipment and labour resulting in the increase of the ballast cleaning unit rate for that period.

A significant portion of the planned scope for the 2019 November possession was required to be deferred into 2020 due to the safety risks associated with the catastrophic bushfire season. Some activities with significant fixed cost components built into their supply contracts were expensed in 2019 without achieving any scope, increasing the yearly unit rates. The deferral of these works also transferred the scope and variable costs into 2020 for activities such as rail grinding, welding and the capital rerailing program. This affected the overall maintenance costs year on year and cost per GTK calculations.

After a long period of dry conditions, 2020 saw a change in weather patterns with extended periods of rain and severe flooding across the network. Extreme meteorological events occurred in both 2019 and 2020 resulting in localized flooding in the Lower Hunter near Hexham and flash flooding and damage in the Quipolly area. The continued heavy rain throughout 2020 and beyond has resulted in much of the ground and track throughout the network becoming completely saturated, without the ability to dry out between rain events. This has resulted in even small amounts of precipitation drenching the subgrade and making the track base continually unstable. In turn, this has impacted various maintenance activities such as maintenance resurfacing (tamping) and full track reconditioning which show increased costs across the period.

With the prolonged rain throughout 2020 – 2022, the impact of these ongoing weather conditions will continue to drive the frequency, level and type of maintenance intervention required as well as the longevity of benefits before the next intervention is needed. When looking at long term maintenance trending it is important to acknowledge that prior to 2020, the network experienced a prolonged drought which drove different maintenance needs and response. ARTC's reporting from 2022 onwards will look closely at trends over time for activities to address defects caused by water.

Lastly, from 2017 to 2020 the overall network GTKs have increased 2.4% with growth patterns varying from zone to zone.

Presentation of Unit Cost and Cost Drivers:

As noted above ARTC have recently improved maintenance reporting and engagement with users for the March 2022 quarter onward, including detailed data on actual and forecasted unit rates. ARTC will continue to improve this reporting with the input of the RCG.

In the 2019 and 2020 Compliance Assessment Submission Attachment 1: Hunter Valley Network Operating Costs, ARTC reported unit rates or commentary on unit rates in the activities of ballast cleaning, rail grinding, turnout steel component replacement, maintenance resurfacing, full track reconditioning and ballast undercutting.

It should also be noted that there are various maintenance activities performed by ARTC where the use of unit rates viewed on their own does not produce useful information. An example of this is the activity turnout steel components. Turnout steel components can vary from being a small component replacement through to a large complex turnout replacement which needs to be specifically designed, sourced and manufactured internationally. The cost therefore per unit of scope is highly variable in nature with each component ranging from a couple of thousand dollars to half a million dollars each. In the submission, rather than relying on misleading linear unit rate comparisons, context was provided to ensure customers had the ability to assess the increase in costs in 2019 and in particular 2020, where high-cost, large emergency turnouts were required to ensure the reliability of the network.

Other activities where additional context was provided in the submission, due to linear unit rates not portraying comparable data, include rail defect removal, full track reconditioning and ballast undercutting.

ARTC also notes that GTK is not the only unit rate base rate comparator in the submission with $/km and $/unit also considered.

2.6 Treatment of Asset Disposals

Disposal Methodology

HRATF notes that loss on disposal increased 121% in 2020 compared to 2019.

ARTC noted this year-on-year increase was due to an increase in scope of rerailing, track strengthening and turnout replacement. In relation to rerailing, catastrophic bushfires pushed scope from the November 2019 closedown into 2020 which already had a heavily scheduled rerailing program in Zone 2. This resulted in a 49% increase in scope of track meters rerailed in 2020. Turnout renewals also increased in scope from 2 in 2019 to 12 in 2020 (noting however that the unit rate per renewal can vary significantly).

As detailed in the Compliance submission, the increase in track strengthening was driven by one project, the Emerald Hill Track Upgrade. This capital project alone contributed $2M or 84% of the increase in loss on disposal related to track strengthening activity from 2019 to 2020. The Emerald Hill

Track Upgrade was presented in the HV Sustaining Capital (Zone 3) Sustaining Capital Submission and endorsed by the RCG in May 2019. This track upgrade targeted a large section (4,440m) of track, noted as being the worst performing network section with known formation failure and long-term operational risk. The works were completed over multiple stages to enable the discontinuation of constant temporary speed restrictions and frequent maintenance interventions.

The Regulated Asset Base (RAB) is composed of the combination of original Depreciated Optimised Replacement Cost (DORC) assets and post DORC prudent capital expenditure as shown below:

Pricing Zones 1 & 2	Pricing Zone 3	Pricing Zone 4 **(now part of Pricing Zone 3)
• DORC –Valuation undertaken by Booz Allen & Hamilton (BAH) at FY2001 for ARTC Asset take up in September 2004. • Post DORC – Prudent capital expenditure added to the RAB since FY2001.	• DORC – Valuation undertaken by Booz & Co at FY 2009. Dartbrook – The Gap. • Post DORC – Prudent capital expenditure added to the RAB since FY2009.	• DORC – Valuation undertaken by Evans & Peck (E&P) 2014 Asset take up by ARTC. The Gap - Turrawan. • Post DORC – Prudent capital expenditure added to the RAB since June 2014. • PZ4 does not receive any proceeds on disposal (trade off for a lower DORC valuation as 30TAL was being undertaken in 2014 -17).

Loss on disposal values will fluctuate dependent on if the asset being replaced is a more highly written down lower value DORC asset or a newer post DORC addition. As of 31 December 2020, the overall quantum of DORC verse post DORC assets has declined representing the asset lifecycle of the past 20 years which has seen the older original DORC assets wear and be replaced. The degree to which this has occurred varies from location to location due to asset wear rates, traffic and tonnages over time. As assets continue to require replacement over time, fewer and fewer assets remain valued at the lower original DORC value and more and more Post DORC assets are now themselves due for renewal. Therefore, all other things remaining equal, loss on disposal rates will rise.

An example of the this can be seen in the value of loss on disposal attributed to rerailing in 2020. During this period the area of track requiring replacement included sections in Pricing Zone 2 which, due to geometry and track curvature, require more frequent rerailing. For these locations, the loss on disposal is calculated on Post DORC asset values which results in higher LOD unit rates. In comparison, most of the rerailing assets disposed of in 2019 were DORC assets being replaced for the first time since 2004. They had been depreciated over a longer period of time, reducing the written down value of the asset being disposed.

The carrying Regulatory Asset Base (RAB) Floor Limit values for an asset being removed is based on the underlying regulatory value of the asset with CPI escalation and accumulated depreciation applied

in accordance with the annual roll forward methodology for the RAB Floor Limit under section 4.4 of the HVAU. No change in methodology has occurred in the calculation of disposal values or the accounting treatment of proceeds received from the sale of scrap from prior year compliance returns. The carrying RAB value is reflective of Remaining Mine Life (RML) for depreciation of the RAB Floor Limit, rather than the useful life on an individual asset.

In calculating the loss on disposal of assets, the value of the asset is offset by a value associated with the sale or salvage value of rail scrapped as part of the disposal. All scrapped rail is treated as a disposal from the RAB Floor Limit regardless if scrap is reused. ARTC then records or "deems" a value based on actual market price of scrapped steel for proceeds on disposal regardless if scrap is reused or disposed. The market rate for scrap rail is calculated with reference to the average scrap sales value per tonne as received by ARTC over the period of the Compliance submission. Customers therefore benefit from the reduction in the value of the loss on disposal in all instances regardless of the actual sale or utilisation of scrap rail. ARTC does not receive a windfall gain through this process.

All scrapped rail is assessed for reuse within the ARTC Network. Rail is replaced due to its condition reaching condemning limit or evidence of defect being found. The degraded nature of this scrapped rail (why it was replaced in the first place) also make its suitability for reuse in the coal network limited.

2.7 Overheads

In response to feedback on ARTC's 2019 & 2020 Annual Compliance Submissions, in July 2022 ARTC held a workshop and provided worked examples of the mechanics in which corporate overhead costs are allocated to the Coal Network under the application of Schedule I. The presentation is included as an Appendix to this response.

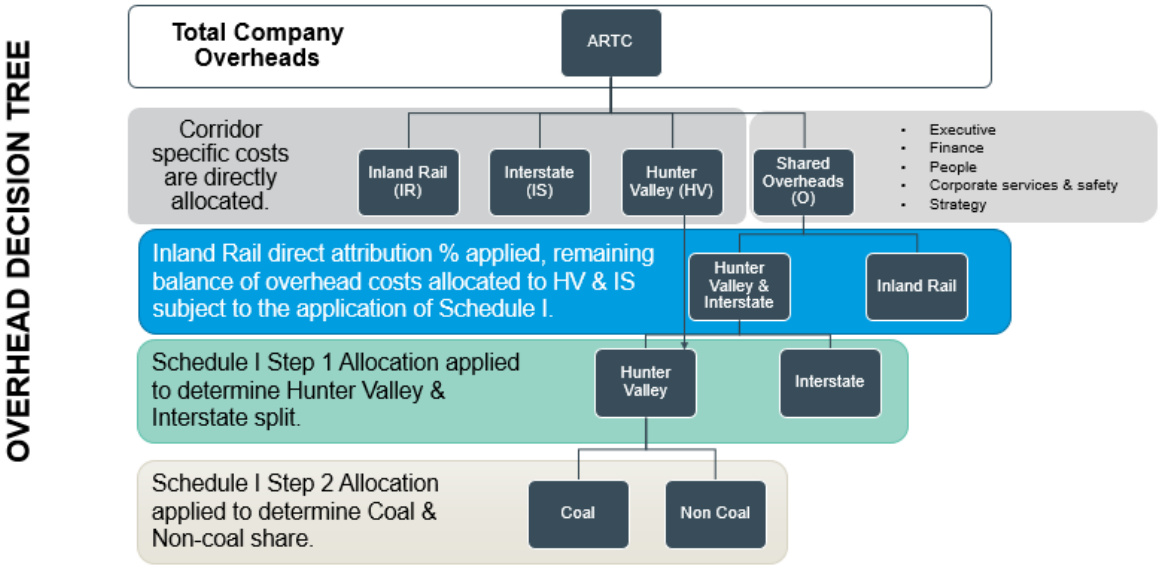
Similar to the Compliance Submission the allocation methodology was explained in the context of the three types of operating costs pertaining to ARTC's HV network which are:

- **Network Control** (NC) – Costs associated with ARTC's Network Control Centre North (at Broadmeadow). Costs cover the normal day to day operations and disruption management associated with network control, such as salaries, IT, equipment, property maintenance and rental costs.

- **Business Unit Management** (BMC) – Direct costs for the HV Business Unit or where assets are located in the HV including Customer Service & Operations, Management Support and Property.

- **Corporate Overheads** (CO) – Labour and materials associated with HR, Property, Legal, IT, Finance, Procurement, Risk and Safety and CEO.

ARTC developed an overhead decision tree to provide stakeholders a visual snapshot of the HVAU's Schedule I requirements:



There are several identifiable steps in allocating overheads across the business units.

Corridor Specific Costs

The HVAU specifies that where costs are identifiable to a specific corridor, those costs are directly attributed to that corridor. Most Business Unit Management (BUM) Costs are specific to a particular network so therefore these HV BUM Corridor Costs are directly posted to the HV Business Unit (being further split out between Coal and Non-Coal in Schedule I Step 2.)

Inland Rail Direct Attribution

Inland Rail is a significant construction project not an operational business unit. Inland Rail has its own dedicated support functions given its focus is construction not operations. Corporate costs related to Inland Rail are directly attributed to the project prior to the application of Schedule I.

Attribution of costs to Inland Rail is undertaken on a two-step basis:

STEP 1. Direct costs to Inland Rail are costed to Inland Rail.

STEP 2. Any Corporate roles not 100% devoted to the project are assessed to determine an attribution to Inland Rail. STEP 2 is calculated with the following considerations given to the allocators:

- Due to Inland Rail being a construction project, traditional allocators that focus on GTKs, Train Kms or Direct Stay-In-Business capital do not provide an accurate representation of the cost.
- Inland Rail has its own dedicated support functions in many areas, for example recruitment, finance and stakeholder affairs. Therefore, it does not rely on significant corporate support for those functions. These dedicated support functions are directly costed to Inland Rail.

- Other roles which solely support Inland Rail which may also exist as a member of another corporate division, for example Legal, are directly costed to Inland Rail.

- The FTE allocators are calculated on the actual yearly headcount attributed to Inland Rail as a percentage of overall Corporate OH headcount.

- For the other attribution allocators, a detailed work effort assessment was completed in 2019 which involved the consideration of a time/ effort study of all staff in the Corporate area to identify the overall proportion of time being dedicated to Inland Rail. Each year, an annual assessment is made of the time expended by roles on Inland Rail which is compared back against the latest detailed work assessment to see if any significant changes to functional areas have changed that would substantially change the allocations. It is then determined whether a new full study is required, or the base original allocators can be used. This method determined that the FY19 allocation was 18.3% and in FY20 27.7%.

These costs are then deducted from total corporate overheads, leaving a residual balance. This residual balance is then allocated to be split between the IS and HV Business Units and then to the coal network as per the defined allocators HVAU Schedule I. Inland Rail costs are therefore not borne by the coal network.

Attributions of Company Wide Overheads (Step 1b HVAU Schedule I)

Following direct BUM and OH costs being allocated to their respective network or the direct attribution of shared overheads to Inland rail as described above, allocators are used to split each category of shared overhead costs between the HV and Interstate (IS) business units.

In HRATF's response they note that "the allocation values appear to move around significantly from year to year." By studying Schedule I of the HVAU, it sets out a detailed cost allocation hierarchy that dictates how the remaining ARTC company-wide corporate costs are shared.

Cost category	Allocation method
Executive	Direct Stay-in-Business Costs
Finance	Direct Stay-in-Business Costs
Strategy & corporate development	Train kilometres
People	FTE
Insurance	Premium based
Safety accreditation	Track kilometres
Property	Track kilometres
Communications	Train kilometres
IT infrastructure and systems	FTE
Management of enterprise services	Direct Stay-in-Business Costs
Environment	Train kilometres
Engineering services	gtkm
Corporate safety	gtkm
Workplace health & safety	FTE
Risk	gtkm
Allowance for efficiency projects	Direct Stay-in-Business Costs

Allocator Method	Basis of Allocation %
Direct Stay-In-Business Costs (DSIB)**	= Business Units DSIB Costs/ Company Wide ARTC DSIB Costs*
Train Km	= Business Units Train KMs/ Company Wide ARTC Train Kms*
GTKM	= Business Units GTKMs/ Company Wide ARTC GTKMs*
FTE	= Business Units FTEs/ Company Wide ARTC FTEs*

*Net of Inland Rail Allocation
**DSIB = means costs identifiable with the function of a corridor or part of a rail network being the operating and maintenance expense plus corridor capital, non-infrastructure capital and incidents (but excluding indirect management labour and capacity increasing capital).

Schedule I's allocation methodology includes network traffic parameters (e.g. GTK or Train km). It therefore follows, the amount attributed to the HV Coal Network can and does vary based on volume changes in both of the operative business units (HV versus IS). During the 2015 review, ACCC's consultant WIK-Consult assessed the appropriateness of the allocators used and found them to be efficient, the variation from year to year was also acknowledged as an expected outcome of the application of this methodology.

Direct Stay-In-Business Costs and FTE are calculated each year for both IS and HV business units based on actual costs and staff positions as captured in the accounting system and therefore these too vary from year to year.

Allocation between Coal and Non-Coal Networks (Step 2 Schedule I HVAU)

Following application of the allocators under step 1b the total HV overhead cost is ascertained. Step 2 is then applied to share the costs between coal and non-coal. In the case of indirect maintenance and operational costs this is on the basis of GTK, whilst non-maintenance and non-operational costs is on the basis of DSIB. This coal share of HV overheads is an input into the regulatory model. The regulatory model then allocates to segments on the basis of contracted GTK and contracted Train km depending on the category of cost as shown above.

Workshop Response and Feedback

Customers confirmed that the presentation made clear how ARTC's application of Schedule I and the allocation methodology between the construction project Inland Rail and the operating Business Units was applied.

Interaction with Business Unit Management

HRATF note that "ARTC's submission highlights the potential for shifting of costs between the "Business Unit Management (BUM) and Overheads (OH) categories" and highlights Human Resources as a cost category where this may be occurring. Currently, BUM spend by the HV business unit is predominantly (nearly 100%) attributable to the HV Network and therefore allocated as such under step 1 of schedule I. It should also be noted, if a HV specific cost is classed as OH rather than BUM, it will also be directly allocated to the HV in accordance Schedule I Step 1 as the HVAU specifies that where costs are identifiable to a specific corridor, those costs are directly attributed to that corridor. In summary, it is not whether a cost is categorized as BUM or OH which drives whether it is allocated directly as per step 1 or goes through further allocation in schedule I, it is the nature of the cost itself that determines the treatment.

As with any complex business, ARTC critically considers where best to allocate resources to optimize efficiencies and outcomes when making decisions that alter the structure of the organization. The change in cost categories from a compliance reporting perspective is an output not a driver of this process.

Taking Human Resources as an example, prior to 2019 all HR functions for the HV were conducted at a corporate level with no significant local representation. The organizational structure of this HR function resulted in the costs being allocated as an OH in the annual compliance submission between the IS and HV business units on an FTE basis. However, time, workload and the efficiency of the corporate HR function was also split between IS and the HV resulting in outcomes which were not

satisfactory to the business. There was a recognition by ARTC that the heating employment market presented a huge challenge with increased competition for attracting and retaining skilled resources. An executive decision was made to have corporate representation of HR to develop policy, upgrade systems and roll out company-wide improvements, whilst also moving some corporate FTE positions (costed traditionally in OH) to be locally based and work directly for the HV Business Unit (and hence be costed in BUM). This has resulted in local and immediate assistance with HR issues and recruitment being available.

Benchmarking

ARTC welcome the ACCC's appointment of ARUP to conduct a benchmarking review. HRATF in their response have requested that ARUP "be asked to review both ARTC's overheads and its business unit management costs." Again, ARTC welcome this analysis noting that ARUP should ensure thorough consideration of the following when conducting this peer comparison:

- Types and intensity of network traffics
- Service offering and supply chain context
- Cost structure and categorisation (e.g. ARTC includes overhead costs in relation to it's asset management development and delivery functions as well as direct costs related to its maintenance provisioning centres within its Business Unit Management costs whilst in other peer networks these costs are included in the Maintenance costs categories.)

ARTC acknowledge and understand that benchmarking is subjective in nature due to the difference in service offerings and business structures across organisations however point out that to be of real value these factors must be given due consideration in the reporting provided.