

Hunter Valley Coal Network Access Undertaking

Costing Manual

July 2016

ARTC



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1 Introduction

1.1 Background

The Hunter Valley Coal Network Access Undertaking approved by the Australian Competition & Consumer Commission (**ACCC**) on [to be inserted] and as amended from time to time (**2016 HVAU**) sets out the means by which ARTC will make access to the Network available to Access Holders, including the process through which an entity may become an Access Holder.

Among other things, the 2016 HVAU sets out the maximum revenue (**Ceiling Limit**) that ARTC may recover from the constrained portion of the Network. The Ceiling Limit is determined through the calculation of “*the Economic Cost of those Segments which are required on a stand alone basis for the Access Holder or group of Access Holders*” (2016 HVAU section 4.3(a)). Those Segments are referred to as the Constrained Network. In addition, the 2016 HVAU recognises other parts of the Network to which other cost and revenue elements may be relevant.

In practice, the Constrained Network does not exist as a stand alone entity; it forms part of the larger Network¹, which is a subset of the network managed by ARTC’s Hunter Valley Business Unit and which in turn forms part of the larger ARTC corporation. Therefore, the calculation of the Economic Cost of the constrained Network and the application of the Ceiling Limit require the identification of revenues, assets and costs that should be included. While this could be carried out by undertaking an exercise to estimate the economic costs that a stand alone Constrained Network would incur, such an exercise is inherently uncertain and likely to result in a wide range of possible values. In order to avoid this uncertainty, ARTC has chosen to estimate the Economic Cost of the Constrained Network and Network by attributing those costs directly identifiable to the Constrained Network and Network or by allocating those costs that cannot be directly identifiable but are nevertheless reasonably required to provide the service to Access Holders.

This manual sets out the process adopted by ARTC to attribute or allocate those costs and the means by which those costs are used for incorporation into pricing and demonstration of compliance with the 2016 HVAU.

1.2 Purpose

The purpose of this Costing Manual is to document and provide public visibility of the processes and mechanisms used by ARTC to calculate the Economic Cost of the Constrained Network and Network as used for the determination of prices and compliance under the 2016 HVAU. In particular, this Costing Manual will identify the mechanisms by which assets and costs shared across divisions within ARTC are to be attributed or allocated.

¹ It is possible but unlikely that the Constrained Network will include all Segments within the Network during the life of the 2016 HVAU.

1.3 Status & Scope

This Costing Manual is an ancillary document to the 2016 HVAU. It applies to economic matters relating to the Segments of the Constrained Network and the Network (including, where relevant, Non-Segment Specific Assets and Non-Segment Specific Costs) covered by 2016 HVAU.

1.4 Duration

Once approved by the ACCC, this Costing Manual, as amended from time to time, will apply during the period that the 2016 HVAU remains in force.

1.5 Review

ARTC will review and, if necessary seek to amend this Costing Manual, as required from time to time, in accordance with the process set out in 2016 HVAU section 2.4 which provides for the Rail Capacity Group (**RCG**) to be consulted and to endorse any amendments with which it agrees. Examples of circumstances that may lead to ARTC seeking an amendment include:

- a) ARTC is of the view that one or more of the allocation methods in this Costing Manual are no longer the most appropriate method reasonably available;
- b) ARTC determines that there are material deficiencies in this Costing Manual;
- c) ARTC modifies its corporate structure such that this Costing Manual no longer appropriately reflects the corporate structure;
- d) ARTC changes the range or scope of business that it undertakes, such that this Costing Manual no longer appropriately reflects the range or scope of business and the appropriate allocation of financial values to the Network.

1.6 Terms Defined In The 2016 HVAU

Capitalised terms in this document that are defined in the 2016 HVAU have the same meaning as in the 2016 HVAU except to the extent that the context clearly indicates otherwise.

2 Costing Framework

2.1 Organisation Structure

ARTC is a rail infrastructure provider. In addition, ARTC earns a minor amount of its revenue from providing infrastructure maintenance and construction services, and access to ARTC's communications network. ARTC does not currently engage in any other type of business of a substantial nature. For example, ARTC does not engage in providing train services for reward.

ARTC is structured with two operating business units:

- 1) Hunter Valley Business Unit
- 2) Interstate Business Unit

Each of these business units is defined on a geographical basis. The two business units are largely independent of each other in terms of assets and costs. However, the Hunter Valley Business Unit does provide some services to the Interstate Business Unit, principally in the form of Network

Control services for the Interstate network² segments between Telarah (near Maitland) and Acacia Ridge which is managed from the Network Control Centre North located in Broadmeadow NSW. Some traffics in the Newcastle area also traverse segments of both the Hunter Valley Network and the Interstate network that fall within the responsibility of the Hunter Valley Business Unit, requiring the allocation of costs between the two business units.

In addition to the business units, there are currently seven corporate functional areas (**Functions**) that provide services to both business units. These Functions are:

- 1) Executive, comprising the Divisions of:
 - (a) Office of the Chief Executive Office and Board Of Directors
 - (b) Company Secretary and Legal Counsel
 - (c) Corporate Affairs
- 2) Finance, comprising the Divisions of:
 - (a) Finance
 - (b) Procurement
- 3) People, comprising the Division of Group Human Resources
- 4) Corporate Strategy & Business Development that provides a range of strategic and long term planning services, including oversight of economic regulatory matters.
- 5) Enterprise Services, comprising the Divisions of:
 - (a) Enterprise Services Management
 - (b) Network Services
 - (c) Regulatory Services
 - (d) Systems & Technology

A diagram of ARTC's organisation structure as at 1 July 2016 is provided at Appendix A.

2.2 Stand Alone Cost

In concept, the Network and in particular, the Constrained Network, is assumed to be managed as a stand alone entity. In reality, there is no such entity that provides the services provided for the Constrained Network or the Network on a stand alone basis. Therefore some alternative is required.

One way in which to determine the Economic Cost of the Segments of the Constrained Network would be to calculate the financial values associated with a hypothetical entity that contained only the stand alone Segments of the Constrained Network and the administrative structure required to support it. ARTC has chosen not to adopt this approach as such a calculation is likely to be subject to a wide range of possible values and the resulting values are hard to verify.

As a matter of practicality, ARTC believes that the use of an appropriate allocation methodology is more likely to provide an acceptable outcome as it is based on values that can be tested against an actual set of accounts, notwithstanding that this too is only an approximation of the stand alone cost.

² The Interstate network is ARTC's rail network and associated facilities that operate under the Interstate Access Undertaking as approved by the ACCC from time to time.

2.3 Principles For Determination Of Economic Cost

The intention of ARTC's cost allocation policy is that costs are attributed to the lowest practical level and then allocated to Segments to the extent that this remains necessary. To achieve this, ARTC has adopted the following general hierarchy as an underlying principle:

- 1) Costs and capital expenditure directly associated with a Segment are attributed to that Segment.
- 2) Costs and capital expenditure directly associated with a group of Segments are attributed to that group of Segments.
- 3) Costs and capital expenditure directly associated with a Division or Business Unit are attributed to that Division or Business Unit.
- 4) Costs and capital expenditure attributed to a Business Unit, Function, Division or group of Segments, but not directly attributable to an individual Segment, will be allocated to Segments using the most appropriate practically available causal allocation method.
- 5) Costs and capital expenditure attributed to a Business Unit, Function, Division or group of Segments, but not directly attributable to an individual Segment, for which there is no practically available causal allocation method will be allocated using a non-causal allocation method.
- 6) Where a causal allocator is available to allocate a value to another Business Unit, Function, Division or group of Segments that is more directly associated with the value, then the value is allocated to that Business Unit, Function, Division or group of Segments and allocation to individual Segments, if necessary, will be carried out on an iterative basis.

Example 1

A maintenance cost identified in ARTC's accounts as being incurred in Segment 0946 (Maitland to Farley) will be attributed to Segment 0946.

Example 2

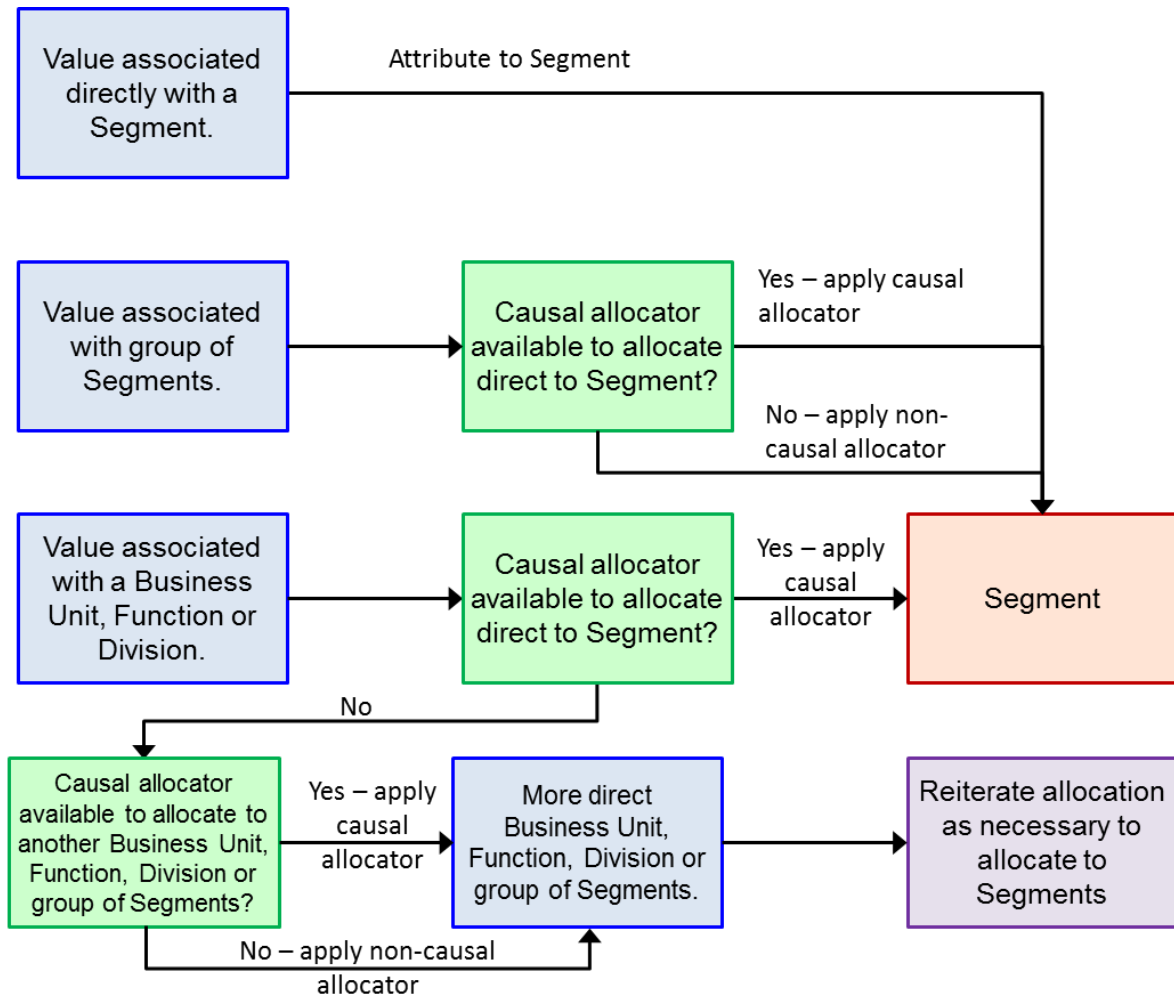
The cost of a payroll officer in the Finance Division is not directly associated with one or more particular Segments, but can be allocated using Full Time Equivalent Employees (FTEs) as an appropriate allocation method to the Divisional level. It is then necessary to apply a non-causal allocation method to allocate the cost to Segments.

Example 3

The cost of the Executive General Manager Hunter Valley (in the Hunter Valley Business Unit accounts) is not directly associated with any particular Segment within the Hunter Valley network. As the cost cannot be identified with an appropriate causal allocator, a non-causal allocator will be used to allocate this cost to individual Segments.

This hierarchy is shown schematically in Figure 1 as it applies to costs.

Figure 1: Hierarchy of Cost Attribution & Allocation Principles



2.4 ARTC Accounting System

ARTC maintains a detailed set of accounts for both internal and external reporting. Those accounts allow for the accurate identification of revenues, assets and costs for each cost centre.

It is noted that ARTC's accounting system operates on the basis of financial years and the 2016 HVAU operates on calendar years. As ARTC's accounting system recognises monthly accounting periods, ARTC is able to accurately identify costs associated with both calendar and financial years.

Segment specific assets forming the regulatory asset base (**RAB**) and the regulatory asset base floor limit (**RAB Floor Limit**) are accounted for separately from ARTC's main accounting system as the approved regulatory values are different to ARTC's accounting asset valuations. The RAB and RAB Floor Limit values for each Segment³ are approved by the ACCC as part of the annual compliance assessment process. In determining the Economic Cost of a Segment, ARTC will have recourse to the ACCC approved values and the annual variations thereto carried out in accordance with the 2016 HVAU.

³ Values for the RAB are only maintained for Segments in Pricing Zone 3. A value for the RAB Floor Limit is applied to each Segment of the Network.

In the case of Non-Segment Specific assets that are not otherwise incorporated into the RAB, ARTC will rely on the asset values and depreciation held in ARTC's accounting system.

3 Valuation & Separation Of Assets

3.1 Segment Specific Assets

The majority of assets associated with the Economic Cost of the Constrained Network are Segment Specific Assets. In the main, these are directly attributable to Segments and there is no requirement to allocate the asset values.

The value of Segment Specific Assets will be:

- 1) In the case of assets existing in the RAB and RAB Floor Limit at the commencement date of the 2016 HVAU, the opening asset values approved by the ACCC.
- 2) In the case of assets subsequently added to the RAB and RAB Floor Limit, the cost to ARTC to acquire or construct the assets, including any interest during construction (**IDC**) and net of any Goods and Services Tax paid in relation to the assets, subject to any adjustment required by the ACCC.⁴
- 3) Where assets are disposed of from a Segment, their value is deducted from the RAB and RAB Floor Limit of the Segment.

All projects are assumed to be commissioned at the mid-point of the relevant regulatory period.⁵ This avoids the necessity of maintaining an administratively complex database of projects for the purposes of calculating depreciation and return on asset that would otherwise be required. Any subsequent expenditure, or reduction in cost⁶ (termed a post-commissioning expenditure), will be recognised in the regulatory period in which it occurs.

The definition of Segment Specific Assets includes assets that are not physically associated with one or more Segments but which ARTC has identified as being Segment Specific Assets having regard to recovery of relevant costs associated with those assets consistent with the beneficial use of those assets.

These assets are recognised in the RAB and RAB Floor Limit and are allocated to Segments in accordance with the allocation principles set out in section 2.3 above. Specifically, the assets will be allocated using the most appropriate causal allocation method. Where a causal allocation method cannot reasonably be identified, a non-causal allocation method will be applied.

Example 4

ARTC invests in a new train management system for the Network. The asset can be identified as providing services to both specific elements of the Interstate network and Segments within the Network. The portion of the asset that can reasonably be allocated to Segments within the Network will be a Segment Specific Asset and allocated to Segments accordingly.

⁴ The ACCC reviews additions to, and any deletions from, the RAB and RAB Floor Limit each regulatory period. Where an asset has been endorsed by the RCG, expenditure on the asset is deemed as prudent (HVAU section 4.10(e)) up to the value endorsed. The ACCC will form its own view on the prudence of capital expenditure on assets that have not been endorsed by the RCG.

⁵ Generally this would be 1 July where the regulatory period is a year. However, circumstances may arise where the regulatory period is not a full year, e.g. at the commencement or termination of the undertaking.

⁶ A reduction in cost may occur due to the reversal of an accrued expenditure. Typically these amounts are relatively small and reflect the difference between an anticipated cost and the actual cost when invoiced.

Example 5 Continuing Example 4

The new train management system provides an improved management of traffic on the Network and also those elements of the Interstate network in the near vicinity of Newcastle. The system relates directly to the management of trains and the scope of their use of the system is reasonably related to the distance they travel within the ambit of the system. Further, the size of a train is not generally germane to the application of the system to that train.

ARTC will allocate the value to be incorporated into each Segment of the Network for the system on the basis of Train Kilometres (**Train Km**), assuming that this is the most appropriate, reasonably available, causal allocator.

3.2 Non-Segment Specific Assets

Non-Segment Specific Assets are those assets that provide services that are indirectly required to provide access to the Network and cannot be reasonably be identified with the Network.

Example 6

ARTC operates a computer system in Adelaide that provides a number of different types of computing and telecommunications services that are for the benefit of the Network and other parts of ARTC's business. These services cannot be directly identified with the Network without further allocation. This system would be a Non-Segment Specific Asset.

Non-Segment Specific Assets are not incorporated into the RAB or RAB Floor Limit. These assets are of a wide variety and it would not be practical to treat these in the same way as assets that can be directly identified with the Network. For example, assets such as desktop computers are numerous and have a relatively short life. It would be administratively onerous to incorporate them into the RAB and RAB Floor Limit which has an assumed asset life significantly different to the actual life of the asset. Each time a desktop computer was disposed of or a new one purchased, it would be necessary to make an adjustment to the RAB and this would also impose a significant administrative cost to Access Holders.

As the purpose of incorporation of assets into the RAB and RAB Floor Limit is to determine the depreciation and return on asset values each regulatory period and to account for any loss on disposal of an asset, ARTC adopts an alternative approach for Non-Segment Specific Assets.

Non-Segment Specific Assets are treated as follows:

- 1) The aggregate value of Non-Segment Specific Assets opening written down values, closing written down values, related book depreciation (and amortisation) and any loss on disposal identified through ARTC's normal accounting asset register are allocated to the Pricing Zones using an appropriate allocator.

Where a better allocator is not available, ARTC will apply the same allocator as applied to operating costs for the relevant functional area to which the asset is attached.

Example 7

A computer software program provides employee related data management services and is assigned in ARTC's asset register to the People support function. This program is amortised over its expected useful life. Costs associated with the People support function (where these cannot be directly attributed) are allocated using FTEs as the allocator. In the absence of a

better allocator, FTEs will be used to allocate the values associated with this asset to the lowest available level (e.g. a group of Segments).

- 2) The rate of return is calculated from the ACCC approved nominal rate of return⁷ multiplied by the average value of the assets.

The nominal rate of return is applied as this avoids the need to escalate the values of Non-Segment Specific Assets in each regulatory period.

- 3) The allocation of depreciation and return to specific Segments from Pricing Zone is on the basis of

3.3 RAB Roll-Forward

RAB and RAB Floor Limit values are “rolled-forward” (i.e. modified) for the purposes of pricing and annual compliance as follows:

- 1) Opening asset values are the values approved by the ACCC for the relevant regulatory period, where available.

If an ACCC opening value for the relevant regulatory period is not available, then the best estimate is used, based on the application of the method set out in this section, calculating back to the regulatory period for which there is an opening value approved by the ACCC.

Example 8

Pricing is being carried out for Year 3 during Year 2 and the most recent ACCC approved opening value is for Year 1 (i.e. a closing value for Year 0), then the roll-forward of Years 1 and 2 will be undertaken to provide an opening value for Segments in Year 3 using the best estimates available.

- 2) Capital expenditures for projects that are commissioned during the calendar year are attributed by Segment from ARTC's accounts.

Where a capital project involves more than one Segment, the values are attributed between Segments to the extent that there is expenditure identifiable with a Segment. Otherwise, the expenditure is allocated between Segments on the basis of:

- (a) where there is a reasonable causal factor, then using that factor; or
- (b) in the absence of an identifiable causal allocator, the kilometrage covered by the project in each Segment.

Capital expenditure incurred for projects that have not been commissioned will be held in a Work In Progress account and will not be included in the Economic Cost of the relevant Segment.

Example 9

A new track is added to the Network that falls into Segments 947 (7.0 km) and 948 (3.0 km). The new track cost is \$100m (including IDC). As the asset can be identified directly with Segments of the Network, the asset is a Segment Specific Asset. An engineering assessment is that the costs were incurred 40% in Segment 947 and 60% in Segment 948.

⁷ See 2016 HVAU section 4.8.

Commissioning occurs in November of Year 3 with expenditure on the project occurring between Year 0 and Year 3.

ARTC will recognise the asset in the RAB and RAB Floor Limit as at 1 July Year 3 as:

Segment 947 \$40m, Segment 948 \$60m based on the engineering assessment as this is a more accurate apportionment of the costs than the more generalised kilometres in each Segment.

In Years 0, 1 and 2, the cost is held in a Work In Progress account and does not contribute to the Economic Cost of Segments 947 or 948 for those years.

- 3) IDC is calculated for each capital project where expenditures have occurred in years prior to the year of commissioning. For clarity, where expenditure occurs only during the year of commissioning, no IDC is charged.

The following rules apply to the calculation of IDC:

- (a) The interest rate applied is the nominal pre-tax rate approved by the ACCC for the relevant regulatory period.⁸
- (b) Interest is accrued in the regulatory period in which the expenditure occurs at a discount of 50% to reflect the assumption that the expenditure is incurred at the mid-point of that regulatory period.
- (c) Interest is accrued in each subsequent year, prior to the year of commissioning, on accumulated expenditure, including any capitalised interest, from prior years.
- (d) In the year of commissioning, interest is charged on both new expenditure and accumulated expenditure at a discount of 50% to reflect the assumption that the project is commissioned at the mid-point of that regulatory period.

Table 1 provides an example calculation for a project commissioned in Year 2 costing a total of \$300, for which expenditure commenced 2 years prior to the year of commissioning.

Table 1: Example Of IDC Calculation

	Year 0	Year 1	Year 2	Total IDC
Capital Spend (\$)	100.00	100.00	100.00	300.00
Interest Rate ^{#1}	8.50%			
IDC on new expenditure	^{#2} 4.25	^{#2} 4.25	^{#2} 4.25	
IDC on accumulated spend	-	8.86	^{#3} 9.24	
Total IDC	4.25	13.11	13.49	30.85

#1 Nominal pre-tax interest rate as applied under the 2016 HVAU.

#2 Discount of 50% applied.

#3 Discount of 50% applied.

- 4) Assets disposed of during the period are deducted from the RAB and RAB Floor Limit at their initial value escalated to the year of their disposal and the associated accumulated depreciation is also removed from the RAB and RAB Floor Limit calculation.

⁸ See 2016 HVAU section 4.8.

- 5) Opening values are escalated using the increase in the September quarter Sydney All Groups Consumer Price Index compared to the previous year, published by the Australian Bureau of Statistics.

Capital projects commissioned in the year of the roll-forward do not accrue escalation.

- 6) Depreciation is calculated as the escalated opening value of the asset, less disposals, divided by the residual mine life in the year of commissioning.

In circumstances where actual values are not available, e.g. when the RAB is rolled-forward for the purposes of determining future prices, reasonable estimates will be used. In particular, ARTC maintains detailed forecasts of the timing and quantum of capital expenditures and these will be used wherever possible.

4 Separation Of Operating Costs

ARTC's operating costs are maintained in accounts that identify cost centre and activity code. Operating costs are attributed or allocated to Segments depending on the type of cost and the cost centre to which it is assigned. The method for distribution of costs is set out below.

4.1 Costs Associated Directly With Segments

The majority of maintenance operating costs are directly identified with individual Segments. These costs are attributed to those Segments.

ARTC's accounts identify these costs by specific maintenance activity for each Segment. ARTC has identified the degree to which a maintenance activity is either fixed or variable, and this classification is applied to each cost.

Example 10

Ballast cleaning is held to be 75% variable and 25% fixed, i.e. an engineering assessment has determined that the ballast cleaning activity is driven 75% by the variability of traffic with the remaining 25% being independent of traffic.

The distinction between Fixed and Variable Maintenance cost is important as the Floor Limit is determined through the application of Direct Cost which is currently defined as Variable Maintenance expenditure.

4.2 Costs Related To A Specific Group Of Segments

Some maintenance costs are associated with activities not directly identified with a single Segment but are related to services provided over a number of Segments within a geographic area. These cost centres are predominantly for maintenance depots, and some project management and planning activities. These costs are allocated to the Segments which they serve in proportion to the gross tonne kilometres (GTK) of each Segment. GTK is used as a general allocator in this instance as infrastructure maintenance is generally held to vary more with the changes in gross mass over distance than with any other causal allocator.

4.3 Hunter Valley Business Unit Cost Centres Not Otherwise Directly Attributed

The remaining Hunter Valley Business Unit operating costs are those associated with:

- a) Network Control;

- b) Maintenance planning and administration; and
- c) Divisional administration.

Where these costs can be identified with a specific Segment, then they are attributed to that Segment. Similarly, any costs incurred on behalf of any other ARTC business unit or division will be attributed to that business unit or division. Otherwise, where a practical causal allocator is available, then that allocator is used, otherwise a general non-causal allocator is applied.

Example 11

Network control costs can be identified by “control board” which cover a specific geographic area of the Network. Control boards can be associated with the Segments controlled by that board and the costs can be attributed the relevant group of Segments.

The Hunter Valley Network Control has one control board that covers segments of the Hunter Valley Business Unit outside of the Network. There are also 2.2 control boards⁹ that service the Interstate Business Unit’s North Coast line. These costs can be attributed to those segments and excluded from any general allocation to the Network. For the purposes of 2016 HVAU, it is not necessary to allocate those costs to any greater detail.

The remaining control boards that are attributable to the Network can be attributed directly to the Pricing Zones over which they apply. The final allocation between Segments within each Pricing Zone uses a causal allocator, Train Km. Train Km is chosen as the most appropriate causal allocator as the network controllers interact with trains as they travel across the territory covered by the control board. Therefore the number of trains and the distance travelled (hence Train Km) is a better measure as a causal allocator rather than say any relationship to the size of the trains.

The majority of remaining Hunter Valley Business Unit costs are not able to be allocated to a Segment through an available causal factor. In such a case, the costs are allocated using a non-causal allocator. For costs associated with track maintenance, a non-causal allocator of GTK is used. While GTK is not directly causal of these types of costs, GTK is an appropriate measure of the comparative scale and scope of track maintenance activities within the Hunter Valley Business Unit given that a significant element of track maintenance varies with the quantum of GTK.

Note that any administrative costs relating specifically to capital works are included in the capital costs of the relevant projects.

4.4 Shared Costs

A substantial proportion of the costs required to provide the service for the Constrained Network and more generally the Network are generated through ARTC Functions that provide services that are shared across multiple parts of ARTC’s business. They also include a variety of specialist and technical services such as engineering standards and information systems. For convenience, these costs are referred to as Corporate Support costs.

In accordance with the principles identified in section 2.3, costs that can be directly attributed to a Segment, a group of Segments or a business unit are first attributed to the relevant part of ARTC. The remaining costs are then allocated to a Segment, group of Segments or a business unit using either a causal allocator if one is readily available or a non-causal allocator.

⁹ A partial control board occurs as one board only operates on a 5 day week with restricted hours.

Costs that are attributed or allocated to a group of Segments within the Network or the Hunter Valley Business Unit are then allocated to Segments in a second stage process (along with costs native to the Hunter Valley Business Unit requiring further allocation) using a causal allocator if one is readily available or a non-causal allocator, noting that it is unlikely that a causal allocator would be available at a business unit level if one is not available for such an allocation from the shared services function or division.

4.4.1 Stage 1 – Allocation To Groups Of Segments Or Business Units

The allocators used to allocate Corporate Support costs to a group of Segments or a business unit are set out in Table 2.

Table 2: Allocation Method For Corporate Support Costs

Cost Area	Allocator
Executive (CEO, Legal, Internal Audit, Board, Corporate Affairs)	Operating Costs
Finance (Accounting, Treasury, Procurement & Contracts)	Operating Costs
People	FTEs
Strategy & Corporate Development	Operating Costs
Enterprise Services (Communications, Wayside)	Train Km
Enterprise Services (Engineering Services, Track Monitoring)	GTK
Enterprise Services (IT, Workplace Health & Safety)	FTEs
Enterprise Services (Property, Corporate Safety)	Track Km
Enterprise Services (Plant, Rail Grinding, Risk, Environment)	Operating Costs

Operating costs in the context of the allocator used in Table 2 are defined as expenditure not capitalised as a major project plus corridor¹⁰ and non-infrastructure capital.

Operating Costs are used as the non-causal allocator for Corporate Support costs in the absence of an allocator that is more directly relevant. In considering the differing nature of the various general allocation methods available, it is ARTC’s view that the use of Operating Costs in the wider sense applied here (including sustaining capital), provides the most fair and equitable outcome in determining how to allocate costs between business units as it is reflective of the quantum of support resources that are required by each business.

4.4.2 Stage 2 – Allocation To Segments

A number of costs and assets can be causally allocated to either a business unit or a group of Segments but not to individual Segments. ARTC allocates the expense to individual Segments in a second stage allocation using the most appropriate causal allocation method available, or if one is not available, using a non-causal allocator.

Example 12

Motor vehicle costs can be directly attributed at least to a business unit or a division within a business unit, based on the number of the vehicles within a “location”, i.e. the business unit with which a vehicle is identified.

¹⁰ Corridor capital is equivalent to “sustaining” or “stay in business” capital, i.e. capital for the replacement of life expired assets rather than the construction of Additional Capacity.

For some vehicles it may be feasible to identify their location to a single Segment. However, the majority of vehicles are used for work that covers a group of Segments. Different parts of the business will use their vehicles across differing groups of Segments, or in the case of management or pool vehicles it may not be possible to reliably identify a group of Segments covered.

In Stage 1, ARTC will directly attribute the cost to a level that it is practical to identify, i.e. the business unit, division or group of Segments. In Stage 2, ARTC will allocate the expense or asset to individual Segments using the most appropriate causal allocation method available, or if one is not available, using a non-causal allocator.

Table 3: Stage 2 Allocation Method To Individual Segments

Cost Area	Allocator
Indirect Maintenance (see section 4.2)	GTK
Hunter Valley Business Management	GTK
Network Control	Train Km
Remaining Corporate Support Costs	Operating Costs ^{#1}

#1 To avoid circularity, at the level of allocation to individual Segments, Operating Costs excludes the cost being allocated and capital related costs.

5 Identifying The Floor & Ceiling Limits

The 2016 HVAU sets out a number of limitations on prices that ARTC may charge and the revenue ARTC may receive. The Floor Limit prescribes the minimum revenue that ARTC must charge for any traffic using the Network. The Ceiling Limit sets the maximum revenue that ARTC may receive. The remainder of the limitations relate to the differentiation of prices between different users of the Network. The calculation of the Floor and Ceiling Limits are briefly described below.

5.1 Floor Limit

The 2016 HVAU Floor Limit sets the minimum access revenue that ARTC must receive from an Access Holder as the Direct Cost imposed by that Access Holder on the group of Segments traversed.¹¹ Direct Cost is a defined term and is interpreted by ARTC as being the cost of maintenance that varies with usage.¹² Thus the total Direct Cost of a Segment is equal to the Variable Maintenance cost of that Segment. This cost is then divided by the total GTK operated over the Segment for the period under consideration to generate a unit rate.

The Direct Cost imposed by an Access Holder for use of the network is the sum of the GTK multiplied by the Direct Cost unit rate for each Segment traversed. In setting access prices for the Network, ARTC sets the Non-TOP Price for coal trains and the Variable price for non-coal trains in each Pricing Zone so as to at least recover the Direct Costs of the combined Segments used within each Pricing Zone from each Access Holder.

For the purposes of determining ARTC's compliance with the Floor Limit, ARTC allocates revenue to each Segment in the Network equivalent to the Floor Limit for each traffic that traverses that Segment.

¹¹ 2016 HVAU section 4.2(a)

¹² ARTC may include other costs that vary with usage, but has chosen not to do so on the grounds that the relationship between such other costs as incremental capital and actual usage is highly problematic.

5.2 Ceiling Limit

The 2016 HVAU Ceiling Limit identifies the maximum revenue that ARTC may derive from the Network. In concept, every combination of Segments within the Network has a separate Ceiling Limit. However, in practice only one Ceiling Limit is relevant. This is because if the revenue being tested complies with that determining Ceiling Limit, it will also necessarily comply with all other possible Ceiling Limits for any relevant subsets of Segments and traffics as well. Therefore, the term Ceiling Limit is generally used in connection with the determining Ceiling Limit only.

The determining Ceiling Limit is identified by finding the combination of traffics that generate revenue excluding Variable Maintenance cost that is nearest to the Economic Cost less Variable Maintenance cost of the Segments required (if below the Economic Cost), or exceeds Economic Cost by the greatest extent (if above Economic Cost). This group of traffics, if revenue meets or exceeds the Ceiling Limit, forms the Constrained Group of Mines and the group of Segments required by the Constrained Group of Mines becomes the Constrained Network.

For any traffic that travels both inside and outside of the Constrained Network, the revenue generated will be less than the Economic Cost of the additional Segments required, otherwise this would also be included in the Constrained Network.

All traffics contribute at least the Floor Limit to each Segment they traverse (which reflects the Variable Maintenance cost). Therefore, the identification of the Ceiling Limit is carried out by excluding the Variable Maintenance cost of each Segment from the Economic Cost of the Segment and the variable revenue (Non-TOP charge in the case of coal traffics) from the calculation.

For the purpose setting of prices for the TOP charge for coal traffics, the Fixed component of the Economic Cost of the Constrained Network is used as the basis for determining the total revenue to be derived from the Constrained Group of Mines. Prices are then determined by ARTC, taking into account the limitations on price differentiation set out in 2016 HVAU.

APPENDIX A ARTC ORGANISATION STRUCTURE

Figure A 1: ARTC Organisation Structure as applicable at 1 July 2016

