# AUSTRALIAN RAIL TRACK CORPORATION LTD

# 2011 HUNTER VALLEY COAL NETWORK ACCESS UNDERTAKING

# 1 JULY 2011 to 31 DECEMBER 2011 ANNUAL COMPLIANCE ASSESSMENT

# ARTC STANDARD GAUGE RAIL NETWORK DORC LEASED PORT WARATAH COAL LOOP ASSETS

**MAY 2012**

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# 1. Introduction

## 1.1 Background

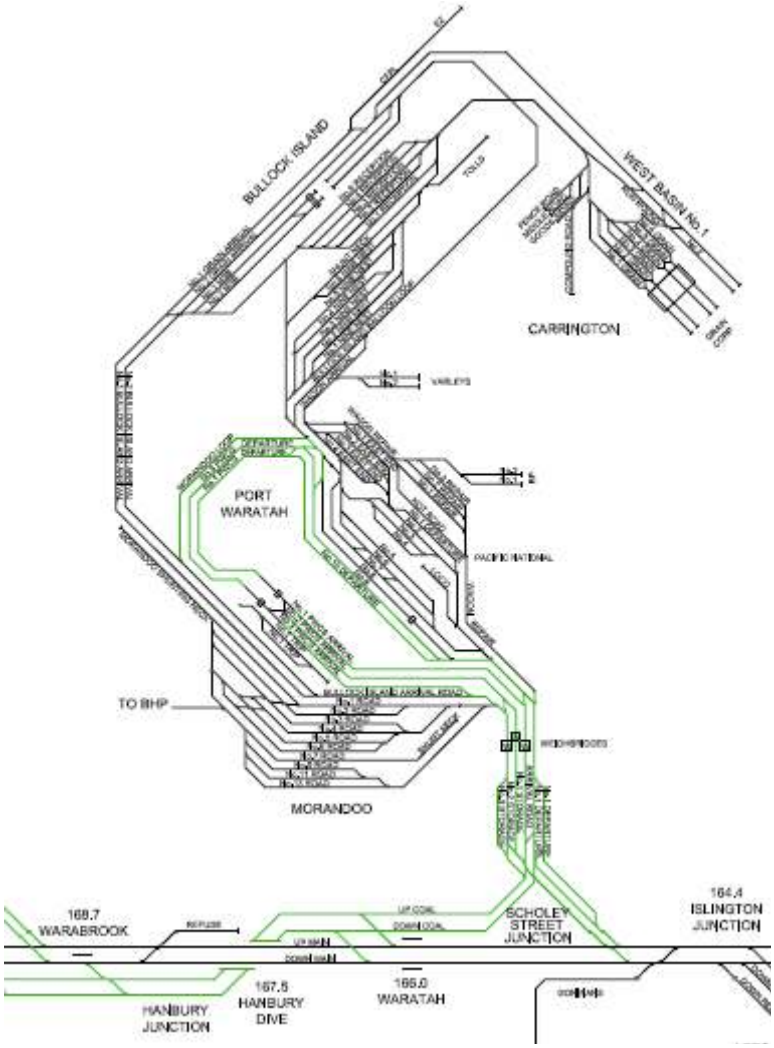
As part of its annual compliance assessment covering the period 1 Jul 2011 – 31 December 2011, ARTC seeks to include in the Initial RAB for Segment 0916 Scholey Street Junction to Port Waratah the value of certain parts of the Port Waratah Coal Services (PWCS) coal loop that came under ARTC maintenance and management in late 2006 (Leased Port Waratah Coal Loop Assets).

Attachment 1, which shows a relevant extract of ARTC Map ARTCN1090094001, depicts the Leased Port Waratah Coal Loop Assets highlighted in yellow. Other assets in Segment 0916 are highlighted in blue.

Prior to late 2006, the Leased Port Waratah Coal Loop Assets were maintained and managed by PWCS under lease from Rail Infrastructure Corporation (RIC). Upon expiry of this lease, ARTC assumed this responsibility.

Under the 2011 Hunter Valley Access Undertaking (2011 HVAU), Segment 0916 includes the assets highlighted in both yellow and blue as shown in Attachment 1. This recognises ARTC's management of the Leased Port Waratah Coal Loop Assets and is confirmed in the snapshot of the relevant part of Annexure 1 to Schedule B of the 2011 HVAU shown at Figure 1 below.

Figure 1




Some parts of Segment 0916 described above have been ascribed a regulatory asset value in accordance with the NSW Rail Access Undertaking (NSWRAU). These assets were originally valued on a depreciated optimised replacement cost (DORC) basis by the NSW Independent Pricing and Regulatory Tribunal (IPART), through consultants, Booz Allen Hamilton (BAH) at the time, in 2001[1] (2001 DORC). The regulatory value of these assets, as at 1 July 1999 determined in the 2001 DORC, has been rolled forward in accordance with the NSWRAU since that time and, in relation to these assets, the regulatory asset value ascribed in accordance with the NSWRAU as at 30 June 2011 will be taken as the Initial RAB for these parts of Segment 0916 in accordance with Section 4.4(a)(i) of the 2011 Hunter Valley Access Undertaking (2011 HVAU).

[1] http://www.railcorp.nsw.gov.au/commercial/network_access

On the other hand, the Leased Port Waratah Coal Loop Assets were not originally valued by BAH in the 2001 DORC as part of Segment 0916 (previously Sector 501 under the NSWRAU). The valuation only extended to the 'Previous PWCS Boundary 166.6km' and 'Previous PWCS Interface 168.149km' as shown in Attachment 1.

As the Leased Port Waratah Coal Loop Assets are now covered under the 2011 HVAU, ARTC is required to include a regulatory asset value for these assets, using the DORC method of valuing assets and approved by the ACCC, in the Initial RAB for Segment 0916 so as to ensure that ARTC does not breach Floor Limits and Ceiling Limits for Segments covered by the 2011 HVAU. This is in accordance with Section 4.4(a)(ii) of the 2011 HVAU.

It had been ARTC's intention to seek to include a regulatory asset value for the Leased Port Waratah Coal Loop Assets in the regulatory asset base for the relevant sector under the NSWRAU. ARTC proposed a regulatory asset value for these assets in its 2010-11 annual compliance assessment submission provided to IPART under the NSWRAU. As these assets were not covered by the regulated coal network defined under that undertaking (due to being maintained and managed by PWCS) and so not subject to annual compliance assessment, IPART indicated that for these assets to be captured under the regulated coal network and subject to annual compliance assessment, a variation to the NSWRAU was required. As ARTC's proposal and compliance submission was made subsequent to the 2010-11 year, and the IPART Act precludes the retrospective application of a variation to the NSWRAU, ARTC was unable to apply for a variation to the NSWRAU that could be applied retrospectively to the 2010-11 year. As such, ARTC was unable to have a regulatory asset value for the Leased Port Waratah Coal Loop Assets ascribed to the relevant sector in accordance with the NSWRAU as was originally intended.

Nevertheless, as part of the 2010-11 annual compliance assessment, IPART published the supporting document underpinning ARTC's proposed valuation for consultation (Attachment 2). Submissions received by IPART[2] supported inclusion of the Leased Port Waratah Coal Loop Assets in the regulatory asset base under

[2] http://www.ipart.nsw.gov.au/Home/Industries/Transport/Reviews/Rail_Access/Review_of_ARTC_compliance_with_the_NSW_Rail_Access_Undertaking_201011/13_Dec_2011_-_Letter_-_IPART_invitation_to_stakeholders_for_submissions/Letter_-_IPART_invitaton_to_stakeholders_for_submissions_on_ARTC_2010-11_proposal_-_December_2011

the NSWRAU. The regulatory asset value for the Leased Port Waratah Coal Loop Assets proposed by ARTC to be included in the Initial RAB for Segment 0916 has been prepared in this supporting document on largely the same basis (improved where possible) as that proposed to IPART. In particular, the DORC proposed to IPART applied to assets as at 1 July 2010. For consistency, the proposed DORC for the Leased Port Waratah Coal Loop Assets as determined in this supporting document applies to the same point in time (1 July 2010), and ARTC has rolled forward that value to 1 July 2011 in accordance with the asset valuation roll forward principles incorporated in the NSWRAU for inclusion in the Initial RAB. This approach is the same as that accepted by the ACCC for the 1 July 2011 – 31 December 2011 annual compliance assessment in relation to other assets that do not have a RAB value ascribed under the NSWRAU.

ARTC considers that rolling forward the valuation in 2010-11 when details of capital expenditure are known and have been subject to formal industry review and endorsement represents an appropriate basis for creating a contemporary valuation under a DORC framework. The approach:

- is consistent with standard regulatory practice in the Hunter Valley and many other rail jurisdictions and other industries;

- recognises the actual cost of replacement materials and installation at the time of commissioning, rather than historical cost assumptions;

- provides a basis to ensure expenditure is prudent and optimal through formal industry consultation and endorsement; and

- provides for the application of inflation to, and depreciation of, commissioned assets.

As stated earlier, The 2001 DORC applying to the Hunter Valley Coal Network was undertaken by BAH on behalf of IPART. ARTC has also previously engaged BAH (now Booz & Co.) in 2006 to undertake a DORC valuation of the ARTC rail network South Australia (SA), Victoria (VIC) and New South Wales (NSW) in support of ARTC's application for ACCC acceptance of its 2008 Interstate Access Undertaking (2006 DORC)[3], and in 2008 to undertake a DORC valuation of the

3 http://www.accc.gov.au/content/item.phtml?itemId=837572&nodeId=8e211c2f4684b54721919e1aef048a11&fn=Booz%20Allen%20Hamilton%20DORC%20valuation%20report.pdf

ARTC rail network between Dartbrook and The Gap (Hunter Valley) in support of its application for ACCC acceptance of the 2011 HVAU (2008 DORC)[4]. Both of these valuations have been prepared on a basis that is consistent to the valuation in 2001. Both of these valuations have been subject to separated assessment by the ACCC and both were found to be acceptable by the ACCC.

Given the extent of regulatory support of these prior valuations, in preparing this valuation ARTC has also drawn heavily on the methodology and valuation benchmarks incorporated in these valuations.

ARTC has chosen to prepare this valuation internally in recognition of:

- the extent of the assets involved and subsequent regulatory asset value being very small relative to the extent of the Network covered by the 2011 HVAU and the Initial RAB for that Network;

- the existence of methodologies and benchmarks in prior relevant DORC valuations conducted by IPART and ARTC that have proven acceptance of the ACCC, and;

- the existence of an internal valuation undertaken by ARTC in relation to the Leased Port Waratah Coal Loop Assets that had been subject to regulatory consultation by IPART, and had received stakeholder support.

This report describes the scope, approach and results of the Leased Port Waratah Coal Loop Assets DORC assessment as at 1 July 2010 and subsequent required asset valuation roll forward to 1 July 2011. Attachment 1 above provides a broad view of the extent of ARTC's network subject to this DORC assessment (highlighted in yellow).

The sections of the ARTC network included in this valuation are shown at Table 1.

4 http://www.accc.gov.au/content/item.phtml?itemId=917841&nodeId=c515ca66b3a1535680bc80a741bfa52c&fn=ARTC%20Hunter%20Valley%20Access%20Undertaking%20-%20Booz%20Assessment%20of%20Dartbrook%20Mine%20to%20The%20Gap%20DORC%20(revised)%2016%20June%202009.pdf.pdf

**Table 1 – ARTC Track Sections, Port Waratah Coal Loop (forming part of Segment 0916)**

| | ARTC Track Sections |
|---|---|
| 1 | Port Waratah Coal Loop Arrival Roads (3)<br>(No. 1 Coal Arrival Road – Previous PWCS Boundary 166.500km – 38 Sig, 39 Sig & Derailers 167.139km)<br>(No. 2 Coal arrival Road – Previous PWCS Boundary 166.500km - Sig, 38 Sig, 39 Sig & Derailers 167.139km)<br>(No.3 Coal Arrival Road – Previous PWCS Boundary 166.500km - 36 Sig & Derailer 167.228km) |
| 2 | Port Waratah Coal Loop Departure Roads (2)<br>(No.1 PWCS Departure Road – PWCS Interface 167.377km – Previous PWCS Boundary 168.149)<br>(No.1 PWCS Departure Road – PWCS Interface 167.377km – Previous PWCS Boundary 168.149) |

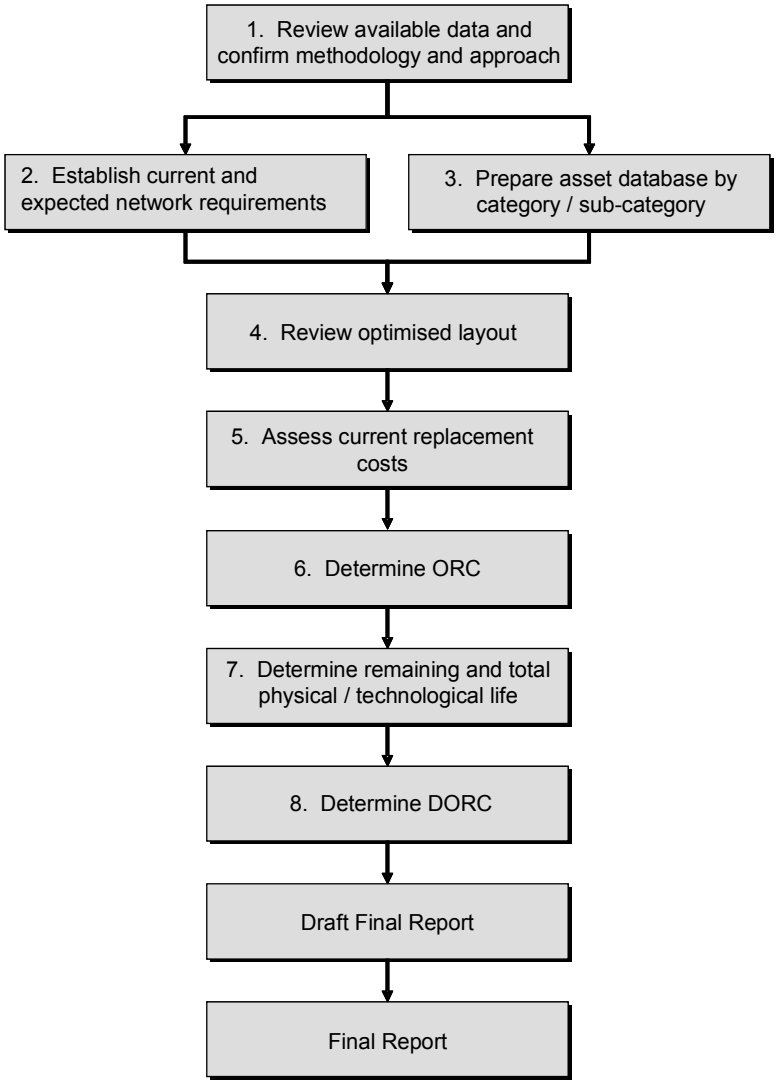
Source: ARTC Map – ARTCN1090094001 Port Waratah and Bullock Island (Attachment 1)

## 1.2 Establishing the DORC value

The approach used in establishing the DORC value is illustrated in Figure 3 below.

The ARTC network included in this assessment was divided into sections, as listed in section 1.1 above.

**Figure 2 – Approach**




This assessment has determined the DORC by way of a desktop study using readily available relevant information. Where relevant information is not readily available, reasonable assumptions have been used that are generally consistent with similar assumptions made in the 2001 DORC, 2006 DORC and 2008 DORC. In this context, it should be noted that relevant information in relation to the Leased Port Waratah Coal Loop Assets prior to ARTC management of these assets in 2006 is not extensive.

## 1.3 Structure of the Report

The Report is structured to reflect the above key work steps. There are five further sections:

- Section 1 Introduction (this section)
- Section 2 Existing and expected rail network requirements
- Section 3 Optimised rail network
- Section 4 Replacement costs
- Section 5 Condition Assessment
- Section 6 Final ORC and DORC values.

# 2. Existing and expected rail network requirements

## 2.1 Existing Rail Task

Table 2 provides details of the existing indicative coal train characteristics predominantly utilising the Leased Port Waratah Coal Loop Assets. In practice train characteristics can vary slightly in terms of number of wagons, there are some shorter trains using the Leased Port Waratah Coal Loop Assets (around 10%). Trains operating on the arrival roads are loaded and operate at close to maximum axle load whereas trains operating on the departure roads are empty. As the Leased Port Waratah Coal Loop Assets form part of the Port Waratah Coal Terminal and wagons are unloaded through the Port Waratah coal unloaders, trains do not operate at anywhere near maximum speed on the Leased Port Waratah Coal Loop Assets. General speed operated through the coal unloaders is around 1.5-2kph.

**Table 2 – Train Characteristics**

| Train Service | Max. train speed (km/h)[5] | Max. train speed (km/h)[6] | max. axle load (T) |
|---|---|---|---|
| 91 wagon service | 60 | 80 | 30 |
| 74 wagon service | 60 | 80 | 30 |
| 72 wagon service | 80 | 80 | 25 |

## 2.2 Historical Rail Task

Many asset types have lives which can be measured in gross tonnes. For example, a certain rail size may be quoted as having a life of 600 million gross tonnes (MGT), meaning that the rail is considered to require replacement when it has carried 600 MGT of traffic.

Calculating remaining asset life in years for such assets requires knowledge of the asset life, the asset life already consumed, and the expected usage over future years. Volume information on the Leased Port Waratah Coal Loop Assets for the period 1997 to 2010 is estimated at Table 3. Based on this information the assumption has been made that the average volume carried over this period of

[5] Subject to permanent and temporary speed restrictions
[6] Subject to permanent and temporary speed restrictions

available data represents the average historical level. An average annual volume of around 35.5mGTpa and 9.9mGTpa has been carried on the coal arrival roads and coal departures roads respectively. Assuming an average distribution of volume on each of the roads, average volume carried on each of the arrival roads is estimated at 11.8mGTpa, and on the departure roads is estimated at 4.9mGTpa. This assumption in relation to historical volume level may be reasonable given that rail asset age information provided later shows that this key asset has only been installed for around 10 years. Where assets are older this assumption is likely to be conservatively high.

**Table 3 – Leased Port Waratah Coal Loop Assets Volume History**
**Million Gross Tonnes Per Annum**

| | Port Waratah Coal Loop Arrival Roads | Port Waratah Coal Loop Departure Roads |
|---|---|---|
| 1997/98 | 32.7 | 9.2 |
| 1998/99 | 32.4 | 9.1 |
| 1999/00 | 29.4 | 8.2 |
| 2000/01 | 32.7 | 9.2 |
| 2001/02 | 28.3 | 7.9 |
| 2002/03 | 32.7 | 9.2 |
| 2003-04 | NA | NA |
| 2004/05 | 36.0 | 10.1 |
| 2005/06 | 36.9 | 10.3 |
| 2006/07 | 37.2 | 10.4 |
| 2007-08 | 40.9 | 11.5 |
| 2008-09 | 41.5 | 11.7 |
| 2009/10 | 45.0 | 12.6 |
| **Average** | **35.5** | **9.9** |

# 3. Optimised rail network

## 3.1 Approach to Optimisation

Producing a fully optimised network layout often requires extensive analysis of traffic requirements and detailed computer simulation of the network operation. Such a rigorous approach is unlikely to be warranted given the extent and nature of this valuation. Given the relatively simple nature and dedicated utilisation of the Leased Port Waratah Coal Loop Assets this DORC assessment is essentially limited to reviewing the number, length of the relevant coal roads and associated train control systems, plus reviewing the track structure required for present and future traffic. This limited assessment is similar to that adopted for the scope of the 2008 DORC.

## 3.2 Optimised Network

The primary requirement for coal roads at a coal terminal is to enable coal trains to unload through one or more coal unloaders. Coal roads need to be long enough to accommodate the length of trains that are used and there needs to be enough coal roads to service the number of coal unloaders stations. The coal roads forming the Leased Port Waratah Coal Loop Assets represent a continuation of those roads in Segment 0916 already ascribed a value included in the regulatory asset base under the NSWRAU. As these assets were originally valued on a DORC basis by BAH in the 2001 DORC for IPART it could be assumed the number of coal roads included represents an optimal configuration for the task, at the time, of servicing the two coal unloaders. It is therefore reasonable to assume that a continuation of these roads, being the coal roads forming the Leased Port Waratah Coal Loop Assets represent an optimal configuration in number.

The length of the coal roads forming the Leased Port Waratah Coal Loop Assets are sufficient to accommodate coal trains currently using the Hunter Valley Coal Network as well as the coal train configurations currently proposed to represent efficient use of Coal Chain Capacity[7]. All of these coal train configurations can be accommodated by the existing Hunter Valley coal network as contemplated in the existing regulatory asset base. Trains longer than any of the configurations can't be accommodated by the broader existing Hunter Valley coal network and, as such, contemplation of longer coal roads at Port Waratah would misalign capability

[7] 96 wagon and 82 wagon configuration currently proposed by ARTC as Initial Indicative Services under Section 4.17 of the 2011 HVAU.

of the terminal roads with the broader network forming the existing regulatory asset base. It could therefore be said that the existing coal road length at the terminal efficiently meets demand and that the coal road length forming part of the Leased Port Waratah Coal Loop Assets could reasonably be included in a DORC valuation.

ARTC is not aware of any industry plans in the foreseeable future to increase the number, or extend the length, of the relevant coal roads at the Port Waratah coal terminal.

### 3.3 Optimised Infrastructure

In developing replacement costs, "modern equivalent form" (MEF) configuration applies.

The coal roads forming the Leased Port Waratah Coal Loop Assets represent a continuation of those roads in Segment 0916 already ascribed a value included in the regulatory asset base under the NSWRAU. As these assets were originally valued on a DORC basis by BAH for IPART using MEF, it could be assumed that the coal roads forming the Leased Port Waratah Coal Loop Assets would be similarly configured to the assets forming part of these coal roads in the existing regulatory asset base for Segment 0916. This could apply to both track assets and signalling and communication/train control assets.

There has been a significant change in some key infrastructure supply items. Notably signals and communications are changing relatively radically due to changing technology (a later discussion about ARTC's Train Control Consolidation Project in 2006-07 is relevant), and timber sleepers now cost (slightly) more than concrete sleepers (while concrete sleepers provide a much longer and more reliable service life). Except where signals and communications changes are clearly definable, it is assumed that prior generation installations represent assets to be valued.

MEF track asset configuration for the coal roads forming the Leased Port Waratah Coal Loop Assets is therefore taken as:

- Rail size: 60 kg/m

- Sleeper type: Concrete, with resilient fasteners

- Sleeper spacing: 600 mm average
- Ballast depth: 200 mm under the sleeper
- Ballast shoulder: 250 mm

# 4. Replacement Costs

Replacement costs were calculated in detail for the 2001 DORC using asset configuration information and unit rates developed for each type of asset. Some unit rates were developed from first principles by Booz Allen Hamilton and some unit rates used as a source for this valuation were developed by Connell Wagner and others in previous work for ARTC.

While the rates used in the 2001 DORC were reasonable at the time (and subsequently reasonably matched other DORC valuations such as Tarcoola – Alice Springs, allowing for inflation, in 2003), there has been a very large increase in costs recently.

For the 2006 DORC, detailed cost estimates were obtained from ARTC's Southern Alliance for several proposed passing lanes, a total scope approaching 100 km of new track. The estimates were provided at a much aggregated level, leading to considerable interpretation being required. The estimates covered several 6.8 km sections of track, including all associated works, (including some works that would not apply to a greenfields site), the costs for which were stripped out where identifiable at the time. As the Southern Alliance includes commercially selected contractors and designers, it can be reasonably assumed that their estimates would represent efficient costs. While not directly comparable to large scale greenfield site assumptions applicable to a DORC, the ARTC estimate covers a not inconsiderable scope of work. However, in unit rate terms, the comparison between the 2001 DORC (with CPI inflation) and ARTC's Southern Alliance estimates (as assessed in the 2006 DORC) was stark. This supports considerable anecdotal evidence (and some objectively reported evidence in relation to rail infrastructure development in other jurisdictions) that infrastructure construction costs have recently increased significantly beyond CPI, an example being loop works completed in 2007 on the Dartbrook Mine to Werris Creek line, having construction rates more than two times the costs determined for the 2008 DORC.

While construction costs have increased, better management by ARTC of materials purchasing has assisted to contain costs well. It is therefore reasonable to deduce that it is the actual installation costs that have increased significantly.

In the 2008 DORC, Booz & Co attempted to reconcile these matters by analysing:

- rates used in the 2001 DORC;
- construction rates achieved on the Alice Springs to Darwin line works;
- ARTC's Southern Alliance estimate;
- construction and installation estimates prepared by Hyder Consulting in the North-South Corridor Study undertaken for the Australian Government and made available by ARTC for the 2008 DORC on a confidential basis;
- resulting rates as discussed in the 2006 DORC;
- a review of same with reference to ERA WA's report, "WestNet Rail's Floor and Ceiling Costs Review", July 2007; and
- detailed reconsideration of earthworks costs.

The, a priori, generalised result is that the base installation element of the cost of works should have:

- a 38.4% loading, applied in lieu of an 18% mark-up previously used in the 2001 DORC ; and
- an 18% loading applied to the ARTC purchase price for materials (where readily identifiable)

These adjustments would collectively produce approximately the same estimated cost as the known current cost of an ARTC Southern Alliance passing lane of seven kilometres in length, (though would be less than passing loop extension costs on the Dartbrook Mine to The Gap line).

In the 2008 DORC, Booz & Co. stated that as this mark-up would presumably decrease considerably where a project of the scale of replacement of the Dartbrook Mine to The Gap line was involved (the scope of the 2008 DORC), some reduction from the 38.4% loading should apply.

Booz indicated that there is no ready point of reference to apply in this situation and so the following approach was adopted:

- the 18% loading used in the 2001 DORC was increased to 28% for installation costs, while an 18% loading was retained for materials supply costs;

- where materials were not readily separable (e.g. structures), the 28% figure was substituted for the previous 18% loading

As the Leased Port Waratah Coal Loop Assets (around 1.5 km) is a much smaller scope than Dartbrook Mine to The Gap scope of the 2008 DORC (139 km), and more comparable to a passing lane scope (basis for the Southern Alliance estimates), ARTC has not assumed these latter adjustments made by Booz & Co. in this DORC valuation.

This results in a loaded "optimised (MEF)" track replacement cost of $669,189 per km (after allowing for inflation from previous estimates to 2010).

Each of the following sections clarifies which loading has been applied.

The 2001 DORC allowed for a "location factor" that varied from 0% to 8% to account for the distance from major population centres. Given the previous discussion about rates and the uncertainty associated with construction costs, it seems unreasonable to load uncertainty with additional factors. It should also be noted that track costs on a relatively wet, topographically challenging east coast would also need some sort of weighting by comparison with the simple (though remote) access to desert construction sites. In any event, the proximity of the Leased Port Waratah Coal Loop Assets to a major population centre would lead to a very low location factor. Consequently the location factor approach has not been repeated in this assessment.

As indicated, a consistency check was also conducted in the 2008 DORC, comparing unit rates for construction and installation, reported by Hyder Consulting in the North-South Rail Corridor Study with those estimated by Booz Allen Hamilton (for the 2006 DORC).

Booz Allen Hamilton's 2006 DORC estimated unit costs for construction and installation, including ballast, concrete sleepers and rail equated to $496,000 per kilometre, while Hyder Consulting's equated to $490,000 per kilometre – a difference of only 1.2%. While signalling unit costs estimates could not be compared, Booz Allen

Hamilton and Hyder unit costs per kilometres for level crossings were similar in magnitude.

## 4.1 Track

A standard track cross-section with the following attributes has been considered:

- Rail size: 60 kg/m
- Sleeper type: Concrete, with resilient fasteners
- Sleeper spacing: 600 mm average
- Ballast depth: 200 mm under the sleeper
- Ballast shoulder: 250 mm

The unit rate for track replacement is $669,189 per kilometre as discussed above, including an 18% loading on materials used and a 38.4% loading on installation.

Track quantities in single track kilometres (STKs) are listed in Table 4, where STKs are equal to the sum of the length of each of the coal roads as prescribed in route kilometres.

**Table 4 – Track STKs**

| | ARTC Track Section | STK |
|---|---|---|
| 1 | Port Waratah Coal Loop Arrival Roads | 2.01 |
| 2 | Port Waratah Coal Loop Departure Roads | 1.54 |
| Total | | 3.55 |

## 4.2 Turnouts

No turnouts were identified with the Leased Port Waratah Coal Loop Assets for valuation.

## 4.3 Structures

Structures include underbridges, overbridges, footbridges and culverts.

No structures have been included with the Leased Port Waratah Coal Loop Assets for valuation.

## 4.4 Earthworks

In the 2008 DORC, Booz & Co. indicated that ARTC had undertaken a detailed but generalised earthworks assessment in terms of “undulating”, “hilly” and “mountainous” terrain, and had applied previously identified rates for each. The terrain on which the Leased Port Waratah Coal Loop Assets are placed is considered to be ‘flat’ and, as such, no allowance has been included in this valuation for earthworks.

## 4.5 Signalling, Train Control, Safeworking and Communications

In recognition of the lack of detailed data for the 2008 DORC, Booz & Co obtained cost information for recent projects being undertaken in NSW at that time. The Ulan to Muswellbrook re-signalling project was investigated as being relevant to the Dartbrook Mine to The Gap line (scope of the 2008 DORC). This allowed a cost per km figure for signalling and communications to be calculated for the 2008 DORC.

ARTC does not consider that the use of a signalling and communications cost per km figure derived from a re-signalling project covering around 140km of mainline infrastructure as appropriate for application in a DORC assessment for yard or terminal infrastructure where track layout is more complex and the requirement for signalling and communication assets is likely to be much more intense.

ARTC has therefore elected for signals assets to adopt (and update) the ‘first principles’ approach used by BAH in the 2001 DORC where specific individual assets were identified and valued. For the 2001 DORC the following values were used (inflated by CPI to 1 July 2010) and have been applied to relevant identified Leased Port Waratah Coal Loop Assets.

Signals - $37,496 per unit
Signal cabling - $108,706 per km
Signal power supply - $53,628 per km

Conservatively, ARTC has not assumed any points and associated hardware associated with signals to be included in the Leased Port Waratah Coal Loop Assets. There are gantries on the departure roads that are redundant and no longer used. These assets are not assumed to be part of the optimised stand alone asset base.

For the purpose of this DORC assessment it has been assumed that older communications assets in the existing Sector 501, as assumed in the 2001 DORC, still remain and are used to varying extents.

PABX Remote Phone System – 60% life consumed as 1 July 1999
S&R Node Remote Phone System – 60% life consumed as at 1 July 1999
Backbone (Fibre Optic) – 90% consumed as at 1 July 1999

For the purpose of this DORC assessment it has been conservatively assumed that phone system assets have already been fully applied in existing Sector 501 in the 2001 DORC.

As such, only the following replacement values (for assets assumed in the 2001 DORC) were used (inflated by CPI to 1 July 2010) and have been applied to relevant identified Leased Port Waratah Coal Loop Assets.

Backbone System (Fibre Optic) - $35,180 per km

In addition, ARTC significantly upgraded and modernised train control and communications technology in the Hunter Valley (and other parts of the leased NSW Network) in 2006-07 as part of the Train Control Consolidation Project (TCC). Key project elements relevant to the Leased Port Waratah Coal Loop Assets included:

- Establishment of the Network Control Centre North (NCCN) at Broadmeadow;
- Port to Maitland TCC
- Voice control system (VCS) modification and installation in the NCCN

Communications between the NCCN/ARTC Terminal Coordinators and operational (train) / maintenance personnel at Port Waratah (including the Leased Port Waratah Coal Loop Assets) utilise a number of different technologies and equipment configurations including:

- In cab equipment (ICE) radio;
- CountryNet Radio;
- Satellite network;
- Radio equipment using standard and discrete frequencies; and
- Landline and mobile phone

These technologies also range in terms of introduction to the network, with some being introduced more recently as enabled by TCC works and other relevant communications projects such as the National Train Control System (NTCS) project. Replacement of older technologies with more recent technology such as NextG has occurred over the last few years and will continue going forward.

TCC costs identified with (or allocated to) the Hunter Valley Coal Network (as defined under the NSWRAU) at the time were approved for inclusion of the RAB in 2006-07. Of the TCC costs, $344,000 were identified with, or allocated to, parts of Segment 0916 (constrained) other than the Leased Port Waratah Coal Loop Assets which were included in the regulated network at that time. For this valuation, this amount (inflated to 1 July 2010) has been used to determine an additional amount to be allocated to the Leased Port Waratah Coal Loop Assets now included in the Network based on train kilometres. This amount has been taken as the replacement cost for a train control centre and communications for the purpose of the valuation and is consistent with recognition of recent technology enabling works such TCC in the wider Hunter Valley RAB under the NSWRAU.

This approach is different to and, in ARTC's view, improves upon, that used in the 2008 DORC, which determined a mark up to signalling cost to reflect a train control centre based on assumptions relevant to the interstate network, and used communications assets replacement cost assumptions generalised from the same above mainline re-signalling project above.

## 4.6 Fencing & Level Crossings

As the relevant parts of the arrival and departure roads at Pt Waratah are within the wider Pt Waratah terminal area, no fencing has been included for the purposes of this DORC assessment.

There is one level crossing included in the Leased Port Waratah Coal Loop Assets. It lies across the departure roads at Pt Waratah (168.137km). This level crossing is a public level crossing with lights.

A 38.4% installation cost loading as described above has been applied to this level crossing. Other than not allowing for the scale benefits applicable in the 2008 DORC (as described earlier), this is consistent with the treatment by Booz & Co. in the 2008 DORC. This results in a replacement cost for this public level crossing with lights of $264,239.

# 5. Condition Assessment

## 5.1 General Sources of Information

In previous DORC assessments, including the 2008 DORC, BAH was able to obtain information from a range of data sources including:

- An asset condition investigation undertaken for DIRN track (interstate network) in NSW in mid 2005 that sought to document infrastructure condition at ARTC take-over of this network in September 2004. A series of reports by WorleyParsons and sub consultants, provide a fairly complete description of infrastructure condition. WorleyParsons provided a number of spreadsheets listing details such as rail type and age. ARTC's project manager for the NSW asset condition investigation produced a comprehensive Executive Summary for the project as a whole.

  All these documents were referenced for the 2006 DORC and formed an on-going base of condition assessment for the 2008 DORC. A common source of data for these reports was the TrackData on-line infrastructure database. The TrackData database was largely inherited by ARTC from Rail Infrastructure Corporation (the previous track manager), and has been updated over time to a somewhat varying degree to both improve information quality and to reflect on-going renewals. In practice there were some limitations to applicability of this data for that DORC assessment.

  Booz & Co consequently used a range of data sources, including the WorleyParsons reports and spreadsheets and ARTC's Executive Summaries, direct communications with Corridor Management personnel, ARTC data and Booz & Company's own knowledge. Inevitably there was some inconsistency between these sources, and detailed knowledge of asset condition is limited. Furthermore, each source has a different data structure, none matching precisely ARTC's DORC segments at the time, with the result that there would inevitably be errors in Booz & Co's asset register and asset condition data.

- Recent AK Car track geometry data, which contributed to understanding of rail wear and ballast condition.

- A range of asset configuration and condition spreadsheets and commentaries provided by ARTC following a visit by a member of ARTC's Performance team to gather data for that project.

Given the nature and management history of the Leased Port Waratah Coal Loop Assets only limited information data in relation to the age and condition of specific Leased Port Waratah Coal Loop Assets has been readily able to be sourced for this DORC assessment.

As such, ARTC has sought to use readily available information and data in this assessment where it can, and apply reasonably informed assumptions in these areas otherwise. Where possible, ARTC has sought to apply a consistent approach to that used in the 2008 DORC and previous DORC assessments provided to the ACCC.

The spreadsheet used by ARTC underlying this DORC is extensively commented to identify data sources, and assumptions applied, similar to that undertaken in Booz & Co. spreadsheets underpinning the 2008 DORC.

A key determinant of track condition is the geometry of the rail measured by ARTC using the AK Car. In relation to the Leased Port Waratah Coal Loop Assets, conditions are such that measurement results are not particularly reliable due the presence of slow moving coal trains through the unloaders. This results in a higher prevalence of coal dust on and near the track impacting measurement accuracy, as well as retarding the AK Car from reaching appropriate speed for measurement. As such, undertaking detailed condition assessment in relation to the Leased Port Waratah Coal Loop Assets is not considered to be particular cost effective given AK Car running costs.

## 5.2 Track

### 5.2.1 Rail

The assessment of life consumed is based upon two factors: tonnage historically carried compared to rail life, and, where available, specific observations or data regarding condition.

Tonnage carried is based on MGT figures provided at Table 3 above.

In the 2008 DORC and prior DORC assessments rail life has been specified in terms of a nominal tonnage that can be carried over time before replacement is needed.

As at 1 July 2010, the Port Waratah Coal Loop Arrival Roads (3) contained 60kg HH (head hardened) rail believed to have been mostly installed around 2000[8]. As any work at that time was carried out by PWCS, it is not known if this rail was new or cascaded. In the absence of any advice to the contrary it is assumed new assets were installed. The Port Waratah Coal Loop Departure Roads contain 53 kg rail installed much earlier. ARTC has assumed that the 53kg rail was installed around 25 years before the date of the 2001 DORC (1 July 1999). This is consistent with the assumption made in the 2001 DORC for 53kg in other parts of Segment 0916 (Port Waratah terminal).

In the 2001 DORC, BAH assumed the following life in relation to these types of rail.

60kg (HH) – 1150MGT (million gross tonnes)
60kg (SC) – 690MGT
53 kg – 460MGT

ARTC expects that these assumptions are a reasonable average representation in relation to the assets in the 2001 DORC scope (entire Hunter Valley Coal Network) where the track passes through a range of different environments impacting to varying extents on rail life. The rail forming part of the Leased Port Waratah Coal Loop Assets is situated in a less benign environment where soil salinity is relatively high and can affect rail footing. Nevertheless as the assumptions in the 2001 DORC (and more recent DORC assessments) were intended to represent an average over a range of environments it would seem more balanced to apply the same assumptions in relation to the Leased Port Waratah Coal Loop Assets now forming part of the Hunter Valley coal network rather than now dealing with certain parts of the network in a specific manner.

In the 2008 DORC, Booz & Co. used a nominal rail life of 600MGT intended to represent a compromise position in relation to the rail weights in that scope (Dartbrook to The Gap) where predominantly very old 53kg

[8] TrackData online infrastructure database.

rail exists together with some relatively new 60kg rail designed to carry 25T axle load train configurations.

Also, in the 2008 DORC (and other DORC assessments), Booz & Co. recognised that rail life is affected by curvature, and incorporated specific adjustments to the rate of rail life consumption for the proportion of curved track within certain radius bands. ARTC notes that the operation of trains at speed around curves creates significant tangential pressure around the rail that causes increased life consumption, which can be offset by properly adjusting rail super-elevation. As the speeds at which coal trains operate on the Leased Port Waratah Coal Loop Assets rail is very low (1.5 – 2 kph) and any impact on curved track is marginal, ARTC does not consider it necessary to make a similar adjustment in this DORC assessment.

In relation to this DORC assessment where the arrival roads carry predominantly 30T axle load train configurations, albeit at low speed, and the existing arrival roads are 60kg HH and the departure roads carry empty trains and are 53kg, ARTC has conservatively maintained the Booz & Co. assumption in the 2008 DORC of a nominal 600MGT rail life as an average for both arrival roads and departure roads.

Tonnage Consumption of Rail

*Leased Port Waratah Coal Loop Assets - arrival roads*

Based on the average of historical volumes since 1997-98 (Table 3), total volume into Pt Waratah (arrival roads) since 2000 is 355MGT.

Assuming utilisation of the arrival roads (3) is approximately even over this period, each arrival road has carried around 118MGT. Applying the nominal life of 600MGT, estimated tonnage consumption of the 60kg HH rail (arrival roads) between 2000 and July 2010

Gross Tonnes/Life = 118/600 = 19.7% (20%).

This would imply 80% rail life remaining for Leased Port Waratah Coal Assets – arrival roads.

*Leased Port Waratah Coal Loop Assets – departure roads*

As stated earlier, 53 kg rail was installed in the departure roads some time ago. For the purpose of this DORC assessment, ARTC has assumed installation around 25 years prior to the 2001 DORC. Consistent with the assumption made in the 2001 DORC it has been assumed that Pt Waratah has been operating at current capacity for many years and that existing levels could be applied historically.

Based on the average of historical volumes since 1997-98 (Table 3), total volume ex Pt Waratah (departure roads) since 1975 is 35 x 10MTGpa = 350MGT.

Assuming utilisation of departure roads (2) is approximately even over this period, each departure road has carried around 175MGT. Applying a life of 600MGT, estimated tonnage consumption of rail (departure roads) over the last 35 years

Gross Tonnes/Life = 175/600 = 29.2% (29%).

This would imply 71% rail life remaining for Leased Port Waratah Coal Assets – departure roads.

ARTC has adopted conservative estimates of rail tonnage consumption for the purpose of this assessment. These conservative estimates recognise some uncertainty around assumptions and the additional effect of defect and impact related consumption ignored in this valuation.

<u>Condition Assessment</u>

A key determinant of track condition is the geometry of the rail measured by ARTC using the AK Car. As described earlier, in relation to the Leased Port Waratah Coal Loop Assets, conditions are such that measurement results are not particularly reliable.

Nevertheless, and notwithstanding these reliability issues, outputs from AK Car measurements carried out in the first half of 2011 show Track Quality

Index[9] for the Port Waratah Coal Loop Arrival Roads to be good (around 13-14) and average (around 16-20) for the Port Waratah Coal Loop Departure Roads.

Due to the lack of reliable condition data, ARTC has focused on volumes in determining asset life consumption. However, there would not seem to be anything compelling in the available condition assessment data that would suggest life consumed should be adjusted (increased) further.

### 5.2.2 Sleepers

Consistent with other parts of the Hunter Valley coal network, assessment of sleeper life consumed is based upon age, using concrete sleepers as a MEF. Where concrete sleepers are presently in place, the age is simply compared with a presumed total life of 50 years.

Where timber is presently installed, an equivalent life consumed figure is calculated for the MEF concrete sleeper. For example a timber sleeper may be assessed as having 5 years life remaining. Comparing this with an assumed 20 year total life, then the timber sleeper is considered to be 75% life consumed. However, to have 5 years' remaining life, the MEF sleeper would need to be 90% life consumed.

As at 1 July 2010, the Port Waratah Coal Loop Arrival Roads and Departure Roads contained timber sleepers. The installation date of these sleepers is only known for some roads[10]. Where installation date is unknown it has been assumed that timber sleepers are 50% life consumed (have 10 years remaining life) and 50% have less than 5 years remaining life (that is, close to life expired and needing replacement). This is not dissimilar to the approach taken by Booz & Co. in the 2008 DORC, in the absence of more detailed information.

[9] Track Quality Index (TQI) is the ARTC measure for track geometric condition. AK Car output in NSW is available in terms of Track Condition Index (TCI) where, as a rule of thumb, TQI is around 2/3rds of TCI. AK Car measurements used were for 24 January 2011 and 30 May 2011. Which of the roads was being measured in the AK Car outputs was unable to be identified.

[10] TrackDate online data base shows sleepers in arrival roads 1 and 3 to have been installed in 1999 and 2007 respectively.

Given the length of respective roads the life remaining for Port Waratah Coal Loop Arrival Roads is:

| | | |
|---|---|---|
| Arrival Road 1 | 639m | 20-(2010-1999) = 9 years |
| Arrival Road 2 | 639m | 50% x 10 years = 5 years |
| Arrival Road 3 | 728m | 20-(2010-2007) = 17 years |

Distance weighted average remaining life for Port Waratah Coal Loop Arrival Roads is 10.6 years or 56%.

As described above, a timber sleeper remaining life of 10.6 years results in an equivalent MEF concrete sleep remaining consumption of 21.3% (21%) (78.7% (79%) consumed).

Given the length of respective roads the life consumption for Port Waratah Coal Loop Departure Roads is:

| | | |
|---|---|---|
| Departure Road 1 | 772m | 50% x 10 years = 5 years |
| Departure Road 2 | 772m | 50% x 10 years = 5 years |

Distance weighted average remaining life for Port Waratah Coal Loop Departure Roads is 5 years or 25%.

As described above, a timber sleeper remaining life of 5 years results in an equivalent MEF concrete sleeper remaining consumption of 10% (90% consumed).

### 5.2.3 Ballast

In the 2008 DORC, Booz & Co. had access to an ARTC ballast assessment in terms of Good, Fair and Poor. These assessments were taken together with a detailed analysis of AK Car Surface parameters to identify the proportion of track affected by poor track support – generally taken as consequent upon poor ballast.

For the purpose of this valuation, it is assumed that the ballast is the same as in other parts of Segment 0916 as assessed by BAH in the 2001 DORC[11].

[11] Information for the valuation of ballast is sourced from Table 6.3, BAH Report, 2001.

Information for the valuation of ballast is sourced from Table 6.3, BAH Report, 2001.

The BAH estimate of ballast life consumed as at 1 July 1999 was 78%. In line with the position taken in the BAH Report, 2001, ARTC has assumed a cap on ballast consumption of 90% '… recognising that while ballast might be technically in need of replacement, in fact it continues to provide support for traffic.' (BAH Report 2001)

ARTC have adopted an estimate of ballast consumption of 90% for the purpose of this valuation. Given the outputs of the AK Car measurements in early 2011 provided earlier this estimate could be considered conservative.

Overall Track Consumption

Weightings for each of the track components have been based on component values as used by Booz & Co. in the 2008 DORC.

The weightings for each component were as follows:

| | |
|---|---|
| Rail | 33% |
| Sleepers | 35% |
| Ballast | 32% |
| Total Track | 100% |

Applying these weightings to the track component consumption values calculated in Sections 5.2.1, 5.2.2 and 5.2.3 above, the total track consumption as at 1 July 2010 is estimated as:

1. Port Waratah Coal Loop Arrival Roads

   = (33% x 20%) + (35% x 79%) + (32% x 90%) = 63%

2. Port Waratah Coal Loop Departure Roads

   = (33% x 29%) + (35% x 90%) + (32% x 90%) = 70%

## 5.3 Signalling, Train Control & Communications

The average age of signalling assets in Segment 0916 valued as part of the 2001 DORC as at 1 July 1999 was reported to be 19 years[12] with 11 years life remaining. In the report it was assumed that upon reaching its economic life, a signalling system has been 90% consumed and remains at this level as long as the system is capable of fulfilling its intended functions.

1999 % consumed = 19 years out of 30 year life (with 90% max)
= 19/30 x 90 = 57%

2010 % consumed = 30/30 x 90 = 90%.

ARTC has reduced the % consumed to 80% to reflect the recent (2008-09) upgrading of power supply to Port Waratah (and other parts of the Hunter Valley rail network) to 11kV. The power supply asset cost represents around 20% of the signalling asset in total. This is similar to the approach taken in the 2008 DORC to recognise renewals.

In the 2001 DORC, BAH assumed that upon reaching its economic life, a communication system has been 90% consumed and remains at this level as long as the system is capable of fulfilling its intended functions. Consistent with this, Backbone System assets (as assumed in the 2001 DORC described earlier) are assumed to remain at 90% life consumed as at July 2010.

In relation to NCCN and communications assets and technologies, introduced and/or upgraded as enabled by the TCC project in 2006-07 described earlier, ARTC has applied the time since that project was commissioned (1 January 2007 for regulatory purposes) to 1 July 2010 to an assumed life for these assets based on the life used (and endorsed by the industry at the time) as part of that project of 20 years. This results in consumption of these assets of:

2010 % consumed = 3.5/20 = 17.5% consumed.

[12] Table 6.8, BAH Report 2001.

## 5.4 Level Crossings

There is one level crossing located on the Leased Port Waratah Coal Loop Assets. It crosses the Port Waratah Coal Loop Departure Roads at 168.137km. This level crossing is a public level crossing with lights.

Consistent with assumptions made in the 2008 DORC, this level crossing is assumed to be 50% life consumed.

# 6. Final ORC & DORC Values

## 6.1 Leased Port Waratah Coal Loop Assets ORC & DORC (1 Jul 2010)

ORC and DORC values as at 1 July 2010 are provided in Table 5 below.

**Table 5 – Leased Port Waratah Coal Loop Assets – DORC and ORC (as at 1 July 2010)**

| Item | Item |
|---|---|
| ***Results: 2010*** | |
| **ORC ($)** | **3,219,085** |
| **DORC ($)** | **1,072,247** |
| Average Per cent life consumed (%) | 66.7 |
| STK | 3.55 |
| ORC average per kilometre ($) | 906,784 |
| DORC average per kilometre ($) | 302,041 |

On a per km basis, ORC and DORC for the Leased Port Waratah Coal Loop Assets is substantially less that values that resulted from the 2008 DORC (Dartbrook to the Gap). Key reasons for the much lower valuation include:

- exclusion of a number of assets such as turnouts and earthworks that were not relevant to the Leased Port Waratah Coal Loop Assets;
- generally higher consumption of asset life for the Leased Port Waratah Coal Loop Assets compared to the broader Hunter Valley coal network (mainly the presence of old 53kg rail and timber sleepers); and
- a generally conservative position taken by ARTC in relation to most assets to recognise uncertainty and limited information availability.

Table 6 provides a more detailed view of unit costs.

**Table 6 – Details by asset type**

| Track | | Level Xings | | Sigs | | Comms | | Total | |
|---|---|---|---|---|---|---|---|---|---|
| ORC | DORC | ORC | DORC | ORC | DORC | ORC | DORC | ORC | DORC |
| $669,189 | $227,950 | $74,433 | $37,217 | $139,815 | $27,963 | $23,348 | $8,911 | $906,785 | $302,041 |
| per km | per km | per km | per km | per km | per km | per km | per km | per km | per km |

## 6.2 Initial RAB for the Leased Port Waratah Coal Loop Assets (1 Jul 2011)

As indicated in Section 1, ARTC has carried out a DORC assessment on a similar basis to that used in relation to its submission made to IPART as part of the 2010-11 annual compliance assessment under the NSWRAU. This submission was made public by IPART and specifically consulted with stakeholders, with stakeholder responses being supportive of the inclusion of the relevant assets in the RAB. As this DORC assessment, accordingly, values the Leased Port Waratah Coal Loop Assets as at 1 July 2010 there is a need to roll forward this DORC valuation to determine the Initial RAB to apply under the 2011 HVAU as at 1 July 2011, being the Commencement Date of the 2011 HVAU. As is the case in relation to assets that already have a DORC approved by the ACCC (Dartbrook – The Gap under the 2008 DORC), ARTC proposes to roll this DORC forward in accordance with the asset valuation roll forward principles under the NSWRAU. This is consistent with the treatment for all other Hunter Valley coal network assets under the NSWRAU in operation during this period.

Under the NSWRAU, the asset valuation roll forward principles are prescribed as follows:

'**3 REGULATORY & ASSET BASE**

**3.1 General**

The Regulatory Asset Base shall be calculated in accordance with the following formula (capitalised terms are as defined in the NSWRAU):

$$RAB_t = RAB_{t-1} + (RAB_{t-1} * CPI_t) + Add_t + Capex_t - Dep_t - Disp_t$$

Where:

**$RAB_t$**: The Regulatory Asset Base in any given year t and represents the closing value of the Regulatory Asset Base for that year.

**$RAB_{t-1}$**: The Regulatory Asset Base in the year prior to year t and represents the closing value of the Regulatory Asset Base for that year and is the Opening Regulatory Asset Base in year t.

**$CPI_t$**: The percentage change in the CPI from the year t-2 to the year t-1, calculated by using the average of the ABS Sydney All Groups Consumer Price

Index for the four quarters to June in the year t-l when compared to the average for the four quarters to June in the year t-2.

**$Add_t$**: The addition of an existing Sector or an existing group of Sectors due to changes in demand in a common end market, valued at depreciated optimised replacement cost.

**$Capex_t$**: The actual Capital Expenditure for assets commissioned in relation to the Regulatory Asset Base for the year t, where that Capital Expenditure is incurred in accordance with the provisions of clause 3.3, less that portion of any Capital Contribution which is to recover Capital Expenditure.

**$Dep_t$**: The Depreciation allowance for the year t.

**$Disp_t$**: The value of Asset Disposals in the year t as determined by the written down value attributed to them in the Regulatory Asset Base.

**Year t**: The current year commencing on 1 July for which Access Charges are to apply.'

Table 9 shows the roll forward of the Leased Coal Loop Assets DORC as at 1 July 2010 ($RAB_{t-1}$) to determine the Initial RAB as at 1 July 2011 ($RAB_t$) carried out in accordance with the above asset valuation roll forward principles. The table also shows each component of the roll forward separately. Under the 2010-11 compliance assessment by IPART, the following parameters have been applied and can be sourced from ARTC's 2010-11 compliance submission to IPART[13]:

***Remaining mine life of Hunter Valley coal mines*** 29 years

***$CPI_t$***

**Table 7**

| Quarter | 2008-2009 | 2009-2010 |
|---|---|---|
| September | 165.90 | 168.10 |
| December | 165.50 | 169.10 |
| March | 165.60 | 170.50 |
| June | 166.30 | 171.10 |
| **Average** | **165.83** | **169.70** |
| | **09-10 Average / 08-09 Average** | **1.0234** |
| | **CPI %** | **2.33%** |

13 http://www.ipart.nsw.gov.au/Home/Industries/Transport/Reviews/Rail_Access/Review_of_ARTC_compliance_with_the_NSW_Rail_Access_Undertaking_201011

### *Add*$_t$

There were no additions to the Hunter Valley Constrained Network during the 2010/11 period.

### *Capex*$_t$ *and Disp*$_t$

**Table 8**

| Sector / Segment # | Line Segment | Activity | PROJECT | Capital Expenditure $M | Disposals Written Down Value $M |
|---|---|---|---|---|---|
| **501 / 916** | Scholey Street Junction to Port Waratah[a] | Complete and Commission Level crossing | Minor Capital Works Project 0916E3 | **0.026** | |
| | | PTW No1 Departure (re-rail) | Minor Capital Works Project 0916H9 | **0.422** | **0.115** |

a. Leased Port Waratah Coal Loop Assets only

These works relate to a minor capital works project involving replacing old 53kg rail in Departure Road 1 with cascaded 60kg rail and associated works on the affected level crossing and have been endorsed by the Rail Infrastructure Group[14] as part of ARTC's Minor Capital works Program for 2010-11.

**Table 9**

| Value | | Leased Port Waratah Coal Loop Assets |
|---|---|---|
| **Opening Value (1 July 2010)** | **$RAB_{t-1}$** | **1,072,247** |
| Additional Sectors / Segments | **$Add_t$** | |
| CPI Increase | **$RAB_{t-1} * CPI_t$** | 24,983 |
| Capital Expenditure | **$Capex_t$** | 448,266 |
| Depreciation | **$Dep_t$** | (41,591) |
| Disposals | **$Disp_t$** | (115,222) |
| **Closing Value (1 July 2011)** | **$RAB_t$** | **1,388,683** |

The Initial RAB applicable to the Leased Port Waratah Coal Loop Assets as at 1 July 2011 is provided in Table 10 below.

[14] Industry representative group consulted by ARTC in order to meet compliance obligations under Schedule 3 Clause 3.3 of the NSWRAU.

**Table 10 – Leased Port Waratah Coal Loop Assets – Initial RAB (as at 1 July 2011)**

| Item | Item |
|---|---|
| ***Results: 2011*** | |
| **Initial RAB ($)** | **1,388,683** |
| STK | 3.55 |
| Initial RAB average per kilometre ($) | 391,178 |