

# Australian Competition and Consumer Commission

ARTC – Hunter Valley | Operating cost benchmarking

Final report

# Table of contents

|  |           |
|--|-----------|
| <b>1. Introduction</b>   | <b>5</b>  |
| <b>2. ARTC's Total Costs (CO + BMC + NC) over CAL18 to CAL20</b> | <b>8</b>  |
| <b>3. Comparator assessment</b>                                  | <b>11</b> |
| <b>4. Application of comparator benchmarks</b>                   | <b>20</b> |
| <b>5. Summary of findings</b>                                    | <b>34</b> |
| <b>Appendix A: Calculation approach and data</b>                 | <b>36</b> |
| <b>Appendix B: Cost centre mapping</b>                           | <b>42</b> |
| <b>Appendix C: Reference list</b>                                | <b>46</b> |
| <b>Appendix D: Summary data tables</b>                           | <b>49</b> |

# Abbreviations

| Abbreviation | Term   |
|--------------|--|
| ARTC         | Australian Rail Track Corporation                                    |
| BMC          | Business Unit Management costs                                       |
| CAL15        | Calendar year 2015   |
| CAL18        | Calendar year 2018   |
| CAL19        | Calendar year 2019   |
| CAL20        | Calendar year 2020   |
| CO           | Corporate Overhead   |
| GOC          | Government-owned corporation otherwise known as a state-owned entity |
| GTK          | Gross Tonne Kilometre  |
| HVCN         | Hunter Valley Coal Network   |
| HVAU         | Hunter Valley Access Undertaking                                     |
| IM           | Infrastructure Management  |
| NC           | Network Control  |
| UT4          | Aurizon Network's 2016 access undertaking                            |
| UT5          | Aurizon Network's 2017 access undertaking                            |

# Important Notice

## Disclaimer

This report was prepared by Arup for the exclusive use of the client(s) named herein. Information furnished by others, upon which all or portions of this report are based, is believed to be reliable but has not been independently verified, unless expressly indicated. Public information, industry and statistical data are from sources we deem to be reliable; however, we make no representation as to the accuracy or completeness of such information, unless expressly indicated. The findings enclosed in this report may contain predictions based on current data and historical trends. Any such predictions are subject to inherent risks and uncertainties. It should also be noted that the timescale and data available for the review have been limited and this impacts the strength and robustness of the conclusions that can be drawn as this point. Accordingly, some of the conclusions are based on illustrative analysis and judgement.

A more forensic analysis would be required to support those judgements if ACCC wished to use the findings prominently in finalising its HVAU Annual Compliance Assessment 2019 and 2020. The opinions and judgement expressed in this report are valid only for the purpose stated herein and as of the date of this report. No obligation is assumed to revise this report to reflect changes, events or conditions, which occur subsequent to the date hereof. Arup does not accept or assume any responsibility in respect of the report to any readers of the report (third parties), other than the client(s). To the fullest extent permitted by law, Arup will accept no liability in respect of the report to any third parties. Should any third parties choose to rely on the report, then they do so at their own risk.

## Limitations of cost benchmarking

The benchmarking of operating costs to undertake operating cost efficiency analysis is commonly used in regulatory economics. Benchmarking provides a guide for how costs compare across organisations. It is unlikely to result in a precise, like-for-like comparison of relevant costs due to differences including:

- Cost categorization
- accounting treatment
- organisation structure, and
- the nature of the services provided by the relevant organisations.

Organisations that are considered comparable to ARTC were evaluated based on key factors that Arup considers identify similar organisations. This included non-rail sector comparator businesses that Arup considers share some similarities with the rail sector.

The reader is advised to consider all footnotes and appendices contained within this report when drawing conclusions to ensure that relative differences between organisations are understood.

# 1. Introduction



# Introduction

## This report

In 2015, Deloitte was engaged to provide a third-party review of ARTC's operating and maintenance costs for the Hunter Valley Coal Network of calendar year 2015 (CAL15).

As part of its wider support to ACCC's regulatory oversight of ARTC, Arup has been engaged to support with:

- Understanding the appropriateness of the benchmark organisations that Deloitte used in CAL15 for operating costs, in particular, overheads
- Identify any other appropriate organisations that ARTC's operating costs could be benchmarked against (if any), focusing on overheads
- Conduct a similar analysis to that done by Deloitte using 2020 data to 'update' the benchmarking exercise to inform ACCC's review of ARTC's overhead costs.

## Scope of review

This report provides a benchmark review of ARTC's Network Control (NC), Corporate Overheads (CO), and Business Unit Management Costs (BMC). Together, these costs reflect ARTC's Total Costs (CO + BMC + NC). All other operating expenses (such as Infrastructure Maintenance, Loss of Disposals and Expensed Project Costs) are excluded from this analysis.

This report is structured as:

- Part 1: summary of ARTC's Total Costs (CO + BMC + NC), showing an overview of ARTC's Total Costs (CO + BMC + NC) for CAL18 to CAL20
- Part 2: comparator assessment, detailing our approach and findings in reviewing the comparators used by Deloitte
- Part 3: evaluation of relevant cost centres included in ARTC's Total Costs (CO + BMC + NC), showing the outcomes of updating the relevant benchmarks to inform ACCC's review of ARTC's overhead costs.

The appendices contain additional data, analysis and further detail on aspects of our approach that have been prepared as part of Arup's analysis.

## 2. ARTC's Total Costs (CO + BMC + NC) over CAL18 to CAL20



# ARTC’s Total Costs (CO + BMC + NC) over CAL18 to CAL20

ARTC’s Total Costs (CO + BMC + NC) have increased by 11.9% over CAL18 to CAL20, with NCs representing the greatest increase

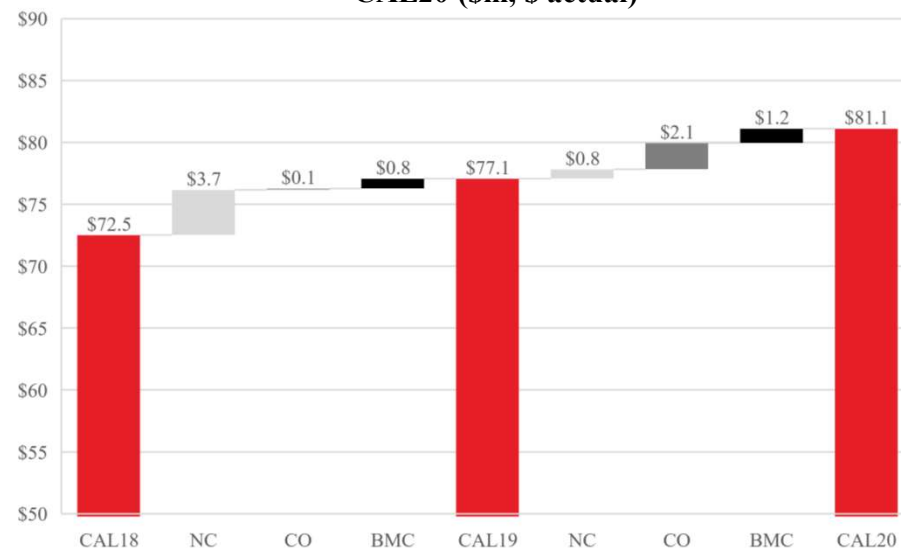
Total Costs (CO + BMC + NC) by cost centre (\$m, \$ actual)

|                                   | CAL18  | CAL19  | CAL20  |
|-----------------------------------|--------|--------|--------|
| NC (\$m)                          | \$15.8 | \$19.4 | \$20.2 |
| Change                            |        | 23.1%  | 3.9%   |
| CO (\$m)                          | \$22.6 | \$22.7 | \$24.8 |
| Change                            |        | 0.5%   | 9.4%   |
| BMC (\$m)                         | \$34.1 | \$34.9 | \$36.1 |
| Change                            |        | 2.3%   | 3.3%   |
| Total Costs (CO + BMC + NC) (\$m) | \$72.5 | \$77.1 | \$81.1 |
| Change                            |        | 6.3%   | 5.3%   |

Source: ARTC overhead cost allocation model, CAL18, CAL 19 and CAL20

\*Totals and percentages may diverge due to rounding

Annual change in Total Costs (CO + BMC + NC) by cost centre CAL18-CAL20 (\$m, \$ actual)



Source: ARTC overhead cost allocation model, CAL18, CAL 19 and CAL20

- NC costs significantly increased over CA18 to CAL20. This increase is predominantly driven by the implementation of a new signaling system and increases in labour costs, with costs increasing significantly between CAL18 and CAL19.
- COs have also increased over CAL19 to CAL20, driven by procurement-related costs and upgrades to ARTC’s IT systems.

# ARTC’s Total Costs (CO + BMC + NC) over CAL18 to CAL20

**Total Costs (CO + BMC + NC) per 1,000 GTK has increased between CAL18 and CAL20**

Cost per 1000 GTK by cost centre (\$/’000 GTK, \$FY19)<sup>1</sup>

|  | CAL18         | CAL19         | CAL20         |
|--|---------------|---------------|---------------|
| NC (\$m)                                     | \$0.35        | \$0.41        | \$0.44        |
| CO (\$m)                                     | \$0.51        | \$0.48        | \$0.54        |
| BMC (\$m)                                    | \$0.76        | \$0.74        | \$0.78        |
| <b>Total Costs (CO + BMC + NC) (\$m)</b>     | <b>\$1.62</b> | <b>\$1.64</b> | <b>\$1.75</b> |
| HV Network Coal Freight (m GTK) <sup>2</sup> | 45.0          | 46.4          | 45.3          |

1. Figures may not sum due to rounding.

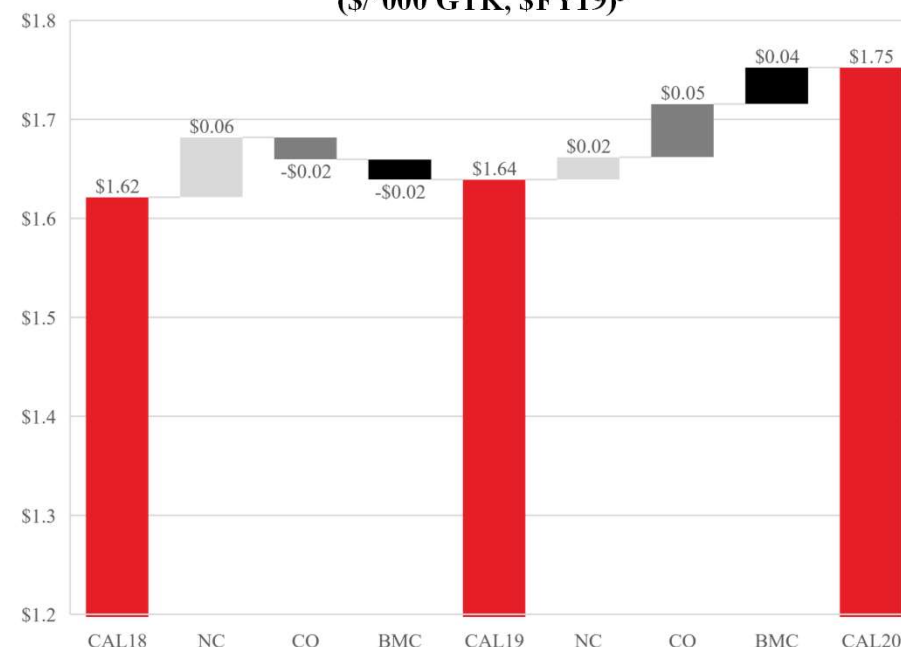
2. GTK has been derived based on the reported volume on the Hunter Valley Network for coal freight only in the overhead cost allocation model submitted by ARTC.

ARTC’s Total Costs (CO + BMC + NC) per 1000 GTK have generally increased year-on-year.

The increase in Total Costs (CO + BMC + NC) per 1000 GTK between CAL18 and CAL19 was principally driven by a large increase in NC costs, despite increased coal volumes (which resulted in lower CO and BMC costs per 1000 GTK).

The increase in Total Costs (CO + BMC + NC) between CAL19 and CAL20 was principally driven by an increase in CO and BMC costs and a decrease in overall coal volumes.

Annual change in Total Costs (CO + BMC + NC) by cost centre (\$/’000 GTK, \$FY19)<sup>3</sup>



Source: ARTC overhead cost allocation model, CAL18, CAL 19 and CAL20

3. Totals and percentages may not diverge due to rounding

# 3. Comparator assessment

# Comparator assessment

## Review of comparator organisations

The previous benchmarks used by Deloitte to review ARTC's CAL15 Total Costs (CO + BMC + NC) were assessed by Arup to test whether they could be updated. This was the starting point for Arup's analysis. Arup also sought to establish whether there were other rail and non-rail organisations not considered by Deloitte that could be used as suitable comparators for ARTC's Total Costs (CO + BMC + NC). The process for conducting this comparator assessment has been detailed below.

### Step 1: Identify Deloitte Comparators

Set out comparators adopted by Deloitte for each cost item

### Step 2: Review data availability to assess suitability

Consider data availability for Deloitte comparators to consider updates and suitability

### Step 3: Review other rail businesses for suitability

Review other rail businesses for suitability as comparators using a set of defined criteria.

### Step 4: Review other sectors for suitability

Review other sectors for suitable comparator organisations using a set of defined criteria.

# Comparator assessment

## Step 1: Identify Deloitte comparators

The comparators adopted by Deloitte for the cost centres relevant to this study are summarised below.

| Cost centre | Description of ARTC's Cost Function   | Benchmark   | Deloitte application   |
|-------------|---|---|--|
| BMC         | Direct costs for Hunter Valley or where assets located in Hunter Valley including Customer Service Operations, Management & Support and Property.   | None provided   | No benchmark applied due to data paucity.  |
| CO          | Labour and materials associated with: HR, Property, Legal, IT, Finance, Procurement, Risk and Safety and CEO.   | <ul style="list-style-type: none"> <li>• Aurizon Network UT4 (2015)</li> <li>• Brookfield Rail (WestNet) (2009)</li> <li>• Victrack (2012)</li> <li>• V/Line (2012)</li> <li>• RailCorp (2016)</li> <li>• Peer group of other non-rail comparators</li> </ul> | Benchmarked against costs for similar organisations, including a group of 19 non-rail comparators, based on final decision by relevant economic regulator. |
| NC          | Costs associated with ARTC's Network Control Centre North (at Broadmeadow). Costs reflects those that cover the normal day-to-day operations and disruption management associated with network control, such as salaries, IT, equipment, property maintenance and rental costs. | Aurizon Network (UT4): <ul style="list-style-type: none"> <li>• Aurizon CAL15 actuals</li> <li>• QCA approved allowance as part of Aurizon Network's 2016 Access Undertaking</li> </ul>   | Benchmarked against ARTC's closest comparator, Aurizon Network (via UT4). Costs from UT4 were converted to a GTK basis.                                    |

# Comparator assessment

## Step 2: Review data availability to assess suitability

Data availability analysis showed data for some comparators adopted by Deloitte could be updated

| Organisation              | Location | Organisation changes since Deloitte report                                      | Data changes since Deloitte report   | Data available?                      | Data suitability* | Arup conclusion   |
|---------------------------|----------|---|--|--------------------------------------|-------------------|---|
| Aurizon Network           | Qld      | N/A   | UT4 superseded by UT5  | Yes                                  | Suitable          | Adopt UT5   |
| WestNet (Brookfield Rail) | WA       | Now operating as Arc Infrastructure.  | Updated to 2021 Costing Principles, but no update to cost information data since 2013. | Yes                                  | Suitable          | Adopt 2013 cost information data as it is consistent with the 2021 Costing Principles.  |
| VicTrack                  | Vic      | N/A   | As of 1 Nov 2018, ESC no longer regulates access.                                      | No recent data, only 2012 available. | Not suitable      | AU from 2012 is in place and was extended by ESC in 2018. Prices are determined using indexed 2012 prices.<br><br>Use to inform consideration of costs, but do not rely upon as a comparator due to change in ownership structure and regulation. |
| V/Line                    | Vic      | N/A   | As of 1 Nov 2018, ESC no longer regulates access.                                      | No recent data, only 2012 available. | Not suitable      | AU from 2012 is in place and was extended by ESC in 2018. Prices are determined using indexed 2012 prices.<br><br>Use to inform consideration of costs, but do not rely upon as a comparator due to change in ownership structure and regulation. |
| RailCorp                  | NSW      | Now operating under the Transport Asset Holding Entity (TAHE) and Sydney Trains | IPART 2021 Determination   | Yes                                  | Not suitable      | Not appropriate to use the TAHE costings. TAHE was not adopted because of the change in ownership structure that took effect 1 July 2020.   |

\* Data was considered suitable if the ownership structure of the comparator was considered comparable to ARTC or was published within a similar time horizon to the years under review.

# Comparator assessment

## Step 3: Review other rail businesses for suitability

### Criteria applied in performing competitor analysis

To establish which organisations were suitable to benchmark ARTC’s costs against, a range of qualitative criteria were used to assess the similarity of comparators operations to ARTC’s.

Recognising the different characteristics of rail and non-rail businesses, different criteria were used to assess the similarity of their operations to ARTC. The criteria that were used are summarised below.

| Rail sector               |                                       |  | Non-rail sector           |                           |   |
|---------------------------|---------------------------------------|--|---------------------------|---------------------------|---|
| Criteria                  | Description                           | Considerations   | Criteria                  | Description               | Considerations  |
| Operational comparison    | Role and function of service provider | Does the comparator business have similar functions to ARTC for: <ul style="list-style-type: none"> <li>Managing below rail infrastructure</li> <li>Network control</li> <li>Train operations.</li> </ul>  | Asset comparison          | Asset characteristics     | Does the comparator business asset have similarities to rail: <ul style="list-style-type: none"> <li>Linear infrastructure</li> <li>Geographical coverage</li> <li>Value of asset base</li> </ul>       |
| Services provided         | Nature and type of services provided  | Does the comparator business provide similar services to ARTC: <ul style="list-style-type: none"> <li>Freight vs. passenger services</li> <li>Trade / freight mix</li> <li>Location and size of network</li> </ul>   | End user considerations   | End user considerations   | Does the comparator business have similar end users to ARTC: <ul style="list-style-type: none"> <li>Wholesale end user vs. retail end user</li> </ul>   |
| Commercial considerations | Underlying commercial arrangements    | Does the comparator business have any commercial / regulatory conditions that could influence the use of it as a comparator? <ul style="list-style-type: none"> <li>Extent of inter-operability / sharing of infrastructure or operations</li> <li>Structure of regulatory arrangements</li> <li>Ownership arrangements of the asset(s)</li> </ul> | Commercial considerations | Commercial considerations | Does the comparator business have similar functions to ARTC for: <ul style="list-style-type: none"> <li>Structure of regulatory arrangements</li> <li>Ownership arrangements of the asset(s)</li> </ul> |

# Comparator assessment

## Step 3: Review other rail businesses for suitability

Several rail operators were considered with four potential comparators identified

| Comparator                   |          | Operational comparison |                    |                | Services provided |             |                              | Commercial Considerations          |                                  |   |
|------------------------------|----------|------------------------|--------------------|----------------|-------------------|-------------|------------------------------|------------------------------------|----------------------------------|---|
| Organisation                 | Location | Infrastructure manager | Network controller | Train operator | Bulk services     | Freight mix | Network size                 | Shared infrastructure / operations | Structure of economic regulation | Ownership arrangement of network                            |
| Aurizon Network              | Qld      | ●                      | ●                  | ●              | ●                 | ●           | 2,670km                      | ◐                                  | ◐                                | Long-term lease from Qld Govt (99 years)                    |
| Arc Infrastructure (WestNet) | WA       | ●                      | ●                  | ●              | ●                 | ◐           | 5,500km                      | ◐                                  | ◐                                | Arc leases from Brookfield under long-term lease (49 years) |
| VicTrack                     | Vic      | ◐                      | ◐                  | ●              | ◐                 | ◐           | Whole of Victoria            | ○                                  | ○                                | GOC. Leases rail assets to third-parties.                   |
| V/Line                       | Vic      | ●                      | ●                  | ○              | ○                 | ○           | 3,520km (leases & maintains) | ◐                                  | ○                                | Statutory Authority. Leases assets from VicTrack.           |
| TAHE (RailCorp)              | NSW      | ●                      | ●                  | ●              | ◐                 | ◐           | 7,414km                      | ○                                  | ○                                | GOC   |
| Queensland Rail              | Qld      | ●                      | ●                  | ●              | ●                 | ●           | 6,500km                      | ○                                  | ◐                                | GOC operating through wholly owned subsidiary.              |
| Sydney Trains                | NSW      | ○                      | ○                  | ○              | ◐                 | ◐           | 800km                        | ○                                  | Unknown                          | GOC. Leases assets from TAHE.                               |
| KiwiRail                     | Int'l    | ●                      | ●                  | ○              | ◐                 | ◐           | 3,500km                      | ○                                  | Unknown                          | GOC   |
| Malmaban                     | Int'l    | ●                      | ●                  | ○              | ●                 | ◐           | 398km                        | Unknown                            | Unknown                          | Public – private alliance. Under review.                    |
| UK Network Rail              | Int'l    | ●                      | ●                  | ○              | ○                 | ○           | 32,186km                     | ●                                  | ◐                                | GOC   |

4 operators identified as comparators

Note: Given the qualitative nature of the data, it is not possible to directly compare the similarity of organisations to ARTC. Shaded circles have been used to represent the degree to which different organisations are similar to ARTC when compared on each criteria, with an empty circle (○) representing very little to no similarity, and a full circle (●) representing strong similarity to ARTC.



# Comparator assessment

## Step 4: Review other sectors for suitability

Several sectors outside of rail were comparable to ARTC and three potential comparators were identified. They are highlighted below.

| Comparator         |          | End user considerations  | Asset comparison |                       |  |   | Commercial considerations        |  |
|--------------------|----------|--|------------------|-----------------------|--|---|----------------------------------|--|
| Organisation       | Location | Summary of services  | Bulk services    | Linear infrastructure | Value of asset base                                      | Geographical coverage                             | Structure of economic regulation | Ownership arrangement  |
| Seqwater           | Qld      | Bulk water supplier in SE Qld  | ●                | ◐                     | >\$11bn<br>(RAB, Dec 21)                                 | 600km reverse flow pipeline network               | ◐                                | GOC  |
| SA Water           | SA       | Water and wastewater services for households and business across SA                    | ◐                | ●                     | ~\$7Bn (water)<br>~\$4.5Bn (sewerage)<br>(RAB, Dec 2012) | 34,880km of water, sewer and recycled water mains | ○                                | GOC  |
| Sydney Water       | NSW      | Water and wastewater services for households and business across Greater Sydney        | ◐                | ●                     | ~\$60Bn<br>(RAB, 2017)                                   | 22,600km of pipes                                 | ○                                | GOC  |
| Jemena Gas         | NSW      | Owner and operator of gas distribution pipelines across NSW                            | ●                | ○                     | ~\$1.2Bn<br>(RAB, Jul 2020)                              | 25,000km  | ◐                                | Private  |
| SA Power Networks* | SA       | Owner and operator of the monopoly electricity distribution network in South Australia | ◐                | ●                     | \$4.36Bn<br>(RAB, Jul 2020)                              | Data not available                                | ◐                                | Private  |
| DBI Terminal*      | QLD      | Coal handling services at the Port of Hay Point  | ●                | ◐                     | ~\$2Bn<br>(RAB, Jul 2020)                                | Single terminal at Port of Hay Point              | ◐                                | Leased by DBI Management from Qld Treasury via long-term (99-year) lease |

\* While the scoring for SA Power Networks and DBI Terminal was similar to Jemena Gas (which was selected as a comparator), they were not selected as comparators due to the unavailability of suitable data.

# Comparator assessment

A summary of comparators adopted and rejected for this study with supporting justification for each is provided below

| Rail sector                         |                          |                           |  |
|-------------------------------------|--------------------------|---------------------------|--|
| Organisation                        | Data availability        | Adopt (✓) /<br>Reject (X) | Justification  |
| <b>Aurizon Network</b>              | UT5                      | ✓                         | Comparable role for service delivery, similar trade and underlying commercial structure (although Aurizon Network is a wholly owned subsidiary of Aurizon Group) |
| <b>Arc Infrastructure (WestNet)</b> | 2021 Determination       | ✓                         | Comparable role for service delivery, similar trade and underlying commercial structure  |
| VicTrack                            | Not available            | X                         | Data not available   |
| V/Line                              | Not available            | X                         | Data not available   |
| TAHE (RailCorp)                     | IPART 2021 Determination | X                         | Data available, but not considered reliable (see slide 15)   |
| <b>Queensland Rail</b>              | AU2                      | ✓                         | Operations and services considered similar. Similarly regulated under AU2 to ARTC.   |
| Sydney Trains                       | Not available            | X                         | Data not available   |
| KiwiRail                            | Not available            | X                         | Data not available   |
| Malmaban                            | Not available            | X                         | Data not available   |
| <b>UK Network Rail</b>              | PR18 Final Determination | ✓                         | Services and regulation quite similar to ARTC.   |

| Other sectors     |   |                           |   |
|-------------------|---|---------------------------|---|
| Organisation      | Data availability                               | Adopt (✓) /<br>Reject (X) | Justification   |
| <b>Seqwater</b>   | 2018-21 Bulk Water Pricing Available.           | ✓                         | End user, structure of assets and economic regulation considered comparable |
| <b>SA Water</b>   | SA Water Regulatory Determination 2020          | ✓                         | End user and structure of assets considered comparable                      |
| Sydney Water      | Wholesale prices – 2017<br>Retail prices - 2020 | X                         | Data not sufficient to undertake the analysis                               |
| <b>Jemena Gas</b> | 2020-25 Determination                           | ✓                         | Ownership and structure of assets considered comparable                     |
| SA Power Networks | 2020-25 Determination                           | X                         | Data not sufficient to undertake the analysis                               |
| DBI Terminal      | 2019 Draft Access Undertaking                   | X                         | Data not sufficient to undertake the analysis                               |

# Comparator assessment

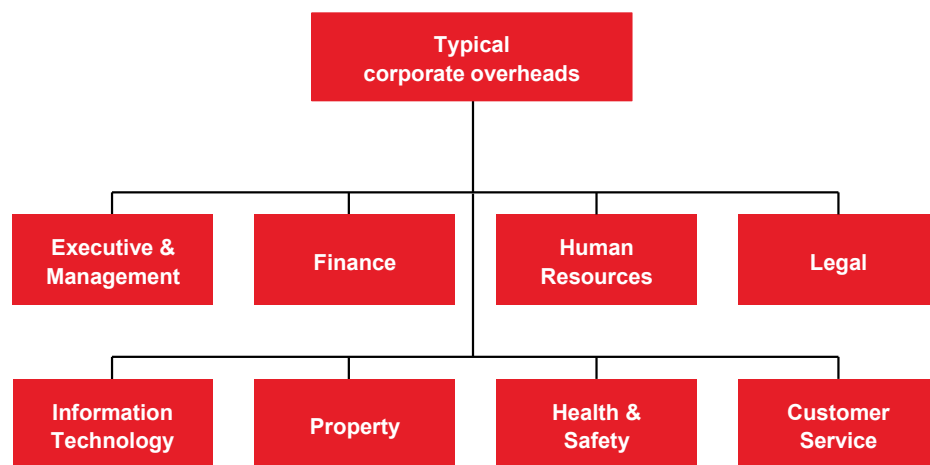
## Comparator organisations for cost items relevant for this study

| Cost centre | Description   | Deloitte benchmark   | Arup benchmark  |
|-------------|---|--|---|
| BMC         | Direct costs for Hunter Valley or where assets located in Hunter Valley including Customer Service Operations, Management & Support and Property.   | None provided  | <ul style="list-style-type: none"> <li>Aurizon UT5 Decision includes a subset of ARTC's business management costs.</li> </ul>                                     |
| CO          | Labour and materials associated with: HR, Property, Legal, IT, Finance, Procurement, Risk and Safety and CEO.   | <ul style="list-style-type: none"> <li>Aurizon Network UT4 (2015)</li> <li>Brookfield Rail (WestNet) (2009)</li> <li>Victrack (2012)</li> <li>V/Line (2012)</li> <li>RailCorp (2016)</li> </ul>  | <ul style="list-style-type: none"> <li>Relevant rail sector comparators (excluding Victrack, V/Line and RailCorp)</li> <li>Non-rail sector comparators</li> </ul> |
| NC          | Costs associated with ARTC's Network Control Centre North (at Broadmeadow). Costs reflects those that cover the normal day-to-day operations and disruption management associated with network control, such as salaries, IT, equipment, property maintenance and rental costs. | <ul style="list-style-type: none"> <li>Aurizon Network (UT4):               <ul style="list-style-type: none"> <li>Aurizon CAL15 actuals</li> <li>QCA approved allowance as part of Aurizon Network's 2016 Access Undertaking</li> </ul> </li> </ul> | <ul style="list-style-type: none"> <li>Relevant rail sector comparators</li> </ul>  |

## 4. Application of comparator benchmarks

# Application of comparator benchmarks

COs capture costs shared across multiple business areas. The functions are similar to those captured as BMCs for some organisations



- COs reflect costs of central and entity-wide activities in a business, and include Finance, Human Resources, Property, Legal and ICT.
- ARTC has both a CO and BMC account.
- In ARTC's case, it seems that overhead type costs have been functionally split between two cost centres: COs and BMCs.
- Full mapping of comparator organisation costs is provided in Appendix C.

# Application of comparator benchmarks

**BMCs are used as a mechanism for ringfencing costs associated with providing services across different assets or geographies.**

While there is no clear rule about how costs are allocated to COs and BMCs by rail network operators, in a general sense, organisations seem to use BMCs as a mechanism to allocate costs for specific assets or locations to a cost centre.

A complete breakdown of COs and BMCs is included in Appendix C.

| Organisation       | CO   | BMC   |
|--------------------|--|---|
| ARTC               | <i>Executive; Finance; People; Property; Communication; IT; Corporate Safety; Strategy &amp; Corporate Development</i>                       | <i>Customer &amp; Operations; Management &amp; Support; Asset Management Delivery; Asset Management Development; Interstate Customer &amp; Commercial<sup>1</sup></i> |
| Aurizon Network    | <i>Board &amp; CEO; Finance; HR; Enterprise Services; IT; and General Counsel &amp; Corporate Safety</i>                                     | <i>Commercial Team; Network Finance; Network Legal; and Network Regulation</i>  |
| Arc Infrastructure | <i>Finance; Administration; Commercial Team; Property; Corporate Relations; HR; IT; and Legal</i>  | Unable to validate  |
| Queensland Rail    | <i>Board &amp; CEO; Finance; and HR.</i>   | <i>Budget Development; Business Reporting; Billing; and Development of the Queensland Rail Access Undertaking</i>   |
| UK Network Rail    | <i>Finance; HR; Legal &amp; Corporate Services; Property; Communications; Digital Railway; and Route Services Directorate</i>                | Unable to validate  |
| Seqwater           | <i>Corporate costs; Specialist consultants &amp; contractors; and Strategic initiatives, as well as a number of other operating expenses</i> | Unable to validate  |
| SA Water           | <i>Salaries and wages, including overheads on salaries and wages, as well as a number of other operating expenses</i>                        | Unable to validate  |
| Jemena Gas         | <i>Unable to validate</i>  | Unable to validate  |

1. Arup notes that ARTC's overhead cost model allocates a portion of costs in some Interstate units to Hunter Valley

# Application of comparator benchmarks

**ARTC's BMC costs are reflected differently across comparator organisations, but generally reflect overhead type expenses**

- ARTC's BMC costs appear to be used as a vehicle to ringfence specific costs for different business units such as Property, which are included in both COs and BMCs (under Customer & Operations in CAL19 and CAL20).
- In reviewing ARTC's Overhead Cost Allocation Model for CAL18, CAL19 and CAL20 that was provided by ACCC, it is clear that while some costs comprise both CO and BMC, these are allocated through the Overhead Cost Allocation Model and reflect different operations.
- ACCC should consider confirming with ARTC the extent of independence between these identified functions.
- While Queensland Rail has BMCs included as part of its QCA decision, the functions do not align with ARTC's BMC allocation (refer page 22).

| Organisation                    | Asset Management <sup>1</sup> | Management & Support | Customer & Operations <sup>2</sup> |
|---------------------------------|-------------------------------|----------------------|------------------------------------|
| ARTC                            | CO / BMC                      | CO / BMC             | CO / BMC                           |
| Aurizon Network <sup>3</sup>    | CO                            | CO                   | BMC                                |
| Arc Infrastructure <sup>3</sup> | CO                            | CO                   | CO                                 |
| Queensland Rail                 | CO                            | CO                   | N/A                                |
| UK Network Rail                 | CO                            | CO                   | CO                                 |

1. Comprising Asset Management Delivery and Asset Management Development

2. Comprising Customer & Operations and Interstate Customer & Commercial

3. Some functions contained in ARTC's BMC's may be captured in different cost categories for other comparators. Please see Appendix A for further information.

# Application of comparator benchmarks

## ARTC's BMC and CO costs should be considered together to ensure ARTC is not unfairly advantaged

- Arup considers that ARTC's BMCs and COs should be considered together to provide a truer reflection of Total Overheads (CO + BMC) for benchmarking purposes to ensure ARTC is not unfairly advantaged when it is compared against other rail operators.
- COs are linked to costs shared across multiple business areas. The fundamental question of an efficiency assessment is whether the costs incurred in performing these activities reflect the most efficient means of undertaking those activities (in least cost terms).
- Therefore, when comparing the efficiency of these types of costs, it is appropriate to assess whether the activities are comparable independent of the cost buckets these items fall into for accounting or reporting purposes.
- Based on our assessment of the types of activities that sit across COs and BMCs, we consider that including BMCs in Total Overheads (CO + BMC) is appropriate for comparison purposes.



# Application of comparator benchmarks

## Our approach



\* See Appendix A for further explanation of approach to standardising costs.

- We used a four-stage approach to apply the comparator organisations' data to evaluate the relevant costs included in ARTC's Total Costs (CO + BMC + NC).
- This process ensured a like-for-like comparison was performed between comparator organisations and ARTC.

# Application of comparator benchmarks

## Infrastructure Management Scenario Analysis

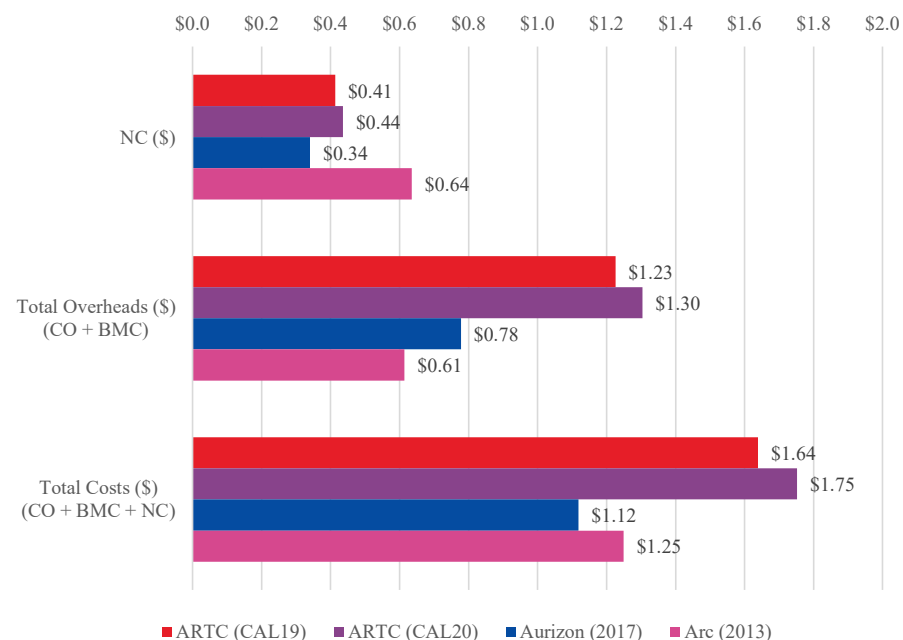
- Arup has considered a scenario where Aurizon's Infrastructure Management (IM) costs from UT5 are included in Aurizon's BMCs in its analysis of Total Overheads (CO + BMC). These have been included to recognize that ARTC's BMCs may be captured in different cost centres in benchmark organisations (refer page 19).
- Further explanation of this issue is summarised in Appendix A.
- Aurizon's IM costs capture activities directly related to access provision, including standards development for key assets, asset maintenance and renewals planning & execution, maintenance strategies, plans and programs.
- Scenarios where these costs have been included and excluded have been presented to enable ACCC to compare benchmarking outcomes.

# Application of comparator benchmarks

**ARTC's Total Overheads (CO + BMC) do not compare favourably with benchmarks on a per GTK basis without IM costs included**

- ARTC's NC costs are reasonable compared to benchmark organisations on a per GTK basis. ARTC's Total Overheads (CO + BMC) are materially higher on a per GTK basis (58-68% and 100-112% higher than Aurizon and Arc, respectively).
- The volume of coal that is transported on ARTC's network is similar to Arc and is approximately half of the coal freight on Aurizon networks.
- Queensland Rail's costs are considered an outlier and were not included. The reasons for this are detailed in Appendix A.

Total Costs (CO + BMC + NC) per 1000 GTK by Cost Centre (\$FY19)<sup>1</sup>



Total Costs (CO + BMC + NC) per 1000 GTK by cost centre (\$FY19)<sup>1</sup>

|                | NC (\$) | Total Overheads (CO + BMC) (\$) | Total Costs (CO + BMC + NC) (\$) | GTK (m) |
|----------------|---------|---------------------------------|----------------------------------|---------|
| ARTC (CAL19)   | \$0.41  | \$1.23                          | \$1.64                           | 46,445  |
| ARTC (CAL20)   | \$0.44  | \$1.30                          | \$1.75                           | 45,323  |
| Aurizon (2017) | \$0.34  | \$0.78                          | \$1.12                           | 83,339  |
| Arc (2013)     | \$0.64  | \$0.61                          | \$1.25                           | 35,298  |

1. Totals and percentages may diverge due to rounding

# Application of comparator benchmarks

**Even with IM costs being included, ARTC's Total Overheads (CO + BMC) are materially higher on a normalised basis than Aurizon**

- When Aurizon's IM costs are included, ARTC's Total Overheads (CO + BMC) are 23.5% and 31.3% higher than Aurizon's in CAL19 and CAL20, respectively.
- This reflects a 34.2 percentage point (CAL19) and 36.3 percentage point (CAL20) reduction in the extent to which ARTC's Total Overheads (CO + BMC) are higher than Aurizon's when IM costs are excluded.

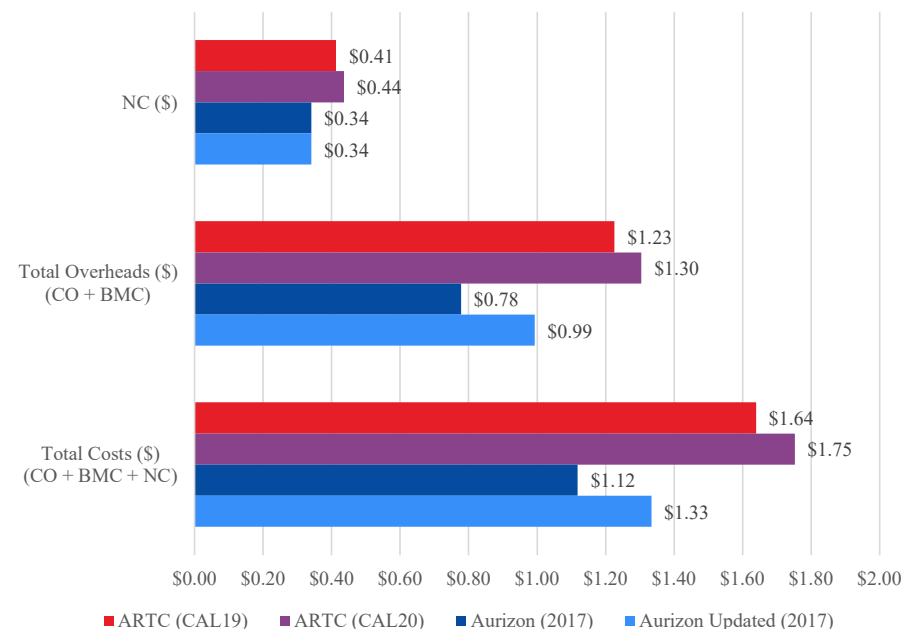
## Total Costs per 1000 GTK by cost centre (\$FY19)<sup>1</sup>

| Organisation                              | NC(\$)               | Total Overheads (CO + BMC) (\$) | Total Costs (CO + BMC + NC) (\$) |
|---|----------------------|---------------------------------|----------------------------------|
| ARTC (CAL19)                              | \$0.41               | \$1.23                          | \$1.64                           |
| ARTC (CAL20)                              | \$0.44               | \$1.30                          | \$1.75                           |
| Aurizon (2017)                            | \$0.34               | \$0.78                          | \$1.12                           |
| <i>Difference to ARTC (CAL19 / CAL20)</i> | <i>21.3% / 28.0%</i> | <i>57.6% / 67.7%</i>            | <i>46.5% / 56.7%</i>             |
| Aurizon Updated (2017) <sup>2</sup>       | \$0.34               | \$0.99                          | \$1.33                           |
| <i>Difference to ARTC (CAL19 / CAL20)</i> | <i>21.3% / 28.0%</i> | <i>23.5% / 31.3%</i>            | <i>22.9% / 31.4%</i>             |

1. Totals and percentages may diverge due to rounding

2. The additional functions that have been included to undertake this scenario analysis are detailed in Appendix B

Total Costs (CO + BMC + NC) per 1000 GTK by cost centre (\$FY19)<sup>1</sup>

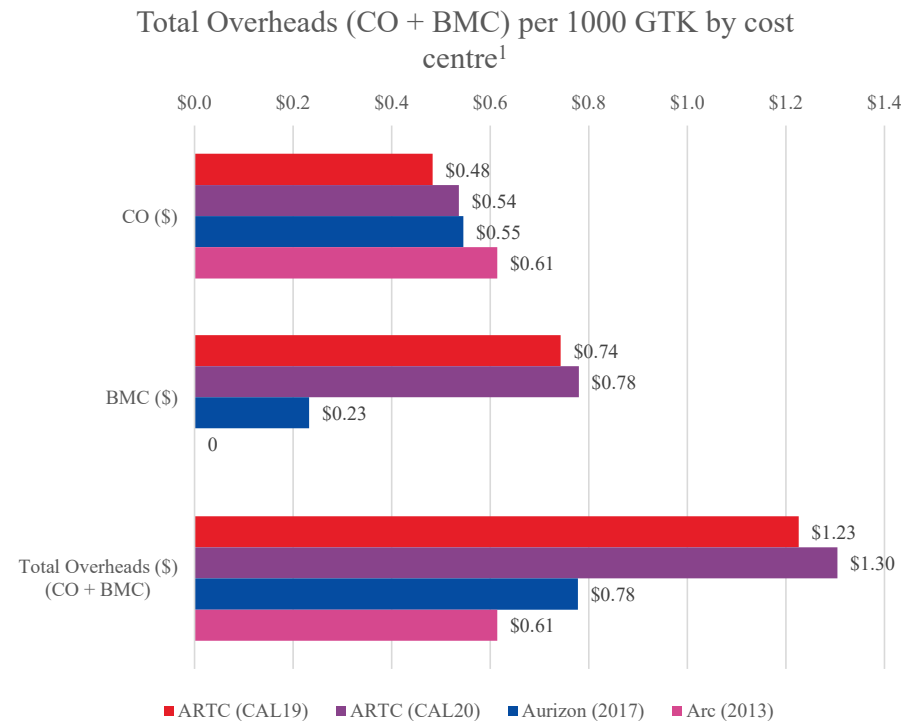


1. Totals may diverge due to rounding

# Application of comparator benchmarks

**ARTC's COs compare favourably when considered separately but Total Overheads (CO + BMC) are materially higher when COs are combined with BMCs on a GTK basis**

- Considered separately, ARTC's COs compare favourably with comparator organisations on a per 1,000 GTK basis. ARTC's BMCs are significantly higher than Aurizon's on a per 1,000 GTK basis.
- When combined, ARTC's Total Overheads (CO + BMC) costs are materially higher than Aurizon Network and Arc Infrastructure on a per 1,000 GTK basis.
- Arup notes that some of the functions contained in ARTC's BMC's may be included in Arc Infrastructure's NC cost centre. Further details are provided in Appendix A.



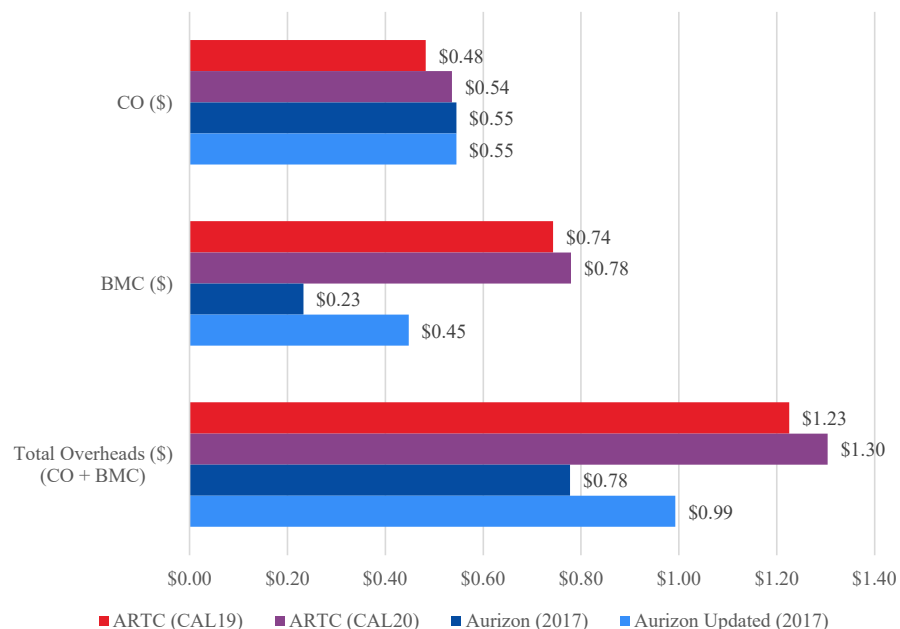
1. Totals may not sum due to rounding

# Application of comparator benchmarks

**ARTC's BMCs are still materially higher than Aurizon's with the inclusion of IM costs**

- With the inclusion of IM costs<sup>1</sup>, Aurizon's BMCs nearly double, increasing by 92.5%.
- Despite this, ARTC's BMCs are 65.9% and 74.1% higher than Aurizon's in CAL19 and CAL20 respectively.
- This reflects a 153.4 percentage point (CAL19) and 161.0 percentage point (CAL20) reduction in the extent to which ARTC's BMCs are higher than Aurizon's when IM costs are excluded.
- ARTC's COs are unchanged under this alternate scenario and remain largely comparable with Aurizon's when considered on their own.

Total Overheads (CO + BMC) per 1000 GTK by cost centre<sup>2</sup>

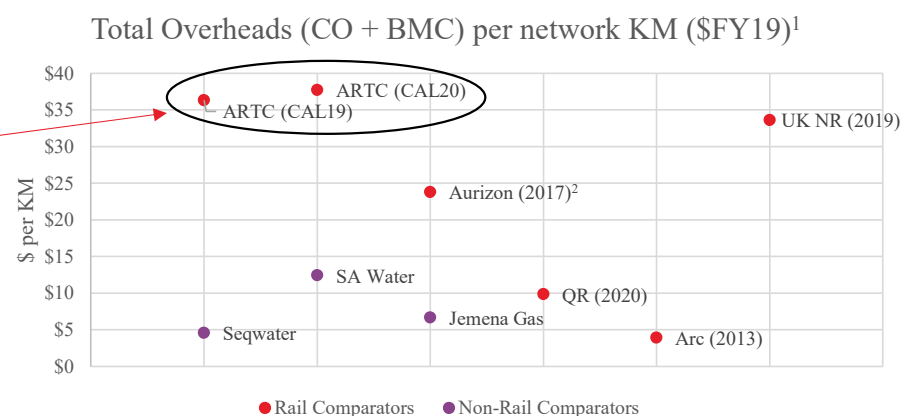
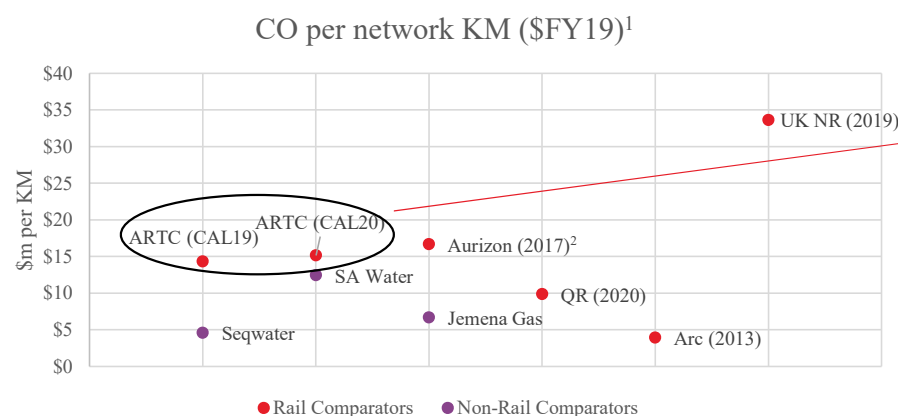


2. Totals and percentages may not sum due to rounding

1. The additional functions that have been included to undertake this scenario analysis are clearly detailed in Appendix B

# Application of comparator benchmarks

ARTC's COs compare favourably on a per km basis, but Total Overheads (CO + BMC) are significantly higher on a per km basis



- COs were weighted by the length of their network infrastructure for comparison purposes.
- When only ARTC's COs are compared with other comparators, the relative cost per KM is within a reasonable band of the others.
- On a per KM basis, Queensland Rail's costs are comparable to other rail sector comparators.
- However, when ARTC's COs and BMCs are considered together, ARTC's Total Overheads (CO + BMC) are materially higher.
- UK Network Rail's costs are higher than ARTC because it is a very dense, complicated passenger network, requiring more overheads to run.

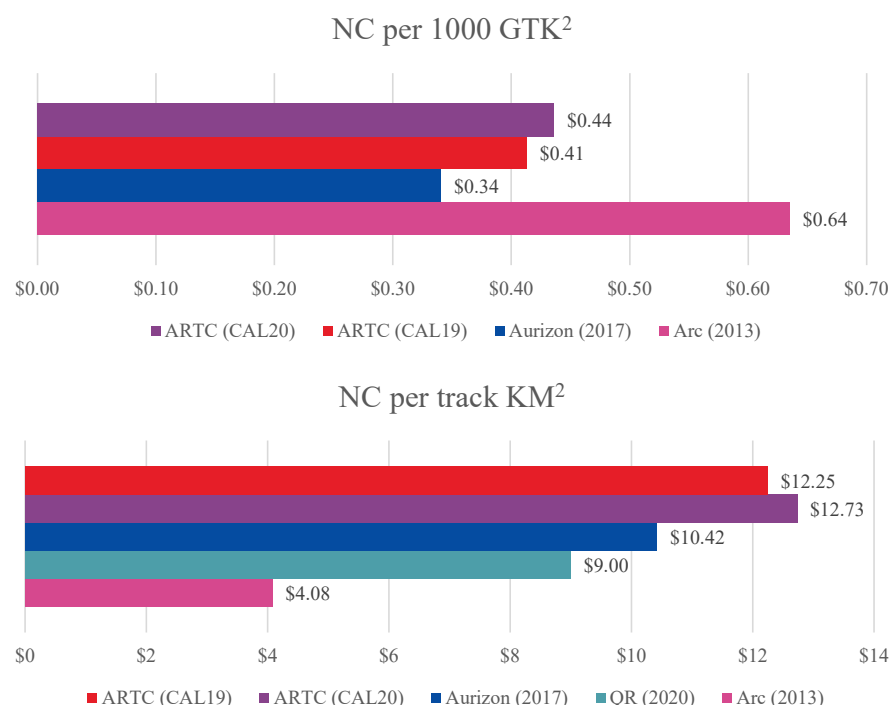
1. Please note, the x-axis represents ordinality and does not inform the chart. The y-axis represents the \$m per KM of network infrastructure. This has been done to allow all data points to be easily represented on a single graph to control for divergent network sizes for comparators.  
 2. Aurizon's Infrastructure Management costs are not included in this analysis

# Application of comparator benchmarks

## ARTC's NC costs are generally reasonable when compared to benchmarks

- ARTC's NC costs are comparable to rail sector comparators on a per GTK but are higher on a per track KM basis.
  - On a per GTK basis, ARTC's NC costs were 21-28% higher than Aurizon and 31-35% lower than Arc<sup>1</sup>.
  - On a per track KM basis, ARTC's costs were higher than all other Australian networks across both CAL19 and CAL20
- The comparison of Queensland Rail and UK Network Rail's costs are only considered meaningful on a per track KM basis. Further information is included in Appendix A.
- UK Network Rail's costs are not shown on the graph, but they far exceed the costs of other rail comparators on a per track KM basis (\$37.82). The relative greater complexity of the UK Network Rail results in a higher proportion of NC costs relative to freight network peers.

1. Arup notes that some of the functions contained in ARTC's BMC's may be included in Arc Infrastructure's Network Control cost centre. Further details are provided in Appendix A.



2. ARTC's NC costs have been compared on both a GTK and track KM basis for this analysis. We understand that ARTC uses Train Km as the basis for allocation NC costs across the HVCN rather than GTKs under the HVAU.

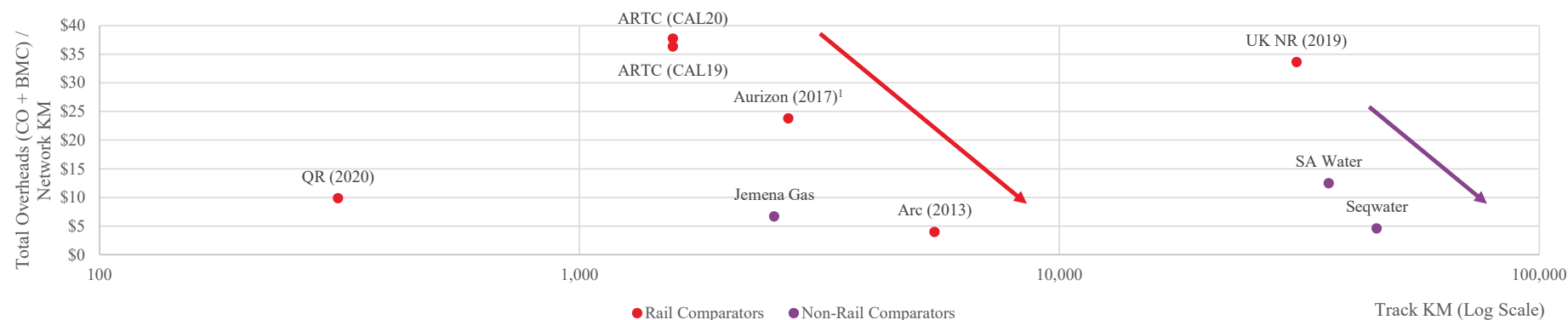


# Application of comparator benchmarks

## Economies of scale are present when Total Overheads (CO + BMC) are normalized by network length

- There may be some economies of scale being realized by Aurizon compared to ARTC due to the materially higher freight volumes and length of the network.
- ARTC's Total Overheads (CO + BMC) are also far greater than Arc's, which moves a lower volume of coal across a larger network.
- However, excluding UK Network Rail, there does seem to be a relationship between network length and Total Overheads (CO + BMC) across rail and non-rail comparators. The evidence suggests that there are some economies of scale that are realised by comparators when costs are normalized on a per track KM basis.

### Total Overheads (CO + BMC) per network kilometre (\$FY19)



1. Aurizon's Infrastructure Management costs are not included in this analysis

## 5. Summary of findings

# Summary of findings

## Outcomes

### COs and BMCs

COs capture the costs shared across multiple business areas. BMCs are used as a mechanism for ringfencing costs associated with providing services across different assets or geographies.

There is no clear rule about where BMCs are allocated in other organisations' accounts, but ARTC's BMCs broadly reflect costs that would be considered under COs in other entities accounts.

ACCC should consider confirming with ARTC the extent of independence between COs and BMCs where similar functions exist within both business units.

ARTC's BMCs and COs should be considered together for benchmarking purposes to ensure ARTC is not unfairly advantaged when it is compared against other rail operators.

ACCC should consider updating this assessment when UT5 for Aurizon expires to enable a more robust assessment of point-in-time data.

### Benchmarking Relevant Operating Costs

Considered separately, ARTC's COs compare favourably with comparator organisations on a normalised basis.

When combined, ARTC's Total Overheads (CO + BMC) are materially higher than benchmarked peers on a normalised basis. On a per GTK basis, ARTC's Total Overheads (CO + BMC) are in the range of 24-31% or 58-68% higher than Aurizon (depending on the approach used) and 100-112% higher than Arc.

ARTC's NC costs are comparable to rail sector comparators when benchmarked. On a per GTK basis, ARTC's NC costs were 21-28% higher than Aurizon and 31-35% lower than Arc.

Economies of scale are present when Total Overheads (CO + BMC) are normalized by network length, but not when they are normalised by freight volumes.

ARTC's Total Costs (CO + BMC + NC) are materially higher than benchmarked rail sector peers on a normalised basis. On a per GTK basis, ARTC's Total Costs (CO + BMC + NC) are higher, in the range of 23-31% or 47-57% higher than Aurizon (depending on the approach used) and 31-40% higher than Arc.

ACCC should consider stakeholder views on whether it is appropriate to include Aurizon's Infrastructure Management costs as part of its consideration for the current Compliance Review.

# Appendix A: Calculation approach and data

# Appendix A

## Calculation approach

There are additional challenges comparing business unit costs across different years (and different currencies in the case of UK Network Rail). The following additional data sources that were used to prepare the benchmark costs are as follows:

- Australian Bureau of Statistics – Consumer Price Index
- Reserve Bank of Australia – Exchange Rate History (AUD/GBP)

For this analysis all figures have been converted to Australian Dollars. Figures have also been normalised to be all considered in FY19 dollar terms to ensure they can be considered on a like for like basis.

# Appendix A

## Standardising costs for other non-rail comparator organisations

The comparator organisation costs have been standardised to ensure that, to the greatest degree possible, operational expenditure is considered on a like-for-like basis.

To control for differences in network size and complexity, where possible rail comparators have been considered on a cost per gross tonne kilometre (GTK) basis. In the case of Queensland Rail and UK Network Rail, it was more appropriate to consider their costs on a per track KM basis, as explained on the following page.

The remaining comparator organisations have been considered on a cost per kilometre of network infrastructure using the following assets:

- gas pipeline kilometres (Jemena Gas); and
- water and sewer mains (SA Water and Seqwater).

The structure of water utility competitor businesses was different to benchmarked rail competitors. Where possible, we have intended to separate out the most relevant costs for the basis of comparison, but in some instances costs need to be roll up into broader operating costs for the purpose of benchmarking. In these instances, the CO costs may be overstated and ACCC should be mindful when considering this information.

# Appendix A

## Calculating gross tonne kilometres for comparator organisations

GTK is only an estimate for Arc Infrastructure – as part of the 2013 determination it was stated that GTK has increased by half since 2009, so the 2009 figure was inflated by 50%. This figure is an estimate only.

For Aurizon, GTK was calculated based on the QCA UT5 decision, but the Goonyella to Abbot Point section of the track was excluded.

GTK was available for Queensland Rail for coal freight only on the West Moreton Line. The full QCA approved costs for the West Moreton line have been used to calculate efficient operating costs for Queensland Rail. These costs have not been split into the coal and non-coal related costs.

However, the Queensland Rail West Moreton Line has recently had the tonnage profile for the network revised downward due to a reduction in the expected number of mines that the network would service. This has led to an inflation of the cost per 1000 GTK to the point where comparison is not necessarily meaningful.

GTK was not considered an appropriate measure to use to evaluate UK Network Rail's costs. The UK Network Rail principally provides passenger services, so using freight volume would understate the network complexity.

Queensland Rail and UK Network Rail were therefore considered on a per track kilometre basis instead of GTK.

# Appendix A

## Relevant inclusions and exclusions for Aurizon

### Infrastructure Management Costs

Arup interpreted Aurizon's UT5 submission to mean that IM costs were included in maintenance costs. This is because Aurizon stated these costs included "*asset maintenance and renewals planning and execution, maintenance strategies, plans and programs*"<sup>1</sup> and there was a separate cost item, Infrastructure (Asset Maintenance and Mechanised Production), that was captured in the maintenance cost allowance that Arup interpreted as the same cost item. Arup's approach was consistent with Deloitte's approach, where indirect maintenance costs were assessed as part of its maintenance cost review.

It was therefore unclear whether Aurizon's IM costs should be assessed as part of Aurizon's overheads for benchmarking purposes.

A scenario where the functions that are contained in Aurizon's IM costs are included for benchmarking purposes has been included for consideration by ACCC.

### Infrastructure Delivery Allowance

Aurizon's UT5 overhead costs also include an allowance for Infrastructure Delivery. Infrastructure Delivery costs include the design and delivery of new capital projects, and asset renewal and maintenance activities and were previously capitalized<sup>2</sup>. During the UT5 determination process, Aurizon restructured (effective 1 July 2017) and the QCA determined these costs should be included in Aurizon's operating costs.

Because Aurizon uses a base-step-trend approach using an efficient year of opex as a base year which is then escalated by inflation, these costs have been excluded by Arup as these were capitalized in the first year of the UT5 period.

The QCA applied a 2-year transition to these costs, meaning that for the first two years of UT5 (FY18 and FY19), these costs were treated as capex. For the final two years of the UT5 pricing period, these costs were expensed as a discrete line item within the corporate overhead allowance (identified as the opex-funded restructure overhead). There is no further information available on the approach used by the QCA for these costs.

Because of the uncertainty of the cost treatment, it is unclear how these costs should be included in Arup's analysis without deviating either from the established regulatory approach or Arup's approach to other cost items.

1. See Page 201 and 202 of Aurizon Network's submission for functional descriptions of Infrastructure Management (available at: [https://www.qca.org.au/wp-content/uploads/2019/05/31166\\_Aurizon-Network-submission-on-the-2017-DAU-1.pdf](https://www.qca.org.au/wp-content/uploads/2019/05/31166_Aurizon-Network-submission-on-the-2017-DAU-1.pdf))

2. See page 147 of Aurizon Network's Final Decision for functional description of Infrastructure Delivery (available at: [https://www.qca.org.au/wp-content/uploads/2019/05/34327\\_Final-decision-1.pdf](https://www.qca.org.au/wp-content/uploads/2019/05/34327_Final-decision-1.pdf))



# Appendix A

## Relevant inclusions and exclusions for Arc Infrastructure

Arup notes that some of the costs contained in ARTC’s BMC’s may be included in Arc Infrastructure’s equivalent NC cost benchmark.

Arc Infrastructure’s NC cost benchmark appears to be in two categories: head office operations functions, and regional operations functions.

Head office operations functions are the oversight management of access functions, control and communications management and other head office operations management. Regional operations functions are those based in regional depots associated directly with ‘perway’ maintenance and signalling and switching functions

Due to data constraints, Arup was unable to separate out the costs for relevant functions from the NC costs. The reader should be mindful of this when drawing conclusions.

| Cost Classification | Description                     | Inclusions   |
|---------------------|---------------------------------|--|
| Operating Costs     | Network Management              | <ul style="list-style-type: none"> <li>• Access management</li> <li>• Train scheduling and operations planning</li> <li>• Safeworking management</li> </ul>  |
|                     | Infrastructure Management Costs | <ul style="list-style-type: none"> <li>• Maintenance management</li> <li>• Engineering support</li> <li>• Inventory holding costs</li> </ul>   |
|                     | Centralised Train Control       | <ul style="list-style-type: none"> <li>• Total train control function</li> </ul>   |
| Overheads           | Arc Overheads                   | <ul style="list-style-type: none"> <li>• Information systems</li> <li>• Payroll</li> <li>• Human resource management</li> <li>• Accounting and finance</li> <li>• Company secretarial and legal</li> </ul> |

(Source: Arc, 2021 Costing Principles, page 18, available at: [https://www.erawa.com.au/cproot/21274/2/Sub-198\\_2020---Attachment-1---Arc-Proposed-Costing-Principles.PDF](https://www.erawa.com.au/cproot/21274/2/Sub-198_2020---Attachment-1---Arc-Proposed-Costing-Principles.PDF))

# Appendix B: Cost centre mapping

# Appendix B

## Cost centre mapping – COs

| ARTC   | Aurizon   | Arc   | QR  | UK NR  |
|--|---|---|---|--|
| <ul style="list-style-type: none"> <li>• Executive</li> <li>• Finance</li> <li>• Strategy &amp; corporate development</li> <li>• People</li> <li>• Insurance</li> <li>• Safety Accreditation</li> <li>• Property</li> <li>• Communication</li> <li>• IT Infrastructure &amp; systems</li> <li>• Management of Enterprise Services</li> <li>• Environment</li> <li>• Engineering Services</li> <li>• Corporate Safety</li> <li>• Workplace health &amp; safety</li> <li>• Risk</li> </ul> | <ul style="list-style-type: none"> <li>• Board &amp; CEO</li> <li>• Finance, including:               <ul style="list-style-type: none"> <li>• Treasury &amp; Tax</li> <li>• Finance Shared Services</li> <li>• Enterprise Real Estate</li> <li>• Group Accounting, Planning &amp; Reporting</li> </ul> </li> <li>• Human Resources, including:               <ul style="list-style-type: none"> <li>• Business Partner Teams</li> <li>• Enterprise Support</li> <li>• Organisational Capability</li> <li>• Brand &amp; Communication</li> </ul> </li> <li>• Enterprise Services</li> <li>• Safety, Health &amp; Environment</li> <li>• General Counsel &amp; Corporate Safety</li> <li>• IT</li> <li>• Other Enterprise Services</li> <li>• Executive Bonuses</li> </ul> | <ul style="list-style-type: none"> <li>• Finance</li> <li>• Administration</li> <li>• Commercial Team</li> <li>• Corporate Relations</li> <li>• Property</li> <li>• General Management</li> <li>• Human Resources</li> <li>• IT</li> <li>• Insurance</li> <li>• Legal</li> <li>• Standards &amp; Compliance</li> <li>• Strategic Development</li> </ul> | <ul style="list-style-type: none"> <li>• Board &amp; CEO</li> <li>• Finance</li> <li>• Human Resources</li> </ul> | <ul style="list-style-type: none"> <li>• Communications</li> <li>• Finance</li> <li>• Human Resources</li> <li>• Legal and Corporate Services</li> <li>• Group</li> <li>• Asset Information Services</li> <li>• Property</li> <li>• Route Businesses HQ</li> <li>• Route Services Directorate</li> <li>• System Operator</li> <li>• STE</li> <li>• Digital Railway</li> <li>• Route-incurred support costs</li> <li>• Other</li> </ul> |

# Appendix B

## Cost centre mapping – COs

| Seqwater   | SA Water*   | Jemena Gas  |
|--|---|---|
| <ul style="list-style-type: none"> <li>• operations and maintenance activities</li> <li>• the fixed component of electricity and chemical costs</li> <li>• minor equipment purchases</li> <li>• costs associated with engaging specialist consultants and contractors</li> <li>• costs associated with implementing strategic initiatives</li> <li>• corporate costs</li> <li>• fixed contract fees associated with the operation and maintenance of the Gold Coast Desalination Plant (GCDP) and the Western Corridor Recycled Water Scheme (WCRWS).</li> </ul> | <ul style="list-style-type: none"> <li>• Water resource access charge or resource rent</li> <li>• Purchases of raw, treated or recycled water (water supply only)</li> <li>• Charges for bulk treatment/transfer of sewerage</li> <li>• Salaries and wages, including overheads on salaries and wages</li> <li>• Materials, chemicals and energy used</li> <li>• Contracts</li> <li>• Accommodation</li> <li>• All other operating costs that would normally be reported</li> <li>• Items expensed from work in progress (capitalised expense items) and pensioner remission expenses (Community Service Obligations are likely to have an equivalent inclusion in revenue).</li> <li>• Competitive neutrality adjustments, which include but not limited to land tax, debits tax, stamp duties and council rates</li> <li>• Indirect costs – apportioned to water services using a consistent methodology for all reporting years</li> <li>• Costs associated with BOOT schemes should be reported according to accounting standards.</li> </ul> | <p>Not available – documents were not found which described the composition of Jemena Gas’s Corporate Overheads</p> |

# Appendix B

## Cost centre mapping – BMCs

| ARTC   | Aurizon   | Queensland Rail  |
|--|---|--|
| <ul style="list-style-type: none"> <li>• HV Customer &amp; Operations (HVC&amp;C)</li> <li>• HV Asset Management Delivery (HVDEL)</li> <li>• HV Asset Management Development (HVDEV)</li> <li>• HV Management &amp; Support (HVMGT)</li> <li>• Interstate Customer &amp; Commercial (INTCC)</li> </ul> | <ul style="list-style-type: none"> <li>• Commercial Team</li> <li>• Network Finance</li> <li>• Network Legal</li> <li>• Network Regulation</li> </ul> <p><b>For scenario analysis in section 4a only</b><br/>           In addition to the above, further functions including:</p> <ul style="list-style-type: none"> <li>• Civil Assets</li> <li>• Control System Assets</li> <li>• Electrical Assets</li> <li>• Asset Assurance</li> <li>• Asset Business</li> <li>• Asset Systems</li> </ul> | <ul style="list-style-type: none"> <li>• Budget Development</li> <li>• Business Reporting</li> <li>• Billing</li> <li>• Development of the Queensland Rail Access Undertaking</li> </ul> |

# Appendix C: Reference list

# Appendix C

## Reference list

| Organisation | Benchmark Cost          | Document Reference   | Page Reference | Notes  |
|--------------|-------------------------|--|----------------|--|
| Aurizon      | Operating costs         | <a href="#">Aurizon Network's 2017 draft access undertaking</a>  | Page 138       | For full description of roles see page 339 here: <a href="https://www.qca.org.au/wp-content/uploads/2019/05/31166_Aurizon-Network-submission-on-the-2017-DAU-1.pdf">https://www.qca.org.au/wp-content/uploads/2019/05/31166_Aurizon-Network-submission-on-the-2017-DAU-1.pdf</a><br>For breakdown of Corporate Overheads see page 34 here: <a href="https://www.qca.org.au/wp-content/uploads/2019/05/32475_AECOM-Review-of-UT5-operating-expenditure1274378_1-1.pdf">https://www.qca.org.au/wp-content/uploads/2019/05/32475_AECOM-Review-of-UT5-operating-expenditure1274378_1-1.pdf</a> |
| Aurizon      | GTK                     | <a href="#">Aurizon Network's 2017 access undertaking</a>  | From 402       |  |
| Aurizon      | Track KM                | <a href="#">Aurizon – Delivering for the Long Haul</a>   | Page 18        |  |
| QR           | Operating costs         | <a href="#">Queensland Rail 2020 draft access undertaking</a>  | Page 55        | Business Management costs are considered a subset of corporate overheads by in the determination for QR. These costs are calculated as a fixed proportion of capital, network control and maintenance costs.<br><br>A breakdown of business unit allocations is included on page 39 here: <a href="https://www.qca.org.au/wp-content/uploads/2019/05/34093_QR-2020-DAU-Explanatory-Document-with-volumes-1.pdf">https://www.qca.org.au/wp-content/uploads/2019/05/34093_QR-2020-DAU-Explanatory-Document-with-volumes-1.pdf</a>  |
| QR           | GTK                     | <a href="#">Queensland Rail Annual and Financial Report 2018-19</a>  | Page 30        | No non-coal freight provided   |
| QR           | Track KM                | <a href="#">Queensland Rail – The Regional Network – West Moreton System</a>   | Web page       |  |
| Arc          | Operating costs and GTK | <a href="#">Brookfield Rail Determination of Costs Relevant to Co-operative Bulk Handling's Access Proposal dated 10 December 2013</a> | Page 70 and 71 | GTK from 2009 has been multiplied by 1.5<br>The report states in paragraph 402 on page 70 that "Further, the Authority notes that, according to the data provided by BR on 11 April 2014, GTKs on the BR network have not doubled since 2009 as indicated in BR's letter of 11 April 2014 but, rather, have increased by just over half."<br><br>Specific breakdown of business units included in corporate overheads is included on page 66 of the Determination.   |
| Arc          | Track KM                | <a href="#">Arc Infrastructure – Rail Network</a>  | Web page       |  |

# Appendix C

## Reference list

| Organisation    | Benchmark Cost  | Document Reference  | Page Reference   | Notes  |
|-----------------|-----------------|---|--|--|
| UK Network Rail | Operating costs | <a href="#">PR18 final determination - Supplementary document – Review of Network Rail's proposed costs</a> | Network Control: Page 91 and 99 (Conclusion)<br>Overheads: Page 101 and 134 (Conclusion) | Network Control is defined as Operations Costs by UK Network Rail<br>Overheads is defined as Support Costs by UK Network Rail  |
| UK Network Rail | Track KM        | <a href="#">Rail Infrastructure and Assets 2019-20</a>  | Page 1   |  |
| Seqwater        | Operating costs | <a href="#">Seqwater Bulk Water Price Review 2018–21</a>  | Page 34  | Fixed Opex for 2018-19 is considered the most relevant comparison, noting that this may overestimate the corporate overheads costs due inclusions of other cost items.   |
| Seqwater        | Pipe KM         | <a href="#">Water for South East Queensland: Planning for our future – Annual Report 2020</a>               | Page 11  | Includes sewer and water mains   |
| SA Water        | Operating costs | <a href="#">SA Water Regulatory Determination 2020 - Draft Determination: Statement of reasons</a>          | Page 297   | Approved average operational expenditure between 2020-21 and 2023-24 is considered the most relevant comparison, noting that this may overestimate the corporate overheads costs due inclusions of other cost items. |
| SA Water        | Pipe KM         | <a href="#">KPMG SA Water NPR Cost Benchmarking Study</a>   | Page 35  | Includes sewer and water mains   |
| Jemena Gas      | Operating costs | <a href="#">Final Decision – Jemena Gas Networks (NSW) Ltd Access Arrangement</a>                           | Page 41  | Additional information was not found which described the composition of Jemena Gas's Overheads   |
| Jemena Gas      | Pipe KM         | <a href="#">Jemena Gas – Pipelines</a>  | Multiple web pages   | All pipelines including laterals considered when measuring pipe KM   |



# Appendix D: Summary data tables

# Appendix D

## Summary Data Tables

**Total Costs (CO + BMC + NC) by cost centre (\$m, \$FY19), GTK (m) and network length<sup>1</sup>**

|                               | NC (\$)      | CO (\$)      | BMC (\$)     | Total Costs (CO + BMC + NC) (\$) | GTK (m) | Network Kilometres (km) |
|-------------------------------|--------------|--------------|--------------|----------------------------------|---------|-------------------------|
| ARTC (CAL19)                  | 19.19        | 22.42        | 34.51        | 76.12                            | 46,445  | 1,567                   |
| ARTC (CAL20)                  | 19.95        | 23.77        | 35.34        | 79.05                            | 45,323  | 1,567                   |
| Aurizon (2017)                | 28.40        | 45.43        | 19.39        | 93.21                            | 83,339  | 2,725                   |
| <i>Aurizon Updated (2017)</i> | <i>28.40</i> | <i>45.43</i> | <i>37.32</i> | <i>111.14</i>                    | 83,339  | 2,725                   |
| QR (2020)                     | 2.83         | 3.09         | -            | 5.92                             | 1,165   | 314                     |
| Arc (2013)                    | 22.43        | 21.67        | -            | 44.10                            | 35,298  | 5,500                   |
| UK NR (2019)                  | 1,180.81     | 1,049.57     | -            | 2,230.38                         | -       | 31,218                  |
| Seqwater                      | -            | 209.80       | -            | 209.80                           | -       | 45,881                  |
| SA Water                      | -            | 453.40       | -            | 453.40                           | -       | 36,415                  |
| Jemena Gas                    | -            | 17.04        | -            | 17.04                            | -       | 2,548                   |

1. Totals and percentages may not sum due to rounding

ARUP