



Transmission - Category Analysis – Reset RIN, 2019-2024

Basis of Preparation

Introduction

TasNetworks' (Tasmanian Networks Pty Ltd, ABN 24 167 357 299) is the owner and operator of the electricity transmission network in Tasmania.

This document forms part of the response of TasNetworks' to the Regulatory Information Notice (RIN) issued in October 2017 by the Australian Energy Regulator (AER), under Division 4 of Part 3 of the National Electricity (Tasmania) Law, for the purposes of collecting information for category analysis.

The information and explanatory material included in this RIN Response relate to TasNetworks' activities as Tasmania's licensed Transmission Network Service Provider (TNSP) during the 2019-2024 Regulatory Year (referred to throughout this document as the current reporting period).

Note that throughout the document:

Telecommunications

Encompasses any telecommunications related asset.

Secondary Systems

Encompasses protection systems, SCADA and Network Control.

Substations Primary Systems

Encompasses power transformers, switch bays, transmission cables and reactive plant.

Transmission Lines

Encompasses towers, support structures and conductors.

Contents

Introduction.....	1
Worksheet 2.1 Expenditure summary.....	3
Table 2.1.1 Prescribed transmission services capital expenditure.....	3
Table 2.1.8 Prescribed transmission services capitalised overheads.....	3
Worksheet 2.2 Replacement expenditure	5
Table 2.2.1 Expenditure and replacement volumes by asset category.....	5
Worksheet 2.3 Augmentation expenditure	8
Worksheet 2.5 Connections expenditure.....	10
Table 2.5.1 Expenditure on connection projects	10
Table 2.5.2 Description of connection projects	10
Worksheet 2.6 Non-network expenditure	12
Worksheet 2.10 Overheads	14
Table 2.10.1 Network overheads expenditure	14
Table 2.10.2 Corporate overheads expenditure	15
Worksheet 2.14 Forecast Price Changes.....	16
Table 2.14.2 Forecast capex and opex price changes	16
Table 2.16.1 Prescribed transmission services – Opex by driver	17
Table 2.17.1 Step Changes for prescribed transmission services – forecast opex.....	18
Table 2.17.2 Step Changes for prescribed transmission services – forecast capex.....	18
Table 2.17.5 Category specific opex for prescribed transmission services	18
Worksheet 5.4 Maximum demand and utilisation at spatial level.....	19
Table 5.4.1 Non-coincident and coincident maximum demand	19
Worksheet 7.6 Indicative Impact on Distribution Charges & Electricity Bills.....	21
Table 7.6.1 Indicative Impact of the Regulatory Proposal on the average Residential Electricity Bills	21

Worksheet 2.1 Expenditure summary

Table 2.1.1 Prescribed transmission services capital expenditure

(a) Consistency of information with the requirements of the RIN

The information is calculated from worksheets within the RIN with a separate balancing items spreadsheet included per the requirements of the RIN.

(b) Source of information

Worksheets 2.2 – 2.10 of the RIN.

(c) Methodology applied to determine information, including assumptions made

Reconciliation of information provided in worksheets 2.2-2.10 of the RIN to the amounts reported in the Post Tax Revenue Model (PRTM)

(d) Use of estimates

No estimations have been required in the collation and presentation of this information.

(e) Compliance with financial reporting framework

- Non-compliance

There has been no non-compliance with the financial reporting framework.

- Reason for non-compliance

Not applicable.

- Changes in accounting policies

There have been no changes in accounting policies for the expenditure summary.

Table 2.1.8 Prescribed transmission services capitalised overheads

(a) Consistency of information with the requirements of the RIN

The information is calculated from worksheets within the RIN per the requirements of the RIN.

(b) Source of information

Worksheet 2.10 of the RIN

(c) Methodology applied to determine information, including assumptions made

Overheads have been allocated to the capital expenditure type using work category data

(d) Use of estimates

No estimations have been required in the collation and presentation of this information.

(e) Compliance with financial reporting framework

- Non-compliance

There has been no non-compliance with the financial reporting framework.

- Reason for non-compliance

Not applicable.

- Changes in accounting policies

There have been no changes in accounting policies for the expenditure summary.

Worksheet 2.2 Replacement expenditure

Table 2.2.1 Expenditure and replacement volumes by asset category

(a) Consistency of information with the requirements of the RIN

Information presented has been split in accordance with the categories in the Templates. The corresponding asset age profile has been provided as required.

(b) Source of information

Financial

The data used for Table 2.2.1 is derived from the forecast capex model and is consistent with TasNetworks annual RIN reporting allocation process and definitions.

All financial information was sourced from the regulatory asset register; TasNetworks' WASP asset data, and the Regulatory financial statements.

Technical

Telecommunications

Information has been sourced from the telecommunications operational drawings and telecommunications asset register.

Secondary Systems

Asset replacement and failure information has been sourced from the WASP asset register using business intelligence reporting. The counts are per scheme where protection is a combination of Bus Coupler, Bus Zone, Capacitor Bank, HV Feeder, System Protection, Transformer and Transmission Circuit schemes. SCADA and Network Control are based on station level SCADA schemes only and do not include SCADA schemes installed at bay level.

Substations Primary Systems

Asset replacement information has been sourced from the WASP asset register using Business Intelligence reporting. Asset failure information has been extracted from WASP asset 'defect' register using Business Intelligence reporting and confirmed against failure reports.

Transmission Lines

Asset replacements were sourced from TasNetworks' asset register. Asset failure information has been taken from the AMIS system. Methodology applied to determine information, including assumptions made.

Financial

Data has been allocated in the RIN template using work category and definition mapping. When RIN reporting required a more detailed split, volumes have been used to split total expenditure included in a work category.

An extract of all assets commissioned in the current reporting period was taken from the regulatory asset register and attributed with Investment Category data based on ND numbers taken from TasNetworks' internal Quarterly Report. The data view was restricted to only those assets which related to replacement Capex (investment category being 'asset renewal'). These assets were then further attributed with RIN Category data based on the WASP Asset ID and a lookup from WASP (eg. 110 kV SF6 circuit breaker equated to the RIN Category "> 66 kV & < ≈ 132 kV ; SF6 INSULATED CIRCUIT BREAKER"). Any assets which did not map were subjected to manual RIN Category classification. A pivot table was then applied to this dataset to generate the base repex data.

Due to the regulatory asset register being on an 'as commissioned' basis, all data was pro-rated with actual spend data (as incurred) on a financial year basis.

Technical

Telecommunications

Historical information has been sourced from the telecommunications operational drawings and telecommunications asset register.

The number of asset failures for the current reporting period has been taken from the number of assets sent to the vendors for repair.

Secondary Systems

The asset register has an attribute to capture the date a protection or SCADA scheme was commissioned. Existing schemes that were commissioned within the last financial year are counted as asset replacements.

Protection and SCADA device failures are derived from defects or corrective work allocated to assets in the asset register. A report is generated through the business intelligence tool to show the number of protection or SCADA scheme failures per year.

TasNetworks' reports systems and schemes at an aggregate level and therefore does not report these assets at granular level in the templates. This is applicable for the Protection schemes / systems and the Station SCADA and control systems functions only. The other functions listed in the template under this category such as

'Master Station Assets', 'Control equipment / systems', Infrastructure: protection and control', 'Metering systems', 'Site establishment', communications network assets and 'Total secondary systems' are assumed to be additional functions that have been added to the template by other participating NSP's and are considered to have already been included in TasNetworks' Protection schemes / systems and the Station SCADA and control systems.

Substations Primary Systems

Historical information has been sourced from WASP asset register using Business Intelligence reporting sorted for assets that had been commissioned in the time period being reviewed. Commissioned assets may be a mix of new, augmented and replacement and a review of all the commissioned assets was undertaken and only those that were identified as replacement were included in the asset count.

Where an asset has been replaced by its modern equivalent, e.g. for 11 kV oil circuit breaker its modern equivalent has been used in the asset count, ie if 11 kV oil circuit breakers have/are being replaced with 11 kV vacuum circuit breakers then the count is included in <33kV Vacuum insulated circuit breakers.

The number of asset failures has been taken from information extracted from WASP asset 'defects' register using Business Intelligence reporting and confirmed against failure reporting and discussion with substation engineers. The raw data was reviewed to ensure that the defect resulted in an asset failure, ie an outage resulted. An asset failure definition was sourced from RIN preparation document and was summarised to be an event which results in an un-planned outage of plant.

Substation other expenditure value comprises assets not specifically captured in other 2.2.1 asset categories. It includes substation specific ancillary and minor assets including battery systems, AC distribution systems, security systems, fences, oil containment systems, etc. Substation other is not recorded in 5.2.1 as it does not constitute a major asset class.

Due to historical asset delineation between previous separate transmission and distribution companies, assets <=44kV at a transmission substation are classed as transmission assets. Assets connected downstream from the load side connection of a transmission asset are construed to be a distribution owned assets.

Transmission Lines

TasNetworks' owned asset replacements were sourced from the WASP asset register, filtering by assets with a commissioning date in the current reporting period.

Asset replacements resulting from augmentation projects were excluded.

Where TasNetworks' has strung a single circuit in a double circuit configuration, this has been classified as double circuit, due to the increased operational cost resulting from such an arrangement.

The transmission tower category included expenditure on an asset renewal project which related to the enhancement of existing assets. Consequently there is no associated asset replacement number.

Optical Ground Wire (**OPGW**) data was taken from TasNetworks' geographical information systems.

Assets of categories not owned by TasNetworks' has been marked as '0' as required by the RIN instructions.

Transmission conductor length is represented as circuit length, this is due to it being previously recorded as such.

Transmission Tower Support Structures

The support structures category includes only the following: anodes, foundations, insulators and danger signs. WASP values detail the number at each tower.

Transmission Lines Other

This category consists of: Dampers, tracks, support structures and weather stations. This is due to these assets not being represented elsewhere in the REPEX section of the RIN. Replaced volume is reported in the RIN as the total number completed across each program.

(c) Use of estimates

Financial

No estimations have been required in the collation and presentation of this information.

(d) Compliance with financial reporting framework

- Non-compliance
 - There has been no non-compliance with the financial reporting framework.
- Reason for non-compliance
 - Not applicable.
- Changes in accounting policies
 - There have been no changes in accounting policies for replacement expenditure.

Worksheet 2.3 Augmentation expenditure

Table 2.3.1 Augex asset data – substations

Table 2.3.2 Augex asset data – lines

Table 2.3.4 Augex – Total Expenditure

Table 2.3.5 Augex – By Driver

Table 2.3.6 Augex – Greenfields Driven

(a) Consistency of information with the requirements of the RIN

Information has been presented for augmentation expenditure as required under the RIN. No gifted assets have been included. Expenditure data has been included on an “as incurred” basis.

(b) Source of information

Information has been sourced from the asset management information system regarding the substation IDs, types and voltages.

Forecast information has been sourced from project definitions and estimates prepared for the TasNetworks’ 2019–24 Revenue Proposal, using standard estimating templates and typical information for 10 generic project types.

(c) Methodology applied to determine information, including assumptions made

All project data is provided ‘on a project close basis in real dollars (Jun 2019) for Table 2.3.1, Table 2.3.2, Table 2.3.5 and Table 2.3.4 in nominal dollars.

There are no secondary triggers for augmentation projects reported in Table 2.3.1.

There are no Transmission Augex – Greenfields Driven projects – Table 2.3.6.

There are no Related Parties in the delivery of TasNetworks’ projects.

The substation and transformer MVA ratings provided are based on ‘cyclic rating’ as required by the RIN. This applies to substation normal and emergency ratings as well as individual transformer ratings. Substation ratings are typically based on nameplate rating from the equipment manufacturer. As TasNetworks’ does not currently have thermal models of the transformer loading capacity the cyclic ratings provided are a 20% increase of nameplate continuous rating.

(d) Use of estimates

No estimations have been required in the collation and presentation of this information. Information is based on actual information, historical accounting records or other records used in the ordinary course of business.

(e) Compliance with financial reporting framework

- Non-compliance

There has been no non-compliance with the financial reporting framework.

- Reason for non-compliance

Not applicable.

- Changes in accounting policies

There have been no changes in accounting policies for augmentation expenditure.

Worksheet 2.5 Connections expenditure

Table 2.5.1 Expenditure on connection projects

(a) Consistency of information with the requirements of the RIN

Information has been presented for connections expenditure in accordance with the definitions and requirements of the RIN.

(b) Source of information

Connections expenditure has been based on TasNetworks' project cost estimate for Revenue Reset 2019-24.

(c) Methodology applied to determine information, including assumptions made

Total project costs and total labour costs incurred in connections expenditure were based on TasNetworks' project cost estimate for Revenue Reset 2019-24.

(d) Use of estimates

No estimations have been required in the collation and presentation of this information.

(e) Compliance with financial reporting framework

- Non-compliance

There has been no non-compliance with the financial reporting framework.

- Reason for non-compliance

Not applicable.

- Changes in accounting policies

There have been no changes in accounting policies for connections expenditure.

Table 2.5.2 Description of connection projects

(a) Consistency of information with the requirements of the RIN

Information has been presented for connections expenditure in accordance with the definitions and requirements of the RIN.

(b) Source of information

The descriptions of connection projects undertaken have been sourced from TasNetworks' 2019-24 Revenue Reset Tool.

(c) Methodology applied to determine information, including assumptions made

Descriptions of connection projects were extracted from TasNetworks' 2019-24 Revenue Reset Tool.

The connection MVA ratings provided are based on 'cyclic rating' as required by the RIN. Substation ratings are typically based on nameplate rating from the equipment manufacturer. As TasNetworks' does not currently have thermal models of the transformer loading capacity, connection ratings (MVA) provided are based on a 20% increase over and above manufacturers' nameplate continuous rating.

(d) Use of estimates

No estimations have been required in the collation and presentation of this information.

(e) Compliance with financial reporting framework

- Non-compliance

There has been no non-compliance with the financial reporting framework.

- Reason for non-compliance

Not applicable.

- Changes in accounting policies

There have been no changes in accounting policies for connections expenditure.

Worksheet 2.6 Non-network expenditure

Table 2.6.1 Non-Network Expenditure

(a) Compliance with the requirements of the RIN

The information provided in *Table 2.6.1 – Non-Network Expenditure* is consistent with the requirements of the Category Analysis RIN, in that:

- All relevant cells in the template have been populated
- All data has been gathered from reliable and objective data sources which are used in the normal course of TasNetworks' business
- Each category of expenditure has been populated in line with the AER's definitions outlined in the Regulatory Information Notice under Division 4 of Part 3 of the National Electricity Law

The Forecast years have been appropriately calculated in real June 2019 dollars.

(b) Information sources

The data used for Table 2.6.1 is derived from the forecast capex and opex models (base step trend) and is consistent with TasNetworks' annual RIN reporting allocation process and definitions. Information was sourced from TasNetworks' financial accounting system SAP and TasNetworks' Fleet Management System.

(c) Methodology and assumptions

Opex follows the base step trend methodology. Capex utilises TasNetworks' forecast capex model.

(d) Estimated information

No estimates have been used in the compilation of this table.

Table 2.6.3 Annual Descriptor Metrics - Motor Vehicles

(a) Compliance with the requirements of the RIN

The information provided about Motor Vehicles in Table 2.6.3 – Motor Vehicles is consistent with the requirements of the Category Analysis RIN.

The Forecast years have been appropriately calculated in real June 2019 dollars.

(b) Information sources

Fleet Management system has been used to complete Motor vehicles categories and all metrics

(c) Methodology and assumptions

Employee numbers and devices remain consistent throughout the forecast period.

Motor Vehicle fleet total numbers and fleet usage remain consistent. Vehicle disposals offset by vehicle purchases

(d) Estimated information

No estimates were used in the compilation of this table.

Table 2.6.4 Information & communication technology – capex by purpose

(a) Compliance with the requirements of the RIN

The information provided in Table 2.6.4 Information & Communications Technology was completed in accordance with the definitions provided in the RIN.

The Forecast years have been appropriately calculated in real June 2019 dollars.

(b) Information sources

The data used for Table 2.6.4 is derived from the forecast capex and is consistent with TasNetworks' annual RIN reporting allocation process and definitions.

(c) Methodology and assumptions

Project data derived from the forecast capex has been allocated into capex by purposes and reconciled back to total capex.

(d) Estimated information

Nil estimated information

Worksheet 2.10 Overheads

Table 2.10.1 Network overheads expenditure

(a) Consistency of information with the requirements of the RIN

The information provided in Table 2.10 is consistent with the requirements of the Category Analysis RIN, in that:

- The template has been prepared in accordance with RIN paragraphs 14.1-14.4 of Appendix E – Principles and Requirements
- All relevant input cells have been populated
- All data has been gathered from reliable and objective data sources which are used in the normal course of TasNetworks' business

(b) Source of information

Overheads have been sourced from TasNetworks' Cost Allocation Method using the latest drivers and allocations. Total overheads by control have then been applied to the forecasted Capex model

(c) Methodology applied to determine information, including assumptions made

TasNetworks' capitalises overheads to ensure that all costs directly attributable to bringing an asset to the location and condition necessary for its use are capitalised per AASB 116.16.

The overhead costs included in this worksheet include capital and operational overheads which are summarised in worksheet 2.1 for reconciliation.

(d) Use of estimates

No estimations have been required in the collation and presentation of this information.

(e) Compliance with financial reporting framework

- Non-compliance
 - There has been no non-compliance with the financial reporting framework.
- Reason for non-compliance
 - Not applicable.
- Changes in accounting policies
 - No estimations have been required in the collation and presentation of this information.

Table 2.10.2 Corporate overheads expenditure

(a) Consistency of information with the requirements of the RIN

Information reported has been determined regarding overheads in accordance with the definitions provided in the RIN.

(b) Source of information

Overheads have been sourced from TasNetworks' Cost Allocation Method using the latest drivers and allocations. Total overheads by control have then been applied to the forecasted Capex model

(c) Methodology applied to determine information, including assumptions made

TasNetworks' capitalises overheads to ensure that all costs directly attributable to bringing an asset to the location and condition necessary for its use are capitalised per AASB 116.16.

The overhead costs included in this worksheet include capital and operational overheads which are summarised in worksheet 2.1 for reconciliation.

(d) Use of estimates

No estimations have been required in the collation and presentation of this information.

(e) Compliance with financial reporting framework

- Non-compliance
 - There has been no non-compliance with the financial reporting framework.
- Reason for non-compliance
 - Not applicable.
- Changes in accounting policies
 - There have been no changes in accounting policies for network and corporate overhead expenditure.

Worksheet 2.14 Forecast Price Changes

Table 2.14.2 Forecast capex and opex price changes

(a) Consistency of information with the requirements of the RIN

The information provided in Table 2.14.2 Forecast Capex and Opex Price Changes was completed in accordance with the definitions provided in the RIN.

TasNetworks' has calculated labour price changes based on forecast real labour increases.

The Forecast years have been appropriately calculated in real June 2019 dollars.

(b) Source of information

External expert consultation. Refer to the Jacobs Labour Cost Escalation Report, 25 October 2017.

(c) Methodology applied to determine information, including assumptions made

TasNetworks' has not included any forecast increase for materials price escalation.

(d) Use of estimates

No estimations have been required in the collation and presentation of this information

(e) Compliance with financial reporting framework

- Non-compliance

There has been no non-compliance with the financial reporting framework.

- Reason for non-compliance

Not applicable.

- Changes in accounting policies

There have been no changes in accounting policies for network and corporate overhead expenditure.

Worksheet 2.16 Opex Summary

Table 2.16.1 Prescribed transmission services – Opex by driver

(a) Consistency of information with the requirements of the RIN

The information provided in Table 2.16.1 Standard control services – opex by driver was completed in accordance with the definitions provided in the RIN.

The Forecast years have been appropriately calculated in real June 2019 dollars.

(b) Source of information

The data used for Table 2.16 is derived from the opex models (base step trend) and is consistent with TasNetworks' annual RIN reporting allocation process and definitions.

(c) Methodology applied to determine information, including assumptions made

It is populated based on the information from base step trend modelling and described in the revenue proposal document

(d) Use of estimates

No estimates have been used in preparing this RIN

(e) Compliance with financial reporting framework

- Non-compliance

There has been no non-compliance with the financial reporting framework.

- Reason for non-compliance

Not applicable.

- Changes in accounting policies

There have been no changes in accounting policies for network and corporate overhead expenditure.

Worksheet 2.17 Step Changes

Table 2.17.1 Step Changes for prescribed transmission services – forecast opex

Table 2.17.2 Step Changes for prescribed transmission services – forecast capex

Table 2.17.5 Category specific opex for prescribed transmission services

(a) Consistency of information with the requirements of the RIN

No step changes assumed for Transmission in the base step trend methodology

Worksheet 5.4 Maximum demand and utilisation at spatial level

Table 5.4.1 Non-coincident and coincident maximum demand

(a) Consistency of information with the requirements of the RIN

Information has been provided regarding maximum demand and utilisation at the spatial level in accordance with the definitions included within the RIN.

(b) Source of information

Connection Point Rating

Information has been sourced from the asset management information system. The data from 2017-18 to 2023-24 are equal to that of 2016-17 unless known committed projects would change them otherwise.

Where ratings change with season (transmission lines for instance) the rating that applies at the relevant season is used.

The substation MVA ratings provided are based on 'cyclic rating' as required by the RIN. Substation ratings are typically based on nameplate rating from the equipment manufacturer. As TasNetworks' does not currently have thermal models of transformer loading capacity the cyclic ratings provided are a 20% increase of the manufacturer's nameplate continuous rating. It is noted that all connection points have been provided with cyclic loadings details including those not owned by TasNetworks', i.e. Bell Bay Aluminium and The Tasmanian Electro Metallurgical Company (Temco).

For operation of transmission lines TasNetworks' uses dynamic line ratings based on real time wind speed, temperature and conductor tension monitors. However, for planning studies TasNetworks' uses static (winter and summer) ratings based on "normal operating conditions". Normal operating conditions for transmission line planning are 25°C and 0.5 m/sec wind speed for summer and 15°C and 0.5 m/sec wind speed for winter. Where applicable the templates are populated with static ratings of transmission lines.

Winter/summer peaking

The data from 2017-18 to 2023-24 are equal to that of 2016-17, while the data for 2016-17 have been sourced from TasNetworks' metering and billing system.

Embedded generation

The data from 2017-18 to 2023-24 are equal to that of 2016-17, while the data for 2016-17 have been sourced from TasNetworks' metering and billing system.

Weather corrected maximum demand – 10% or 50% probability of exceedance

The data from 2017-18 to 2023-24 are derived from AEMO's website.

(c) Methodology applied to determine information, including assumptions made

AEMO's load forecast has been adopted.

(d) Use of estimates

No estimations have been required in the collation and presentation of this information. Information is based on actual historic information, historical accounting records or other records used in the ordinary course of business. For future data, AEMO's load forecast is applied.

(e) Compliance with financial reporting framework

- Non-compliance

There has been no non-compliance with the financial reporting framework.

- Reason for non-compliance

Not applicable.

- Changes in accounting policies

Changes in accounting policies are not applicable for the maximum demand information requirements.

Worksheet 7.6 Indicative Impact on Distribution Charges & Electricity Bills

Table 7.6.1 Indicative Impact of the Regulatory Proposal on the average Residential Electricity Bills

(a) Compliance with the requirements of the RIN

The information provided is consistent with the requirements of the RIN. Indicative Bill Impacts are provided based on both Distribution and Transmission costs.

(b) Information sources

The data in this table is sourced from:

- Aurora Energy's 2017-18 Standing Offer Tariffs¹ and typical household bill breakdown²
- Office of the Tasmanian Economic Regulator (Typical Electricity Customers 2017)³
- TasNetworks' typical customer analysis

(c) Methodology and assumptions

Distribution Costs as a proportion of a typical customer's electricity bill

The Network proportion of a typical customer bill is sourced from Aurora Energy's website. The percentages reported in the Distribution and Transmission RIN are calculated by splitting this number based on typical customers' DUOS and TUOS splits, calculated based on TasNetworks' 2017-18 Network Tariffs.

The Residential customer referred to in the Distribution and Transmission RIN is represented by a typical medium consumption customer on the Residential low voltage general (TAS31) and Uncontrolled low voltage heating (TAS41) network tariffs.

The Business customer referred to in the Transmission RIN is represented by a typical high consumption customer on the Business low voltage general (TAS22) network tariff.

Typical Electricity Bill – Residential customer / Business customer

The reported values are calculated by combining TasNetworks' typical customer consumption assumptions with the Retail tariffs provided in Aurora Energy's 2017-18 Standing Offer Tariffs.

A typical Residential customer is represented by a medium consumption TAS31/41 customer.

The typical Business customer is represented by a high consumption TAS22 customer.

Indicative annual average distribution price impact

Forecast smoothed revenues for Distribution are sourced from the Distribution Post Tax Revenue Model (PTRM).

Forecast smoothed revenues for Transmission are modelled by Commercial Solutions, using the total Transmission revenues in the Transmission PTRM.

Energy delivered forecasts are sourced from TasNetworks' forecasting and pricing models.

(d) Estimated information

Not applicable, there was no estimated information.

¹ <https://www.auroraenergy.com.au/Aurora/media/pdf/Aurora-Energy-pricing-july-2017.pdf>

² <https://www.auroraenergy.com.au/your-home/bills-and-payments/your-bill-explained/electricity-cost-breakdown>

³ <http://www.economicregulator.tas.gov.au/Documents/Typical%20Electricity%20Customers%20Report%202017.PDF>

