TasNetworks
Delivering your power

Distribution Economic Benchmarking Regulatory Information Notice, 2019-20

Basis of Preparation

CONTACT

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Introduction

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

This Basis of Preparation (**BoP**) forms part of the response of TasNetworks to the Regulatory Information Notice (**RIN**) issued in November 2013 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 economic benchmarking.

The information and explanatory material included in this BoP relate to TasNetworks' activities as Tasmania's licensed Distribution Network Service Provider (**DNSP**) during the 2019-20 Regulatory Year (referred to throughout this document as the current reporting period).

AER's Instructions

The AERs instructions in completing the economic benchmarking RIN is to provide a BoP that demonstrates how the information provided in response to the RIN request complies with the requirement of the RIN. The minimum requirements of the BoP as per schedule 2 of the notice are set out below.

Table 1 - AER Requirements of the BoP

2.2 (a)	demonstrate how the information provided is consistent with the requirements of the notice.
(b)	explain the source from which we obtained the information provided.
(c)	explain the methodology we applied to provide the required information, including any assumptions made.
(d)	explain, in circumstances where we cannot provide input for a variable using actual information and therefore must provide input using estimated information: (1) why an estimate was required, including why it was not possible to use actual information; (2) the basis for the estimate, including the approach used, assumptions made and reasons why the estimate is our best estimate, given the information sought in the notice.

Definitions and interpretation

AER	Australian Energy Regulator
Aurora	Aurora Energy Pty Ltd, acting in its capacity as the licensed DNSP in Tasmania prior to 1 July 2014
Bravo	National Metering Identifier (**NMI**) consumption data storage and service order management systems
CAM	Cost Allocation Method
DM	TasNetworks' Electronic Document Management System
DNSP	Distribution Network Service Provider
Gentrack	TasNetworks' billing and market system (including customer and NMI management)
Gtech	Intergraph G/Technology geographic information system
MDMS	Meter Data Management System
Navision	TasNetworks' former financial system, which was replaced by SAP on 3 February 2017
OTTER	Office of the Tasmanian Economic Regulator
Podium	TasNetworks' customer service platform
POW	Programme of Work
RIN	Regulatory Information Notice
SAIDI	System Average Interruption Duration Index
SAIFI	System Average Interruption Frequency Index
SAP	TasNetworks' asset management, finance, procurement, human resources and payroll system
SCS	Standard Control Services
SDW	Spatial Data Warehouse
SOM	TasNetworks' Service Order Management system
UG	Underground (cable)
Telecommunications	Encompasses any telecommunications related asset
Secondary Systems	Encompasses protection systems, SCADA and Network Control
Substations Primary Systems	Encompasses power transformers, switchbays, transmission cables and reactive plant
Transmission Lines	Encompasses towers, support structures and conductors
TasNetworks	Refers to Tasmanian Networks Pty Ltd, acting in its capacity as a licensed Distribution Network Service Provider in the Tasmanian jurisdiction of the National Electricity Market.
WASP	Works, Assets, Solutions and People – TasNetworks' former program-of-work management system, which was retired on 3 March 2018

Table of Contents

Template 3.1 Revenue

Table 3.1.1: Revenue grouping by chargeable quantity

Consistency of information with the requirements of the RIN

The information in Table 3.1.1 has been presented in accordance with the definitions and requirements of the RIN. All revenues reported have been allocated to the chargeable quantity that most closely reflects the basis upon which the revenue was charged by TasNetworks. Revenues have been allocated between Standard Control Services and Alternative Control Services, and then further apportioned according to the definitions associated with the variables.

In accordance with the RIN instructions, the total of revenues reported by chargeable quantity equals the total of revenues by customer class reported in Table 3.1.2.

Source of information

The data for all of the variables in this table, except variable DREV0113 (Revenue from other sources), is sourced from TasNetworks' market and billing systems. The data for variable DREV0113 is sourced from TasNetworks' market and billing systems and TasNetworks' finance system.

Methodology and assumptions made

DREV0101

This variable relates to the revenue derived from the service charge component of TasNetworks' network tariffs, and including revenue from the following network tariffs:

- TAS31 – General Network – Residential
- TAS22 – General Network – Business
- TAS34 – General Network – Business, Nursing Homes
- TASCURT – General Network – Business, Curtilage
- TAS41 – Uncontrolled Energy
- TAS61– Controlled Energy
- TAS63 – Low Voltage (**LV**) Controlled Energy
- TAS75 – LV Irrigation – Time of Use (**ToU**)
- TAS82 – LV kVA Demand
- TAS87 – LV ToU kW Demand - Residential
- TAS88 – LV ToU kW Demand - Business
- TAS89 – LV ToU kVA Demand – Business (Large)
- TASSDM – High Voltage (**HV**) kVA Specified Demand
- TAS101 – LV PAYG
- TAS94 – LV ToU – Business
- TAS93 – LV ToU – Residential
- TAS92 – LV ToU – PAYG
- TASCUS1 – Specific Customer Calculation – Negotiated Tariff
- TASCUS3 – Customer Calculation – Negotiated Tariff
- TASCUS4 – Customer Calculation – Negotiated Tariff
- TAS15 – Business HV – Specified Demand (>2.0MVA)

DREV0102

This variable relates to the revenue derived from the consumption based energy charges which are part of TasNetworks' network tariffs, where those charges do not vary based on time of use. DREV102 includes revenue from the following network

tariffs:

- TAS31 – General Network – Residential
- TAS41 – Uncontrolled Energy
- TAS22 – General Network – Business
- TAS34– General Network – Business, Nursing Homes
- TASCURT – General Network – Business, CurtilageTAS41– Uncontrolled Energy
- TAS82 – LV kVA Demand
- TAS101 – LV PAYG

DREV0103, DREV0104, DREV0105

TasNetworks' ToU network tariffs feature different combinations of time of use periods. While all differentiate between peak and off-peak periods, others also include shoulder periods. The definition of those periods also differs between tariffs, with some tariffs also distinguishing between week days and weekends, and others adding seasonal variation. The revenue attributable to peak, shoulder and off-peak energy charges has been derived based on the time periods applied to each ToU network tariff during the relevant period. The ToU tariffs which contribute revenue to DREV0103, DREV0104, DREV0105 are as follows:

- TAS15 – Business HV – Specified Demand (>2.0MVA)
- TAS75 – LV Irrigation – ToU
- TAS92 – LV ToU - PAYG
- TAS93 – LV ToU – Residential
- TAS94 – LV ToU – Business
- TASSDM – HV kVA Specified Demand
- TASCUS1 – Specific Customer Calculation – Negotiated Tariff
- TASCUS3 – Customer Calculation – Negotiated Tariff
- TASCUS4 – Customer Calculation – Negotiated Tariff

Time of Use Periods for: TAS15, TAS75, TASSDM, TASCUS1, TASCUS3, TASCUS4

Time periods	**Summer (1 Oct – 31 Mar)**	**Winter (1 Apr – 30 Sep)**
Week Day (07:00 – 22:00) (Monday – Friday)	Shoulder	Peak
Weekend Day (07:00 – 22:00) (Saturday and Sunday)	Off-peak	Shoulder
Any Day (22:00 – 24:00) (Monday – Sunday)	Off-peak	Off-peak
Any Day (0:00 – 07:00) (Monday – Sunday)	Off-peak	Off-peak

Time of Use Periods for: TAS92, TAS93

Time periods	**Tariff rate**
Week Day (07:00 – 10:00 & 16:00 – 21:00) (Monday – Friday)	Peak
Week Day (all times not covered above) (Monday – Friday) Weekend (all weekends are deemed off-peak)	Off-peak

Time of Use Periods for: TAS94 – LV TOU – Business

Time periods	Tariff rate
Week Day (07:00 – 22:00) (Monday – Friday)	Peak
Weekend Day (07:00 – 22:00) (Saturday and Sunday)	Shoulder
Any Day (22:00 – 24:00) (Monday – Sunday)	Off-peak
Any Day (0:00 – 07:00) (Monday – Sunday)	Off-peak

DREV0106

This variable relates to the revenue derived from energy charging parameters for network tariffs with controlled loads, and includes the revenue derived from the following network tariffs:

- TAS61 – Controlled Energy
- TAS63 – LV Controlled Energy

DREV0107

This variable relates to revenue derived from the network tariffs applying to unmetered supplies, and includes the revenue derived from the following network tariffs:

- TASUMS – Small LV Unmetered; and
- TASUMSSL – Street Lighting.

DREV0108

This variable relates to revenue derived from excess or additional demand network charges. A number of TasNetworks' demand-based network tariffs feature charges for excess or additional demand, whereby demand over and above a specified or contracted level is charged at a different rate than applies to levels of demand less than or equal to the specified or contracted level. The demand-based network tariffs which incorporate charges for excess or additional demand are as follows:

- TASSDM – HV kVA Specified Demand
- TAS15 – HV kVA Specified Demand (>2.0 MVA)
- TASCUS1 – Customer Calculation – Negotiated Tariff
- TASCUS3 – Customer Calculation – Negotiated Tariff
- TASCUS4 – Customer Calculation – Negotiated Tariff

DREV0109

This variable relates to the revenue derived from network demand-based network tariffs –excluding revenue received through any demand charges applying to excess or overrun levels of demand (see DREV0108). The demand-based network tariffs relating to DREV0109 are as follows:

- TAS82 – LV kVA Demand
- TAS87 – LV TOU kW Demand - Residential
- TAS88 – LV TOU kW Demand - Business
- TAS89 – LV TOU kVA Demand – Business (Large)
- TASSDM– HV kVA Specified Demand
- TAS15– HV kVA Specified Demand (>2.0 MVA)
- TASCUS1 – Specific Customer Calculation – Negotiated Tariff
- TASCUS3 – Specific Customer Calculation – Negotiated Tariff
- TASCUS4 – Specific Customer Calculation – Negotiated Tariff

	DREV0110 This variable reports the revenue derived from the (daily) metering charges associated with the following network tariffs: • TAS31 – General Network - Residential • TASCURT – General Network – Business, Curtilage • TAS82 – LV kVA Demand • TAS22 – General Network - Business • TAS34– General Network – Business, Nursing Homes • TAS94 – LV ToU Business • TAS61 – Controlled Energy • TAS63 – Controlled Energy • TAS41 – Uncontrolled Energy • TAS92 – LV ToU - PAYG • TAS93 – LV ToU - Residential • TAS75 – LV Irrigation (ToU) • TAS101 – LV PAYG The revenue reported against DREV0110 reflects the revenue derived from both capital and non-capital metering charges. ***DREV0111*** This variable relates to revenue derived from connection charges. Revenues received from basic connection services included as part of TasNetworks' Ancillary Services – Fee Based Services are included. Revenues received from negotiated connections are included in DREV0113. ***DREV0112*** This variable relates to revenue received from the provision of public lighting services and contract lighting services. ***DREV0113*** Revenues that cannot be allocated to the specific chargeable quantities in variables DREV0101 to DREV0112 have been reported against 'Revenue from other Sources' (DREV0113). This includes the revenue derived from the provision of fee based services (special services) and quoted services.
	Use of estimates No estimates have been required in the collation and presentation of this information.
Table 3.1.2: Revenue grouping by customer type or class	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN. All revenues reported have been allocated to the customer classes which most closely reflect the basis upon which the revenue was charged by TasNetworks. Revenues have been allocated between Standard Control Services and Alternative Control Services, and then further allocated according to the definitions of customer type specified by the AER. The total of revenues reported by customer class aligns with the total of revenues reported by chargeable quantity in Table 3.1.1.
	Source of information

The data was sourced from:

- TasNetworks' market and billing systems
- TasNetworks' finance system

Methodology and assumptions made

DREV0201

This variable relates to the revenue derived from residential customers, and incorporates revenue relating to both Standard Control Services and Alternative Control Services.

The following non-demand based tariffs were applicable to residential consumers during the reporting period:

- TAS31 – General Network Residential
- TAS41 – Uncontrolled Energy
- TAS61 – Controlled Energy
- TAS63 – Controlled Energy
- TAS92 – LV ToU PAYG
- TAS93 – LV ToU Residential
- TAS101 – LV PAYG
- TAS87 – LV TOU kW Demand - Residential

The following tariffs are available to both residential and non-residential customers:

- TAS41 – Uncontrolled Energy
- TAS61 – Controlled Energy
- TAS63 – Controlled Energy

TasNetworks' billing systems captures the installation type of each connection as part of the market standing data. The installation type categorises each connection point as either Residential, Industrial or Commercial, which – for those tariffs available to both residential and non-residential customers – enables the revenue from those tariffs to be accurately allocated between residential and non-residential customer types at a NMI level.

Alternative Control Services

The primary tariff and NMI installation type was used to ensure that only Alternative Control Services revenue relating to residential customers was included in DREV0201.

DREV0202

This variable relates to revenue derived from non-residential customers who were not on demand tariffs, and incorporates the revenue relating to the provision of both Standard Control Services and Alternative Control Services to those customers.

Standard Control Services

The revenue reported against DREV0202 reflects the revenue received from the following consumption based non-residential tariffs:

- TAS22 – General Network – Business
- TAS34 – General Network – Business, Nursing Homes
- TASCURT – General Network – Business, Curtilage
- TAS41 – Uncontrolled Energy
- TAS61– Controlled Energy
- TAS63 – LV Controlled Energy
- TAS75 – LV Irrigation – TOU
- TAS94 – LV TOU – Business

The following consumption based network tariffs are available to both residential and

	non-residential customers: • TAS41 – Uncontrolled Energy • TAS61 – Controlled Energy • TAS63 – Controlled Energy TasNetworks' billing systems capture the installation type for each connection as part of the market standing data. The installation type categorises each connection point as either Residential, Industrial or Commercial. For those tariffs available to both residential and non-residential customers, the share of revenue derived from non-residential customers supplied under those tariffs has been allocated according to the installation type for each NMI. Alternative Control Services The revenue reported against DREV0202 includes the revenue received for the provision of metering services to non-residential customers only. The primary tariff and NMI installation type applying to each customer have been used to ensure that only revenue relating to non-residential customers has been included in DREV0202. ***DREV0203*** This variable relates to revenue derived from non-residential LV customers on demand tariffs, and incorporates revenue associated with the provision of both Standard Control Services and Alternative Control Services. Standard Control Services DREV0203 includes revenue from the following demand tariff which is applicable to non-residential LV customers: • TAS82 – LV KVA Demand • TAS88 – LV ToU kW Demand - Business • TAS89 – LV ToU kVA Demand – Business (Large) Alternative Control Services The primary tariff and NMI installation type was used to ensure that only revenue relating to Alternative Control Services provided to non-residential customers is included in DREV0203. ***DREV0204*** This variable relates to the revenue derived from non-residential HV customers supplied under demand tariffs, and incorporates revenue associated with the provision of both Standard Control Services and Alternative Control Services. Standard Control Services The following demand tariffs were applicable to non-residential HV customers in the RIN reporting period: • TASSDM – HV kVA Specified Demand • TAS15 – HV kVA Specified Demand (>2.0 MVA) • TASCUS1-4 - Individual Network Tariff Calculations Alternative Control Services The primary tariff and NMI installation type was used to ensure that only revenue relating to non-residential customers has been included against DREV0204. DREV0204 includes revenue derived from alternative control metering charges, noting that many of non-residential HV customer sites have contestable (unregulated) metering. ***DREV0205*** This variable relates to revenue derived from unmetered supplies, and includes revenue from the provision of both Standard Control Services and Alternative Control Services. Only revenue from customers supplied under the following

	The following network tariffs has been reported against DREV0205: • TASUMS – Small LV Unmetered • TASUMSSL – Street lighting ***DREV0206*** This variable relates to revenue from 'other' customers, and incorporates only revenue derived from Alternative Control Services. All data for variables DREV0206 is sourced from TasNetworks' market and billing systems, and TasNetworks Annual Reporting RIN.
	Use of estimates No estimates have been required in the collation and presentation of this information.
Table 3.1.3: Revenue (penalties) allowed (deducted) through incentive schemes	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN. All revenue/(penalties) allowed/(deducted) through incentive schemes relating to the current reporting period have been reported.
	Source of information The data was sourced from: • 2019-20 tariff approval model. • Post Tax Revenue Model (for Efficiency Benefit Sharing Scheme and Capital Expenditure Sharing Scheme).
	Methodology and assumptions made ***DREV0301*** The Efficiency Benefit Sharing Scheme value is the unsmoothed amount as per the AERs revenue determination. ***DREV0302*** STPIS revenue adjustments occurred in the current reporting period. The STPIS adjustment included in the current reporting period relates to 2016-17. ***DREV0303*** There is no F-Factor for TasNetworks ***DREV0304*** There is no S-Factor true up applicable to TasNetworks. ***DREV0305*** The Capital Expenditure Sharing Scheme is included under Other.
	Use of estimates No estimates have been required in the collation and presentation of this information.

Template 3.2 Opex

Table 3.2.1: Opex categories	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN, showing actual reported values. Opex has been split between Standard Control Services and Alternative Control Services in accordance with the definitions of these services

	provided by the AER.

	Source of information The expenditure data reported was sourced from: • TasNetworks' financial systems (SAP) • Audited statutory accounts
	Methodology and assumptions made The information in Table 3.2.1 was extracted from TasNetworks' audited Statutory Accounts and SAP. No assumptions were necessary in the preparation of the worksheet.
	Use of estimates ***No estimates have been required in the collation and presentation of this information.***
Table 3.2.2: Opex consistency	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN.
	Source of information The expenditure data reported has been sourced from: • TasNetworks' Financial Systems (SAP) • Audited Statutory Accounts
	Methodology and assumptions made Information was extracted from the audited Statutory Accounts and SAP. No assumptions were necessary in the preparation of the worksheet.
	Use of estimates No estimates have been required in the collation and presentation of this information.
Table 3.2.4: Opex for high voltage customers	**Consistency of information with the requirements of the RIN** DOPEX0401 reports the amount of Opex that TasNetworks would have incurred had it been responsible for operating and maintaining any electricity distribution transformers that are owned by high voltage customers. Because actual cost information is not available, the Opex for high voltage customers has been estimated based on the Opex TasNetworks incurs for operating similar MVA capacity distribution transformers within TasNetworks' network, as stipulated by the AER.
	Source of information The expenditure data used to estimate Opex for high voltage customers has been sourced from: • TasNetworks' financial systems (SAP) • TasNetworks' audited statutory accounts

	Methodology and assumptions made Not applicable as this data has been estimated.
	Use of estimates Total opex for high voltage customers has been calculated by multiplying the number of high voltage customers and transformers in high voltage connections by an estimated cost per transformer, based on asset repair costs and unit rates.

Template 3.2.3 Provisions

Table 3.2.3: Provisions	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN: • 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 • Explanations have been provided in this Basis of Preparation for the allocation of Provisions Provisions tables have been completed for the following provision accounts that TasNetworks holds: • **Long Service Leave** - Employees are entitled to three months of long service leave after ten years of service. The provision is calculated based on the percentage probability that an employee will qualify for long service leave, based on employees' years of service. • **Annual Leave** - Provision for employee's entitlement to 20 days of annual leave per annum. • **RBF** - Retirement Benefits Fund Defined Benefits Superannuation – TasNetworks has current and former employees who are members of a defined benefits superannuation scheme. The scheme is unfunded meaning that TasNetworks has a provision on its balance sheet for this liability. • **SAF** - Superannuation accumulation fund – TasNetworks' employees who are not part of the defined benefits superannuation are part of an accumulation fund. TasNetworks has an obligation to pay the superannuation to the individual employee's superannuation company. The provision represents the superannuation which will be payable on the annual leave and long service leave provisions when they are paid out, plus any superannuation that has been set aside but is yet to be transferred to employees' superannuation companies. • **Time Bank** - TasNetworks allows some of its employees to work overtime and claim time in lieu instead of overtime pay. This provision represents the value of the amount of time in lieu that has been accumulated but not taken. • **Workers compensation** - TasNetworks has workers compensation insurance. This provision is the amount payable (or receivable) from the insurance company at any point in time. • **Restructuring** - A provision for restructuring costs is required where a restructure is committed to but the payments have yet to be made. • **Payroll Tax** - TasNetworks has an obligation to pay payroll tax. The provision represents the payroll tax which will be payable on the annual leave and long service leave provisions when they are paid out

	Source of information The information provided was extracted from the Corporate provisions in the Annual Regulated Accounts, which contains the allocation of provision balances and movements to the Distribution Business for each of provision type.
	Methodology and assumptions made Provisions were split into Standard Control Services, Alternative Control Services and Unregulated Services using the same methodology as applied in previous regulatory years. To populate the tables the following calculations were made: • **Allocation across forms of control**: To allocate the provisions balances across the forms of control, the percentage spend methodology has been applied for the year. This process allocates the provision balances and movements across the forms of control based on the portion of total labour spend (opex and capex) for the year • **Allocation between opex and capex**: The provisions balances and movements have been allocated between opex and capex using labour dollars as the driver. This methodology is consistent with the methodology used in the current pricing determination.
	Use of estimates No estimates have been required in the collation and presentation of this information.

Template 3.3 Assets (regulatory asset base)

Table 3.3.1: Regulatory asset base values	**Consistency of information with the requirements of the RIN** TasNetworks has classified its assets for the purposes of the Economic Benchmarking RIN in accordance with the reporting asset class definitions provided by the AER.
	Source of information The information has been sourced from: • Post Tax Revenue Model • TasNetworks financial systems (SAP)
	Methodology and assumptions made The RAB template 3.3 has been prepared in accordance with the methodology/instructions in the 'Economic benchmarking RIN – for distribution network service providers' (AER EB RIN instructions) document. The asset categories are allocated in accordance with the definitions in Chapter 9 of the AER EB RIN instructions document, using the 4.1.1 Standard Approach (AER preferred approach). The Standard Control Services, RAB financial information reconciles with the decision that the AER has made in relation to RAB values as part of the current revenue determination process.

	Use of estimates No estimates have been required in the collation and presentation of this information.
Table 3.3.2: Asset value roll forward	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN. The variables rely on historical information recorded in TasNetworks' audited Statutory Accounts and information submitted to the AER by TasNetworks in response to the AER's Annual Reporting RIN for the current reporting period.
	Source of information The information is sourced as follows: • Post Tax Revenue Model • AER approved Regulatory Roll Forward Model • Current Annual Reporting RIN
	Methodology and assumptions made Unless otherwise noted, actual values reconcile to values previously reported as part of the RAB roll forward underpinning the revenue calculation for the current Determination. The values in this table were calculated as the average of the opening and closing RAB values for the relevant Regulatory Year. ***DRAB0201, DRAB0301, DRAB0401, DRAB0501, DRAB0601, DRAB0701, DRAB1001, DRAB1101*** Actual values reconcile to values previously reported as part of the RAB roll forward underpinning the revenue calculation for the current Determination (with forecasts replaced with actuals). Capex additions reported in the current reporting period reconciles with the value reporting as part of the current Annual Reporting RIN. ***DRAB0901*** RAB value consistent with the RAB Framework. ***Inflation addition (DRAB0102 variables)*** Inflation addition was applied in a manner consistent with the AER's roll forward model. CPI was applied consistent with that reported within TasNetworks' Regulated Accounts and Annual Reporting RIN. The opening asset value is multiplied by CPI. ***Straight line depreciation (DRAB0103 variables)*** Straight line depreciation was calculated based on the average remaining asset lives and standard remaining lives (for capex additions). The depreciation is based on forecast straight line depreciation as per the current Determination. ***Disposals (DRAB0106)*** This value represents proceeds from sales, as reported in the Annual RIN. ***Closing values (DRAB0107 variables)*** These variables are calculated from the DRA0101 – DRA0106 values.
	Use of estimates No estimates have been required in the collation and presentation of this information.

Table 3.3.3: Total disaggregated RAB asset values	**Consistency of information with the requirements of the RIN** These variables are calculated as the average of the opening and closing RAB values for the relevant Regulatory Year for the other assets with long lives asset class.
	Methodology and assumptions made These have be calculated as the average of the opening and closing RAB values for the current regulatory year for each of the RAB Assets.
	Use of estimates No estimates have been required in the collation and presentation of this information.
Table 3.3.4: Asset lives	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN. The variables rely on historical information recorded in TasNetworks' audited Statutory Accounts and AER approved asset lives as per the Roll Forward Model for the current determination period.
	Source of information The information was sourced from the following: • TasNetworks' Economic Benchmarking Assets models updated for the current regulatory control period • TasNetworks' Regulated Accounts for the current reporting period
	Methodology and assumptions made The asset classes used are the same as the asset classes that are used by the AER to describe TasNetworks' Regulatory Asset Base. The standard asset lives applied to each asset class are consistent with TasNetworks' submissions to the AER's current Distribution Determination. Where asset categories comprise a number of asset classes, consistent with the AER's instructions the asset lives for the whole category were calculated by weighting the lives of individual asset classes within that category on the basis of the asset's share of the RAB for the category and the excepted asset lives.
	Use of estimates No estimates have been required in the collation and presentation of this information.

Template 3.4 Operational data

Table 3.4.1: Energy delivery Table 3.4.1.1 Energy grouping – Delivery by chargeable quantity	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN. It is the total energy delivered to customers, as measured at the customers' premises.
	Source of information The data for all variables in this table was sourced from TasNetworks' market and billing systems.

3.4.1.2 Energy – Received from TNSP and other DNSPs by time of receipt

3.4.1.3 Energy – Received into DNSP system from embedded generation by time of receipt

3.4.1.4 Energy grouping – Customer type or class

Methodology and assumptions made

The total energy delivered is the sum of variables DOPED0201 – DOPED0206.

3.4.1.1 Energy grouping – Delivery by chargeable quantity

It is the total energy delivered to customers, as measured via meter readings throughout the regulatory year, categorised according to the RIN.

The KWH values are sourced from Dbill from the data criteria (ie invoice date).

The time periods used in TasNetworks' ToU Tariffs are as reported in Table 3.1.1

DOPED0201, and used as defined in section 3.4.1.2 of this BoP.

This variable is the sum of the total energy delivered as measured at the customer connection point for the following network tariffs:

- TAS31 – General Network – Residential
- TAS22 – General Network – Business
- TAS34– General Network – Business, Nursing Homes
- TASCURT – General Network – Business, Curtilage
- TAS41 – Uncontrolled Energy
- TAS82– LV kVA Demand
- TAS101 – LV PAYG

DOPED0202, DOPED0203, DOPED0204

Data was extracted for the time periods applying to the following time of use tariffs.

- TAS75 – LV Irrigation (ToU)
- TASSDM – HV kVA Specified Demand
- TAS94 – LV ToU – Business
- TAS92 – LV ToU - PAYG
- TAS93 – LV ToU - Residential
- TAS15 – HV kVA Specified Demand (>2.0MVA)
- TASCUS1-4 – Individual Network Tariff Calculation
- TAS87 – LV TOU kW Demand - Residential
- TAS88 – LV TOU kW Demand - Business
- TAS89 – LV TOU kVA Demand – Business (Large)

DOPED0205

This variable is the sum of the total energy delivered as measured at the customer connection point for the following controlled energy tariffs:

- TAS61 – Controlled Energy
- TAS63 - LV Controlled Energy

DOPED0206

This variable is the sum of the total energy delivered as measured at the customer connection point for the following unmetered supply tariffs:

- TASUMS – Small LV Unmetered
- TASUMSSL – Street Lighting

3.4.1.2 Energy – Received from TNSP and other DNSPs by time of receipt

The variable DOPED0304 is total energy received into the distribution network as reported at the connection points with the transmission network.

The time periods used in allocating to Time of Use periods are as follows.

Time periods	Tariff rate
Week Day (07:00 – 22:00) (Monday – Friday)	Peak

Weekend Day (07:00 – 22:00) (Saturday and Sunday)	Shoulder
Any Day (22:00 – 24:00) (Monday – Sunday)	Off-peak
Any Day (0:00 – 07:00) (Monday – Sunday)	Off-peak

The time date stamp aligns to the AEMO series, when time – AEMO is selected the first day of the interval is at 00:30:00 and the last day of the interval is 00:00:00 the next day. The data sourced from OLAB, the data being the KWh values.

3.4.1.3 Energy – Received into DNSP system from embedded generation by time of receipt

The energy received into the distribution network from embedded generators is categorised into residential and non-residential sources, and then further categorised into the time periods in which the generation occurred.

DOPED0401, DOPED0402, DOPED403

These variables are the summed, reported energy received from interval-metered, non-residential embedded generators by time of receipt.

DOPED0404

This variable reports the summed energy received from basic-metered, non-residential embedded generation, which is not captured in the variables DOPED0401, DOPED0402 and DOPED403.

DOPED0405, DOPED0406, DOPED0407

These variables are the summed, reported energy received from interval-metered, residential embedded generators by time of receipt.

DOPED0408

This variable reports the summed energy received from basic-metered, residential embedded generation, which is not captured in the variables DOPED0405, DOPED0406 and DOPED407.

The time periods used in allocating to Time of Use periods are as follows.

Time periods	**Tariff rate**
Week Day (07:00 – 22:00) (Monday – Friday)	Peak
Weekend Day (07:00 – 22:00) (Saturday and Sunday)	Shoulder
Any Day (22:00 – 24:00) (Monday – Sunday)	Off-peak
Any Day (0:00 – 07:00) (Monday – Sunday)	Off-peak

3.4.1.4 Energy grouping – Customer type or class

Table 3.4.1.4 It shows the energy delivered to customers according to the customer categories specified in the RIN.

DOPED0501

This variable reports the total energy delivered to customers assigned to the following residential network tariffs:

- TAS31 – General Network Residential
- TAS41 – Uncontrolled Energy
- TAS61 – Controlled Energy
- TAS63 – Controlled Energy

	• TAS87 – LV TOU kW Demand - Residential • TAS92 – LV ToU PAYG • TAS93 – LV ToU Residential • TAS101 – LV PAYG Of those tariffs, the following tariffs are available to both residential and non-residential customers: • TAS41 – Uncontrolled Energy • TAS61 – Controlled Energy • TAS63 – Controlled Energy TasNetworks' billing systems captures the installation type of each connection as part of the market standing data. The installation type categorises each connection point as either Residential, Industrial or Commercial. For those tariffs available to both residential and non-residential customers, total energy delivered has been allocated according to the installation type recorded for each NMI. DOPED0502 This variable reports the total energy delivered to non-residential customers who are not on demand tariffs, and aggregates the energy delivered to customers assigned to the following network tariffs: • TAS22 – General Network – Business • TAS34 – General Network – Business, Nursing Homes • TASCURT – General Network – Business Curtilage • TAS73 – LV Day/Night (Irrigation) (obsolete) • TAS75 – LV Irrigation (ToU) • TAS41 – Uncontrolled Energy • TAS61 – Controlled Energy • TAS63 – Controlled Energy • TAS94 – LV ToU Business Of the above network tariffs, the following tariffs are available to both residential and non-residential customers, meaning that the energy delivered to customers on those tariffs needs to be apportioned between residential and non-residential customers: • TAS41 – Uncontrolled Energy • TAS61 – Controlled Energy • TAS63 – Controlled Energy TasNetworks' billing systems captures the installation type of each connection as part of the market standing data, categorising each customer connection as either Residential, Industrial or Commercial. For those tariffs available to both residential and non-residential customers, total energy deliveries have been allocated between the two customer categories according to the installation type for each NMI, and added to the energy delivered to non-residential customers assigned to the previously listed network tariffs which are available exclusively to non-residential customers. DOPED0503 For this variable, the value was calculated by summing the total energy delivered to customers assigned to the following non-residential low voltage demand based tariffs: • TAS83 – LV kW Demand, (Obsolete); and • TAS82 – LV kVA Demand • TAS88 – LV TOU kW Demand - Business • TAS89 – LV TOU kVA Demand – Business (Large)

	DOPED0504 This variable reports the total energy delivered to customers assigned to the following non-residential high voltage demand based network tariffs: • TAS85 – HV kVA Demand (obsolete); • TASSDM – HV kVA Specified Demand; • TAS86 – HV kW Demand (obsolete); • TAS15 – HV kVA Specified Demand (>2.0 MVA); and • TASCUS1-4 - Individual Network Tariff Calculations. DOPED0505 DOPED0505 reports the amount of Energy Deliveries to the "Other Customer" class, represents unmetered supplies (**UMS**). This variable reports the total energy delivered to customers assigned to the following network tariffs: • TASUMS – Small LV Unmetered • TASUMSSL – Street lighting
	Use of estimates No estimates have been required in the collation and presentation of this information.
Table 3.4.2: Customer numbers 3.4.2.1 Distribution customer numbers by customer type or class 3.4.2.2 Distribution customer numbers by location on the network 3.4.2.3 Distribution customer numbers by TasNetworks (D) feeder categories (TasNetworks (D) only) 3.4.2.4 Unmetered Supply (TasNetworks (D) only)	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN in that the number of active NMIs in TasNetworks' network is the average number of active NMIs in TasNetworks' network (except for NMI's in Bass Strait Islands and Unmetered customers are excluded in tables 3.4.2.2, 3.4.2.3 and 3.4.2.4) on the first and last days of the Regulatory Year. Both energised and de-energised NMIs have been counted and each NMI has been counted as a separate customer. Extinct NMIs have not been counted.
	Source of information Data to calculate the values of the variables reported in these tables were extracted from: • Bravo (NMI consumption data storage, and service order management systems); • GenTrack (customer and NMI management system); • the Meter Data Management System (MDMS); and • GTech (GIS system).
	Methodology and assumptions made The information in Template 3.4.2 reflects counts of NMIs current at the beginning and the end of the financial year, which have been extracted by: • relevant tariffs; • feeder; and • reliability area. NMIs on the Bass Strait Islands (King and Flinders Islands), UMS and NMIs with a status of 'Extinct' were excluded from the counts. NMIs are connected to network connectivity model in GTech (NMIs-feeder relationship). The customer count total may not be identical in some cases due to data round offs.

	Table 3.4.2.1 Tariffs have been classified into the relevant RIN categories. The small volumes of NMIs with invalid tariffs have been redistributed proportionally between categories. ***Table 3.4.2.2*** Feeders have been classified into the relevant RIN categories. The small volumes of NIMs with unknown feeders were redistributed proportionally across the rest of the feeder categories. ***Table 3.4.2.3*** NMI classification is determined by mapping reliability classification polygons. ***Table 3.4.2.4*** Unmetered customer numbers are counts of NMIs where calculations are made for delivery of annual energy. Queries were run to extract a count of NMIs at the beginning and the end of financial year by relevant, • tariffs; • feeders; and • reliability areas. These queries excluded NMIs on the Bass Strait Islands and NMIs with a status of 'Extinct'. TasNetworks does not have any unmetered customers that do not have NMIs. The small volumes of NMIs (mostly UMS NMIs) with no recorded reliability area were redistributed proportionally across the rest of the population. For this section TasNetworks reports on UMS Type. Unmetered, Public and Private Lighting are not included.
	Use of estimates No estimates have been required in the collation and presentation of this information.
Table 3.4.3: System demand 3.4.3.1 Annual System Maximum demand Characteristics at the Zone Substation – MW Measure 3.4.3.2 Annual System Maximum demand Characteristics at the Transmission Connection Point – MW Measure 3.4.3.3 Annual System Maximum demand	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN in that the raw system annual maximum demands for the zone substation level and transmission connection points reports the amount of electricity transported through the network that has been taken from transmission connection points. The information provided about weather adjusted system annual maximum demands for the zone substation level and transmission connection points has been determined in accordance with the definitions provided in the RIN. The information provided about power factor conversion between MVA and MW has been determined in accordance with the definitions provided in the RIN. The Demand Supplied data (for customers supplied on a demand basis provided in Table 3.4.3.6) is consistent with the requirements of the RIN, reporting the demand associated with customers on MW based demand tariffs. The information provided in Table 3.4.3.7 reporting the demand associated with customers on MVA based demand tariffs regarding is consistent with the requirements of the RIN.
	Source of information ***Raw maximum demand*** All historical data is sourced from the transmission metering and SCADA at connection points. Coincident and non-coincident MW and MVA calculation and weather

Characteristics at the Zone Substation Level – MVA Measure	correction are based on 1 June 2019 to 31 May 2020 recorded maximum demand values instead of financial year values. The reason to consider that period is that the weather corrected data are available only for the season maximum demand.
	Weather adjusted maximum demand
3.4.3.4 Annual System Maximum demand Characteristics at the Transmission Connection Point – MVA Measure	All weather adjusted historic data is sourced from TasNetworks latest distribution load forecast.
	Power factor
	All data is sourced from historical data sourced from transmission metering and SCADA at connection points for the financial year from 1 July 2019 to 30 June 2020.
	DOPSD0401
	Not applicable – there were no consumers in this category.
	DOPSD0402
3.4.3.5 Power Factor Conversion between MVA and MW	All data for variable DOPSD0402 has been extracted from TasNetworks' Market Systems.
	Methodology and assumptions made
3.4.3.6 - Demand supplied (for customers charged on this basis) – MW measure	In the Tasmanian network, distribution substations previously owned by the standalone distribution network company are classified as zone substations (i.e., substations having facility to step down from 44 kV to 22 kV or 33 kV to 11 kV). Several connection points from transmission are directly connected to the distribution network. The loads in the distribution network directly connected to connection points are accounted only in transmission connection point values (excluded in zone substation values).
3.4.3.7 Demand Supplied (for Customers on this Basis) – MVA Measure	***Raw maximum demand (DOPSD0101, DOPSD0104, DOPSD0107, DOPSD0110, DOPSD0201, DOPSD0204, DOPSD0207, DOPSD0210)***
	Half hourly data were extracted from the metering and SCADA systems. Coincident and non-coincident maximum demands (MW and MVA) are extracted from this data set. Zone substation data is extracted from the secondary side of the transformers at zone substations.
	Weather adjusted maximum demand (DOPSD0102, DOPSD0103, DOPSD0105, DOPSD0106, DOPSD0108, DOPSD0109, DOPSD0111, DOPSD0112, DOPSD0202, DOPSD0203, DOPSD0205, DOPSD0206, DOPSD0208, DOPSD0209, DOPSD0210, DOPSD0211)
	Half hourly data was extracted from transmission metering and SCADA systems. Coincident and non-coincident maximum demands are extracted from this data set.
	Weather data was obtained from the appropriate Bureau of Meteorology weather stations around the state.
	The weather correction process involves temperature sensitivity analysis at each connection point to determine the demand response to a change in temperature of one degree.
	Based on historic daily maximum and minimum temperatures obtained from Bureau of Meteorology, Daily effective temperatures have been calculated in accordance with the definition provided by NIEIR, which is defined as the weighted average of the overnight minimum and the previous daily maximum. The daily minimum was assigned a weight of 0.8, while the previous day's maximum a weight of 0.2 in this calculation.
	Annual minimum effective temperatures in each season for the period from 1970 to current regulatory year were extracted from the calculated daily effective temperatures.
	The temperatures at 10% and 50% probability of exceedance (**POE**) were derived from the annual minimum effective temperatures in each season for the period from 1970 to current regulatory year.
	In weather correction of non-coincident maximum demand, each connection point

	maximum demand was weather corrected based on its closest weather station data. Daily maximum demand has been taken from metering or SCADA data and effective temperature data has been taken from previous calculations for weekdays for the current reporting period. Weather adjustments for each season have been done separately. December to February, March to May, June to August, and September to November are considered summer, Autumn, Winter and Spring months respectively. The linear variation of daily maximum demand of each season against daily effective temperature was taken as demand sensitivity to temperature. The difference between effective temperature of the maximum demand day and POE temperature was multiplied by the temperature sensitivity and added to the maximum demands to derive temperature corrected maximum demand. Summation of weather correction maximum demand of each connection is taken as system (i.e., zone or transmission connection) non-coincident weather adjusted summated maximum demand. In calculating coincident weather adjusted maximum demand (MW and MVA), same procedure applied to connection point is used (i.e., linear variation of daily system maximum demand against temperature was taken as demand sensitivity to temperature). Temperature considered for this calculation is the weighted average temperature based on the load at that time. Non-coincident and coincident values are based on 1 June 2019 to 31 May 2020 recorded maximum demand values instead of financial year values. The reason to consider whole season data is that the weather corrected data are available only for the season maximum demand. The non-coincident MVA values are the summated MVA of the connection points at the time of maximum MW. The power factors are measured at the coincident and non-coincident peak and applied across the whole year when converting MW to MVA. ***DOPSD0301, DOPSD0306, DOPSD0308, DOPSD0309, DOPSD0310*** The power factor is calculated by dividing the summated MW with the summated MVA which are separated into different voltage levels. ***DOPSD0302, DOPSD0307*** Data is not directly captured for the LV network or HV single wire earth return (**SWER**) lines because TasNetworks does not have systems in place to capture such detailed information. Consequently: • The overall network power factor was used as a proxy for low voltage lines. • The network power factor for 22 kV was used as a proxy for SWER lines, because most of the SWER lines are operated at 22 kV. ***DOPSD0401*** Not applicable as there were no consumers in this category. ***DOPSD0402*** The maximum demand for each NMI in the specified period extracted and summed for all demand steps of the following tariffs: • TAS87 – LV TOU kW Demand - Residential • TAS88 – LV TOU kW Demand – Business • TAS97 Residential low voltage distributed energy resource • TAS98 Business low voltage distributed energy resource ***DOPSD0403*** The maximum demand for each NMI in the specified period was extracted and summed for all demand steps of the following tariffs:

	• TASSDM – HV kVA Specified Demand; • TAS15– HV kVA Specified Demand (>2 MVA); and • TASCUS1-4 – Individual Network Tariff Calculation. The amounts above are the measured demand which include excess demand, overrun demand and allowable excess demand ***DOPSD0404*** The maximum demand for each NMI in the specified period was extracted and summed for all demand steps of the following tariffs: • TAS82 – LV kVA Demand; and • TAS85 – HV kVA Demand (Obsolete) no customers all reassigned. • TAS89 – LV TOU kVA Demand – Business (Large) The amounts above is the measured demand which include excess demand, overrun demand and allowable excess demand
	Use of estimates No estimates have been required in the collation and presentation of this information.

Template 3.5 Physical assets

Table 3.5.1: Network capacities 3.5.1.1 Overhead network length of circuit at each voltage 3.5.1.2 Underground network length of circuit at each voltage 3.5.1.3 Estimated overhead network weighted average MVA capacity by voltage class 3.5.1.4 Estimated underground network weighted average MVA capacity by voltage class	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN in that: • the total circuit length of TasNetworks-owned conductors and cables is provided, by voltage level; • the total of overhead and underground circuit lengths are equal to the applicable asset volumes currently in commission provided in Table 2.2.2 of the CA RIN, with the exception of sub transmission assets. Subs transmission asset categories do not fall into any of the asset group metrics specified in Table 2.2.2; and • length-weighted overall circuit MVA ratings have been based on thermal capacity, as specified by the AER.
	Source of information Data for these tables was extracted from the Asset History data warehouse. In particular for cables, data was retrieved and compared between: • SAP cable data; and • G.Tech cable data; Data for the calculation of the parameters reported in tables 3.5.1.3 (Estimated Overhead Network Weighted Average MVA Capacity by Voltage Class) and 3.5.1.4 (Estimated Underground Network Weighted Average MVA Capacity by Voltage Class) was obtained from: • TasNetworks' Spatial Data Warehouse; • the distribution "Standard Element Database"; and • SAP pole inspection data.
	Methodology and assumptions made The data reported in Table 3.5.1 is based on the conductors that were active in TasNetworks' system at the end of the regulatory year in question.

Only HV Lines that are owned by TasNetworks have been included.

All LV lines have been included in the data provided in Table 3.5.1 because the ownership information is incomplete for some feeders.

Dual circuit network sections have been counted as two separate lines.

For all variables in Table 3.5.1.3 and Table 3.5.1.4 except DPA0301 & DPA0401

No ratings have been specified using voltage limitations, as this is thought to introduce too much complexity.

For HV conductors, conductor type, number of phases (n_p), line-line voltage (V_{LL}) and geographic data were all available.

The length of each conductor segment was calculated from the geographic coordinates, and aggregated by total length, conductor type and voltage.

This was combined with the thermal current rating (I_{TH}) of the conductor type from the Standard Element Database (a conductor characteristic database used normally for network load-flow simulations), defined as the current per phase that a cable can carry continuously without exceeding its rated maximum conductor temperature, at

- Daytime 10^{o}C, <1.0 m/s wind speed for overhead lines; or
- 15^{o}C ground temperature for underground cables with the following assumed burial depths:

<1 kV	1 < 22 kV	>22 kV
600 mm	900 mm	1200 mm

These characteristics are maintained from a number of sources, typically manufacturer datasheets or calculations from Australian or IEC standards.

It is noted that these base thermal values are conservative by design (to allow for worst-case modelling) and actual peak capacity may be higher through cyclic loading schemes or more detailed cable modelling, particularly in the case of 33kV sub-transmission lines.

Using the above data, the MVA capacity (*P)* calculation used for single or three phase (SWER) line types is:

$$P_{1ph,3ph} = \frac{V_{LL}}{\sqrt{3}} n_p I_{TH}$$

For two phase lines, the following has been used:

$$P_{2ph} = V_{LL} I_{TH}$$

DPA0301 & DPA0401

A different approach was used for the variables DPA0301 and DPA0401. While a geographic LV line model is available in the SDW, overhead LV conductor type data is less complete than for HV conductors. Therefore, fractions of LV conductor types have instead been estimated based on pole inspection data, and subsequently combined with the total LV line length and number of phases. This provides a better estimate of the network weighted average MVA capacity, for the following reasons:

- pole inspection records are well maintained and are repeated on an approximately 5 year cycle; and
- fewer than one per cent of LV overhead poles do not have any conductor type associated with the record of those poles.

Pole inspection records (routinely performed for condition assessment) also list all LV conductor circuits on the pole. For each conductor type (t) of the (n) total types in the inspection database, the length of each conductor type (L_t) was estimated from the fraction of LV poles supporting that conductor (P_t):

$$L_t = \frac{P_t}{\sum_n P_t} L_n$$

Where the total length (L_n) is known from the SDW model.

The LV SDW model also contains the number of phases (n_p) – this was averaged and applied across the entire network, since it could not be resolved to each conductor type in the SAP database. Average number of phases (n_{avg}), line-line voltage (V_{LL})

$$\text{MVA capacity } (P) = \frac{V_{LL}}{\sqrt{3}} n_{avg} I_{TH}$$

These parameters were the used in same capacity calculation as the HV conductor.

For LV underground cables, it was assumed that ten per cent of cables were ducted and the remainder directly buried. This impacted the thermal ratings used in these calculations.

Use of estimates

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

Table 3.5.2: Transformer capacities

3.5.2.1 Distribution Transformer Total Installed Capacity

3.5.2.2 Zone Substation Transformer Capacity

3.5.2.3 Distribution - Other Transformer Capacity

Consistency of information with the requirements of the RIN

The information provided is consistent with the requirements of the RIN, reporting distribution transformer capacities according to the definitions in the RIN. The installed distribution transformer capacity reported in Table 3.5.2 only includes transformer capacity involved in the final level of transformation (i.e. stepping down the voltage used in the distribution lines to the level used by the customer) and does not include any intermediate transformation capacity.

Source of information

Data for the variables in these tables was sourced from:

- SAP
- TasNetworks' Inventory Management
- TasNetworks' distribution billing data
- Gentrack

Methodology and assumptions made

Transformer asset information was interrogated to extract a static view of all transformers/loads that were active in the system at the end of the regulatory year in question. The capacity measure used for each transformer reflects the normal nameplate continuous capacity / rating of that transformer.

The measures reported in Table 3.5.2 include any cold spare capacity of distribution transformers, but excludes the capacity of all zone substation transformers, voltage transformers (potential transformers) and current transformers.

3.5.2.1 Distribution transformer total installed capacity

DPA0501

The installed transformer capacity for distribution transformers was sourced from SAP.

DPA0502

TasNetworks does not possess data for customer-owned transformers. The connected capacities of HV customers' transformers has, therefore, been approximated as

	representing the maximum demand of these customers. The value reported is the value reported in section 3.4.3.7, DOPSD0404. DPA0503 Cold spare capacity holdings and total in-stock capacity of distribution transformers have been derived from stored data of inventory holdings. For the Cold Transformer capacity DPA503, for previous years TasNetworks had not included its inventory stock holdings in the value reported. This value is now included for the 2019-20 financial year. This has resulted in a significant step change in the reported value compared to previous years. ***3.5.2.2 Zone substation transformer capacity*** DPA0601, DPA602 Not applicable as TasNetworks does not have any transformers that meet this condition. DPA0603, DPA0604, DPA0605 Value sourced from Zone substation asset management plan. ***3.5.2.3 Distribution – other transformer capacity*** TasNetworks has not reported anything in this category.
	Use of estimates No estimates have been required in the collation and presentation of this information.
Table 3.5.3: Public lighting	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN, reporting on public lighting luminaires owned by TasNetworks, assets operated and maintained by TasNetworks, public lighting poles exclusively used for public lighting and owned by TasNetworks, and assets operated and maintained by TasNetworks.
	Source of information Data for the variables in this table was extracted from: • UMS view – Spatial Data Warehouse (SDW) • Public lighting RIN data supplied by the Network Asset Strategy Team
	Methodology and assumptions made ***DPA0701*** A count of public lighting luminaires was extracted from public lighting RIN data. ***DPA0702, DPA0703*** Queries were run on the UMS data in the SDW to identify public lighting poles that are dedicated to street-lighting by using the pole type attribute of “Streetlight”. UMSs that were connected to poles with pole tags of 0 (=108) were excluded from this query as the pole type cannot be confirmed and including these figures skewed the data. Poles were classified as “Columns” if the pole material was “Steel – Other”. All other materials were classified as “Poles”. Poles with a UMS type of PRIVATE have been excluded because the primary function of these lights is not for public lighting, which does not meet the definition provided in clause 6.3.

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

Template 3.6 Quality of service

Table 3.6.1: Reliability	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN; reliability is reported in accordance with the definitions provided in the RIN, in that: • Interruptions have been defined as loss of electricity supply to a customer associated with an outage of any part of the electricity supply network, including generation facilities and transmission networks, of more than 60 seconds, including outages affecting single premises. • The customer interruption starts when recorded by equipment such as SCADA or, where such equipment does not exist, at the time of the first customer call relating to the network outage. An interruption may be planned or unplanned, momentary or sustained. Subsequent interruptions caused by network switching during fault finding are recorded as additional outages. An interruption ends when supply to the last customer is restored. • Major Event Day threshold calculated in accordance with the 2.5ß methodology.
	Source of information The source data for these tables were extracted from: • InService (Outage Management System)
	Methodology and assumptions made The reliability performance indices (SAIDI and SAIFI) were calculated using the number of disconnected customers and customer duration at the time of the outage. The Major Event Day threshold calculated in accordance with the 2.5ß methodology defined in with TEC section 8.6.11. An extract of Major Event Days was taken from the current Annual Reporting RIN response and cross referenced with outage data to determine the outages that occurred on major event days. Outage impact has been measured by disconnected customers and customer duration as per the RIN requirements. Values are reported for SAIDI and SAIFI, where STPIS exclusions have been applied and where they have not been applied.
	Use of estimates No estimates have been required in the collation and presentation of this information.
Table 3.6.2: Energy not supplied	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN: the energy not supplied has been estimated as per the methods in the RIN. The energy not supplied due to unplanned customer interruptions has been estimated based on average customer demand, multiplied by the number of customers affected by an interruption and its duration. Average customer demand has been determined using a methodology specified by the AER.

Source of information

Data for these tables were sourced from:

- EB-RIN (D) 2014 3.4.2 customer counts.
- InService
- PI Data Link - NOCS

Methodology and assumptions made

Energy not supplied has been reported exclusive of the effect of Excluded Outages.

For every outage in the reporting period, average customer consumption was estimated for the feeder using one of the following three prescribed methods:

- Method 1: feeder demand at the time of the interruption divided by the number of customers on the feeder;
- Method 2: average feeder demand derived from feeder maximum demand and estimated load factor, divided by the number of customers on the feeder, or
- Method 3: average feeder category demand derived from sum of average feeder demands divided by total customers for feeders of the appropriate category that were impacted by outages in the reporting period.

Method 2 was preferred to 1 when either

- feeder demand measurements were either unavailable or suspect at the time of the outage; or
- outage time was in excess of 12 hours.

Method 3 was only utilised when there was no other load data available.

The 12 hour threshold for Method 2 was determined through investigation of demand curves for the 20 longest outages. Consideration of feeder load profiles from days immediately previous an outage, as well as the same days in previous years, indicated that an average value was more accurate than the demand at the beginning of sustained interruptions.

The estimated load factor for Method 2 was a system-wide estimate through consideration of Maximum-to-Average demand ratios on feeders where both values were available, and data was found to be of good quality overall.

The customer minutes for each outage was determined on an affected asset basis, to account for instances where partial supply was restored before the entire outage concluded.

Customer minutes were then multiplied by the average demand to give energy not supplied.

The final result is calculated by summing the result for each individual outage.

It has been assumed that:

- the methods used are sufficiently accurate for the intended purpose of the metric; and
- the estimated load factor is applicable throughout.

The prescribed preferred method of estimating average demand from customer billing history was not used, as TasNetworks only has quarterly billing data available to estimate customers' consumption. It is therefore not possible to factor in the effects of demand coincidence which has a significant impact on the calculation of energy not supplied.

The measured value, by contrast is time-varying and accurate. Longer outages, which dominated the use of average feeder demand (Method 2) tended to result from interruption to entire or significant portions of feeders, further improving accuracy.

	Use of estimates The information is considered to be an estimate because the differing methods prescribed in section 7.2 of the RIN Instructions and Definitions result in differing answers.
Table 3.6.3: System losses	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN.
	Source of information Electricity imported is sourced from: • Table 3.4.1.1 Energy grouping – Delivery by chargeable quantity; • Table 3.4.1.2 Energy - received from TNSP and other DNSPs by time of receipt; and • Table 3.4.1.3 Energy - received into DNSP system from embedded generation by time of receipt. Electricity delivered is sourced from: • DOPED01 (in Table 3.4.1) – Total energy delivered.
	Methodology and assumptions made The system loss percentage is calculated in accordance with Equation 2 in the AER's *Instructions and Definitions* for Economic benchmarking RINs for distribution network service providers.
	Use of estimates No estimates have been required in the collation and presentation of this information.
Table 3.6.4: Capacity utilisation	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN, reporting the capacity utilisation of the distribution network in accordance with the definitions provided in the RIN.
	Source of information Non-coincident summated raw system annual maximum demand (MVA measure at zone substation level) is sourced from table 3.4.3.3 (DOPSD0201) and 3.5.2.2 (DPA0604). Only the installed capacity of zone substation transformers in the network owned by TasNetworks has been included in Table 3.6.4.
	Methodology and assumptions made The capacity utilisation variable is calculated as the non-coincident summated raw system annual maximum demand (MVA measure at zone substation level) (DOPSD0201) divided by the total zone substation transformer capacity.
	Use of estimates No estimates have been required in the collation and presentation of this information.

Template 3.7 Operating environment factors

Table 3.7.1: Density factors	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN, being calculated from other variables within the RIN. Please note that demand density in Tasmania is lower than expected when compared to other jurisdictions due to the states definition of zone substation.
	Source of information • Table 3.4.1 DOPED01 Total Energy Delivered • Table 3.4.2.1 DOPCN01 Total Customer Numbers • Table 3.4.3.3 DOPSD0201 Non–coincident Summated Raw System Annual Maximum Demand • Table 3.7.3 DOEF0301 Route Line Length
	Methodology and assumptions made • Customer density (DOEF010) equals Total Customer Numbers (DOPCN01) divided by Route Line Length (DOEF0301) • Energy Density (DOEF0102) equals Total Energy Delivered (DOPED01) divided by Total Customer Numbers (DOPCN01) • Demand Density (DOEF0103) equals on–coincident Summated Raw System Annual Maximum Demand (DOPSD0201) divided by Total Customer Numbers (DOPCN01)
	Use of estimates No estimates have been required in the collation and presentation of this information.
Table 3.7.2: Terrain factors	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements of the RIN, reporting the information sought based on actual and estimated data pertaining to Route Line Length, AER feeder classification and vegetation proximity to TasNetworks' distribution network. TasNetworks does not explicitly tag its network as 'accessible' (or otherwise) in line with the AER definitions.
	Source of information Data for the variables in these tables were sourced from: • the Spatial Data Warehouse (SDW) • Vegetation Management System • Vegetation Contractor Expenditure • The LIST (Department of Primary Industries, Parks, Water and Environment)
	Methodology and assumptions made The information in these tables was built upon the TasNetworks' Distribution "Span Model" – a geographic a database of pairs of geographic coordinates that correspond to poles with at least one connecting conductor circuit. The Span Model has been derived from the vegetation management system to meet the AER definition of Route Line Length. An updated span model was used during 2019-2020 which also includes service spans. This inclusion has caused a significant increase in spans to that which was reported in

	previous RINs. TasNetworks deems this inclusion as appropriate, as TasNetworks are responsible for inspecting and clearing vegetation from service lines in the majority of instances. Each span in the Span Model was assigned a classification based on the AER load-based feeder definitions: CBD, Urban, and Long/Short Rural (assigned in that order for multiple circuit spans). ***Rural Proportion (DOEF0201)*** The total length of long and short rural spans divided by the total route line length is taken as the rural portion. Urban and CBD Vegetation Maintenance Spans (DOEF0202) – Total Number of Spans (DOEF0205). AER definitions for Urban and CBD have been attributed to span data (via GIS overlay) within the vegetation management system to enable grouping into Urban and Rural categories. Average Urban and CBD Vegetation Maintenance Span Cycle (DOEF0206) and Average Rural Vegetation Maintenance Span Cycle (DOEF207). TasNetworks' rural feeders aim to have a 2-year vegetation management cycle target, with an urban cycle of 1 year. TasNetworks' bushfire strategy aims for 1-year check and work if necessary for all feeders inside a designated High Bushfire Loss Consequence Area. At the time of gathering data for RIN, policy on vegetation cycles had not changed, therefore the historical cutting cycle is expected to carry through as the planned cutting cycle. Average Number of Trees per Urban and CBD Vegetation Maintenance Span (DOEF0208), Average Number of Trees per Rural Vegetation Maintenance Span (DOEF0209), Average Number of Defects per Urban and CBD Vegetation Maintenance Span (DOEF210) and Average Number of Defects per Rural Vegetation Maintenance Span (DOEF211) Trimmings were taken to correspond to a single defect, while the number of trees was taken to be trimmings plus tree removals. Trees reported in this data as "< 100 mm" or "scrub control saplings" were excluded as these are not thought to be consistent with the AER definition of a managed "defect". ***Tropical Proportion (DOEF0212)*** No tropical vegetation communities exist in Tasmania. ***Standard Vehicle Access (DOEF0213)*** TasNetworks has a service level agreement supply of up-to-date GIS transport information. This includes known private off-road trails, in addition to all public highways and smaller streets. Trails explicitly flagged '4WD required' are excluded. Distribution lines that fall outside a 25m buffer of the transport network are deemed 'inaccessible'. It is assumed that the overwhelming majority of LV overhead conductors and HV/LV underground cables fall within urban or peri-urban areas and, therefore, are accessible even when they fall outside the 25m transport segment buffer. Therefore, only HV conductors were used in this calculation. The networks span dataset was updated during 2020, which may account for a small change since the previous RIN. As per previous years, paddocks were not deemed "accessible" because TasNetworks has no ability to determine whether or not access is available on a regular basis due to seasonal variations in ground conditions and/or farming practices that would limit access using a 2WD vehicle. "Accessible" line segments were limited to sections of line that fell within the 25m transport buffer and were not extended to encompass entire Pole-to-Pole spans (which was presumably done in previous years). Hence, this year's result is somewhat higher

	than in the past. ***Bushfire Risk (DOEF0214)*** TasNetworks has defined a high bushfire risk zone in conjunction with industry and local climate experts, based on the "Phoenix Rapid-fire" model, which incorporates both bushfire probability/intensity and potential consequences based on infrastructure in the area. Maintenance spans within this zone have been reported.
	Use of estimates No estimates have been required in the collation and presentation of this information.
Table 3.7.3: Service Area Factors	**Consistency of information with the requirements of the RIN** The information provided is consistent with the requirements and definitions provided in the RIN.
	Source of information Data for this variable was sourced from the Spatial Data Warehouse (SDW).
	Methodology and assumptions made This information is built upon the TasNetworks distribution model. Multiple circuits (LV/HV) between poles have been generalised and combined to create single route corridors between poles specifically to meet the AER definition of Route Line Length. Service lines are excluded from the calculation. TasNetworks has improved the methodology of this calculation to remove underground assets, this has resulted in a reduction over previous years. The reported Route Line Length is the sum of lengths of the single line corridors between poles.
	Use of estimates No estimates have been required in the collation and presentation of this information.

Tasmanian Networks Pty Ltd