



AusNet Transmission Group Pty Limited

**AER Economic Benchmarking
Regulatory Information Notice**

2020 Regulatory Year Basis of Preparation



Basis of Preparation – Economic Benchmarking 2020 Regulatory Year

1. Overview

This Basis of Preparation document supports the preparation and reporting of the 2020 Regulatory Year data presented in AusNet Transmission Group Pty Limited's (**AusNet Transmission**) reports entitled, 'FY20 AusNet Transmission Group Economic Benchmarking - Actual Information', 'FY20 AusNet Transmission Group Economic Benchmarking - Estimated Information' and 'FY20 AusNet Transmission Group Economic Benchmarking - Consolidated Information' (**the Reports**). The Reports provide data solely for the use of the Australian Energy Regulator (**the AER**) to perform benchmarking activities under the AER's Better Regulation program.

The Reports have been prepared in accordance with the 'Regulatory Information Notice issued under section Division 4 of Part 3 of the *National Electricity (Victoria) Law*' (**RIN**) issued by the AER on 28 November 2013, the accompanying 'Economic Benchmarking RIN for transmission network service providers - Instructions and Definitions' and other authoritative pronouncements of the AER.

Some information required in the reports is data managed by the Australian Energy Market Operator ("**AEMO**"). AusNet Transmission, in conjunction with the AER, has identified within the Reports which data is maintained by AEMO and these cells have been left blank in the Reports. Therefore, AusNet Transmission has also not provided any details in relation to the Basis of Preparation of these variables.

AusNet Transmission's 2020 Regulatory Year is the period 1 April 2019 to 31 March 2020 (**Current Regulatory Year**) and the data included in the Reports has been provided for the Current Regulatory Year. All financial data included in the Reports is presented in Australian dollars. Non-financial data is stated as per the measures specified in the Reports.

The ultimate Australian parent entity of AusNet Transmission is AusNet Services Limited. The AusNet Services Group (**the Group**) owns and operates 3 regulated networks – an Electricity distribution network, a Gas distribution network, an Electricity transmission network, and Unregulated businesses. Employees of the Group work across the 3 regulated networks and unregulated businesses. Where there are shared costs, overheads and other corporate costs that cannot be directly allocated to a particular network, these costs are proportioned amongst the Group's 3 regulated networks, as well as the unregulated businesses, based on a monthly indirect cost allocation process. For the period 1 April 2019 to 31 December 2019, allocations were based on a monthly activity-based costing (ABC) survey process. ABC surveys were completed by all cost centre managers – in accordance with the AER approved cost allocation methodology ("**CAM**") in place at the time. For the period 1 January 2020 to 31 March 2020, a new CAM came into effect. In accordance with the new CAM, monthly ABC surveys were removed, and a new indirect allocation approach was applied.

Materiality has been applied throughout the Reports and Basis of Preparation. Materiality is defined as information that if omitted, misstated, or not disclosed has the potential, individually or collectively to influence the economic decisions of users.

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‘Actual Information’ is defined as information materially dependent on information recorded in historical accounting records or other records used in the normal course of business, and whose presentation is not contingent on judgments and assumptions for which there are valid alternatives, which could lead to a materially different presentation. Based on this definition, ‘Actual Information’ may include Management judgments and assumptions (providing it does not result in a presentation that could be materially incorrect). Any information or allocation which has been calculated via the ABC survey process is considered Actual Information, as this is in accordance with the AER approved CAM, even though Management judgments are used in the completion of the survey.

‘Estimated Information’ is information not materially dependent on information recorded in the AusNet Services’ historical accounting records or other records used in the normal course of business and whose presentation for the purposes of the RIN is contingent on judgments and assumptions for which there are valid alternatives, which could lead to a materially different presentation in the response to the Notice.

Interpretation of the AER’s definition of Actual and Estimated information requires Management judgments to be made as to the appropriate classification of information including:

- the extent to which the information is sourced from accounting or other records used in the normal course of business; and
- the degree of estimation involved and whether the information is materially dependent on judgments and assumptions for which there are valid alternatives, which could lead to a materially different presentation.

Estimates provided are considered to be Management’s best estimate based on the data available. Estimates will often not equal the related actual results and estimates have only been made for the purpose of disclosing the information required under the RIN. Considerations of the cost and efficiency of preparation as well as the reliability and accuracy of data available have been considered in determining the best methodology to determine the estimates.

The methodologies, assumptions and judgments made by management in respect of variables are described within the relevant sections of this Basis of Preparation.

The AER’s requirement, applicable to the current regulatory year, is to report all variables as Actual Information, unless a variable is expressly allowed to be reported as Estimated Information under the RIN guidelines. In circumstances where AusNet Transmission is unable to provide ‘Actual Information’, the information has been estimated and an explanation included in this Basis of Preparation document as to why AusNet Transmission was unable to provide ‘Actual Information’, how the estimate was derived and why it is the best estimate in the circumstances. This is consistent with supplementary guidance provided by the AER. In the absence of evidence that AusNet is unable to provide ‘Actual Information’ the AER may regard the provision of ‘Estimated Information’ as non-compliant with the RIN.

Where ‘Estimated Information’ has been presented, the circumstances and the basis for the estimate, including the approach used, assumptions made, reasons why an estimate was required and why the estimate is AusNet Transmission’s best estimate has also been set out below. On this basis, AusNet Transmission consider data provided follows the RIN Instructions.

To the extent applicable, the information reported has been prepared in a manner consistent with the policies and methodologies applied in preparing the Annual Regulatory Accounts.

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AusNet Transmission Services adopted the new accounting standard, *AASB16 – Leases* which broadly changes the treatment of operating leases. This accounting policy change was adopted from 1 April 2019 in AusNet Transmission Services' RINs and Regulatory Accounts. The adoption date is consistent with the AusNet Services Group Accounting Policy. The 2020 impact was an increase to the Capex classification *Non-approved asset class - Non-network Leasehold Land & Buildings* of \$44.3M and a decrease to Prescribed Opex of \$3.5M. There were no other changes in Accounting Policies during the Regulatory Year that had a material impact on the information presented.

The preparation methodologies and information sources adopted in the preparation of the Reports are set out below.

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3.1 Revenue

Table 3.1.1 Revenue Grouping by Chargeable Quantity

Prescribed Transmission Services Revenue (**Revenue**) is measured at the fair value of the consideration received or receivable, net of the amount of Goods and Services Tax payable to the taxation authority. Revenue is recognised as the services are rendered and is reported inclusive of incentive scheme penalties and rewards. Total Revenue is disaggregated by chargeable quantity and by type of connected equipment.

Variable	Information	Assumptions for Estimated Information
TREV0101 to TREV0110	Actual Public	n/a

Revenue reported has been classified into the Chargeable Quantity which most closely reflects the basis upon which the revenue was charged to customers. Where it has been determined that Revenues cannot be allocated to the specified chargeable quantities in TREV0101 to TREV0109, Revenue has been reported against 'Revenue from other Sources' (TREV0110).

The Annual Regulatory Accounts require gross proceeds from the sale of assets to be included in the Prescribed Transmission Services (**PTS**) revenue reported in the Income Statement worksheet. Per the RIN instructions, the Revenues in Table 3.1.1 need to reconcile to the PTS Revenues reported in the Annual Regulatory Accounts. Therefore, gross proceeds from the sale of assets have been included in 'Revenue from other Sources' (TREV0110) which is consistent with the presentation of data in previous Regulatory Years.

Preparation, Source & Methodology

Data obtained from the Annual Transmission Customer Charges schedule, AusNet Transmission's internal Transmission Revenue Tracking Tool and information from the Financial System was allocated into the required categories as determined by the customer. Customers are clearly identifiable in the Annual Transmission Customer Charges schedule, which includes PTS revenue (i.e. revenue included in AusNet Transmission's revenue cap, plus Group 3 revenue).

'Revenue from other Sources' (TREV0110) includes revenue from the Australian Energy Market Operator (**AEMO**), Easement Tax and gross proceeds from the sale of assets.

Table 3.1.2 Revenue Grouping by Type of Connected Equipment

Variable	Information	Assumptions for Estimated Information
TREV0201 to TREV0205	Actual Public	n/a

Revenue reported has been classified into the Type of Connected Equipment. 'Other Revenue' (TREV0205) includes gross proceeds from the sale of assets which relate to Prescribed Transmission Services.

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Preparation, Source & Methodology

Data was obtained from the Annual Transmission Customer Charges schedule, AusNet Transmission's internal Transmission Revenue Tracking Tool and information from the Financial System and allocated into the required categories based on the nature of the revenue. Revenue from the AEMO, gross proceeds from the sale of assets and Easement Tax was allocated to 'Other Revenue' (TREV0205).

Table 3.1.3 Revenue (Penalties) Allowed (Deducted) Through Incentive Schemes

Variable	Information	Assumptions for Estimated Information
TREV0301 to TREV0303	Actual Public	n/a

The penalties or rewards from the service target performance incentive scheme (**STPIS**) or efficiency benefit sharing scheme (**EBSS**) have been reported based on the year that the penalty or reward was applied, not the year in which it was earned.

Preparation, Source & Methodology

Information was sourced from the AER Final Determination (2017–18 to 2021–22) Transmission Revenue Reset, AER STPIS Determinations (data was extracted and included in AusNet Transmission's internal Transmission Revenue Estimator Tool) and the Post Tax Revenue Model.

EBSS

The EBSS allowance was sourced from the AER determination and the associated nominal revenue calculated. Since the Annual Transmission Customer Charges reflect the smoothed Maximum Allowed Revenue (**MAR**) and the EBSS allowance is part of the build-up of the MAR, it is possible to allocate the EBSS allowance to revenue in each year of the regulatory period.

STPIS

Revenue attributable to the STPIS was obtained from the AER STPIS Determinations for the 2020 Regulatory Year.

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3.2 Operating Expenses

Variable	Information	Assumptions for Estimated Information
TOPEX0101 to TOPEX0116	Actual Public	n/a

Operating Expenses (**Opex**) are the costs of operating and maintaining the network (excluding all capital costs and capital construction costs) and is sourced from SAP, the Group ERP system. Data reported relates to Prescribed Transmission Services only.

AusNet Services owns and operates 3 regulated networks – an electricity distribution network, a gas distribution network, and an electricity transmission network. Opex that is incurred for a particular network, is allocated directly to that network. Overhead costs that cannot be directly allocated to a particular network are proportioned amongst AusNet Services' 3 regulated networks as well as unregulated businesses via the indirect cost allocation process. This is in accordance with the principles of the AusNet Services' CAM.

AusNet Transmission Group adopted the new accounting standard AASB 16 *Leases* as of 1 April 2019, which is in line with the date of adoption by the AusNet Services Group. As a result, leases which had previously been classified as 'operating leases' and recorded as Opex (under the principles of AASB 117 *Leases*), were recognised as 'right to use' capital assets.

Preparation, Source & Methodology

Information reported was sourced from the AusNet Transmission Annual Regulatory Accounts sourced from the SAP Financial System.

Opex categories and allocations have been presented in accordance with the requirements of the CAM, the Annual Regulatory Accounts and the reporting requirements that were in effect for the individual Regulatory Year. Opex reported reconciles to Prescribed Transmission Services Opex as disclosed in the AusNet Transmission Annual Regulatory Accounts.

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3.2.3 Provisions

Provisions are recognised when AusNet Transmission has a present legal or constructive obligation as a result of past events, it is more likely than not that an outflow of resources will be required to settle the obligation and the amount of the provision can be measured reliably. Provisions are not recognised for future operating losses.

The amount recognised as a provision is the best estimate of the consideration required to settle the present obligation at the relevant reporting date, considering the risks and uncertainties surrounding the obligations. Where a provision is measured using the cash flows estimated to settle the present obligation, its carrying amount is the present value of those cash flows.

Financial information on provisions for Prescribed Transmission Services has been reported in accordance with the requirements of the CAM methodology as explained in page 2 of the overview section and the Annual Regulatory Accounts that were in effect for the Current Regulatory Year. The accounting policies adopted by AusNet Transmission in relation to Provisions have not materially changed during the Current Regulatory Year in comparison with Regulatory Years previously reported.

Provisions have been separately presented based on the nature of the provision and allocated between an Opex component, a Capital Expenditure (**Capex**) component and an **'Other'** component based on the classification of the underlying cost associated with the provision. Financial information on provisions reconciles to the reported amounts for provisions in the Annual Regulatory Accounts for the Current Regulatory Year. This is applicable to all Provision categories reported in the template.

Preparation, Source & Methodology - Actual***Provision for Make Good***

The provision represents the cost of remediating a leased site at the end of the lease term. Data was sourced from the SAP Financial System and the movement in the provision was 100% directly allocated to PTS based on the nature of the provision.

Variable	Information	Assumptions for Estimated Information
TOPEX0301D to TOPEX0314D	Actual Public	n/a

Other Provisions

'Other Provisions' in the Current Regulatory Year relates to amounts provided for legal matters. Data was sourced from the SAP Financial System and the movement in the provision was 100% directly allocated to PTS based on the components of the provision.

Variable	Information	Assumptions for Estimated Information
TOPEX0301C to TOPEX0314C	Actual Public	n/a

Provision for Employee Entitlements

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Opening and closing balances disclosed in the templates are actual information as these amounts are sourced directly from the SAP financial system.

Variable	Information	Assumptions for Estimated Information
TOPEX0301A to TOPEX0314A	Estimate Public	Movements are based on the percentage of labour costs that were allocated to transmission PTS services vs Unregulated services as part of the indirect cost allocation process.

Provision for Superannuation

Opening and closing balances disclosed in the templates are actual information as these amounts are sourced directly from the SAP financial system.

Variable	Information	Assumptions for Estimated Information
TOPEX0301B to TOPEX0314B	Estimate Public	Movements are based on the percentage of labour costs that were allocated to transmission PTS services vs Unregulated services as part of the indirect cost allocation process.

Preparation, Source & Methodology – Estimated

Provision for Employee Entitlements and Provision for Superannuation

Data was sourced from the SAP Financial System. The PTS component of the Provision for Employee Entitlements and Provision for Superannuation was calculated based on the percentage of labour costs that were allocated to transmission PTS services vs Unregulated services as part of the indirect cost allocation process.

The variable TOPEX313B in the Provision for Superannuation category represents the following in relation to the AusNet Transmission Defined Benefits Fund (“DBF”) and although the gross amounts were sourced from the financial systems, this is an estimate for the reasons as noted above.

- The transfer (\$6M) of the AusNet Transmission DBF to the AusNet Electricity Services DBF, which merged in December 2019.
- The revaluation (\$9.8M) of the DBF under the Australian Accounting Standards AASB119 Employee Benefits. This revaluation is performed by an external specialist company.

Variable	Information	Assumptions for Estimated Information
TOPEX302A to TOPEX306A and TOPEX302B TOPEX303B TOPEX313B	Estimated Public	The Opex and Capex components of the Provisions were estimated using the indirect cost allocation information. A calculation of the percentage of labour costs that were allocated to Regulated transmission Capex activities in the indirect cost allocation process vs Regulated Opex activities was performed. These percentages were applied to the Provision movements to derive an estimate of the Capex and Opex splits. As the data is not separately captured in the Financial System. This is Management’s best estimate based on the data available.

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3.3 Assets (RAB)

The Regulated Asset Base (**RAB**) values have been prepared and reported as per AusNet Services' interpretation of the AER instructions set out in Section 4 of the RIN Instructions and Definitions (**RIN I&Ds**). Consistent with the instructions outlined in the RIN I&Ds, the AER Final Decision AusNet Services Transmission determination 2017–18 to 2021–22 (and specifically the published roll forward model) has been used as the basis for the RAB values as this is the latest AER Decision to incorporate 'Actual Information'. AusNet Transmission adopted a new accounting standard AASB 16 *Leases*. The impact of the adoption is described in the overview section of this basis of preparation. Other than the adoption of the Lease standard there has been no new accounting policies in relation to Capex (the only regulatory accounting input into the RAB) that have materially changed during the Current Regulatory Year (in comparison to prior Regulatory Years reported).

Table 3.1.1 Regulatory Asset Base Values

Variable	Information	Assumptions for Estimated Information
TRAB0101 to TRAB0107	Actual Public	n/a

The RAB values have been prepared and reported as per AusNet Transmission's interpretation of the AER instructions set out in Section 4 of the RIN I&Ds.

Preparation, Source & Methodology

Information was sourced from the AER Final Decision AusNet Services Transmission determination 2017–18 to 2021–22, the 2019 Economic benchmarking RIN and underlying workings to the Annual Regulatory Accounts.

The 2019 Economic benchmarking RIN establishes AusNet Services' opening RAB value as at 1 April 2019 on an 'As-commissioned' basis. Actual capex has been sourced from the 2019-20 Annual Regulatory Accounts and straight-line depreciation sourced from the AER Final Decision (2017–18 to 2021–22) Post Tax Revenue Model ("**PTRM**").

AusNet Services is required to roll forward its RAB using forecast straight-line depreciation in accordance with the AER's Final Decision¹. Straight-line depreciation (reported in TRAB0103), is therefore based on forecast straight-line depreciation per the AER's Final Decision 2018-22 PTRM (expressed in real \$2016-17 dollars), adjusted for actual inflation one year lagged CPI.

Table 3.2.2 Asset Value Roll Forward

The disaggregated RAB values have been prepared and reported as per AusNet Transmission's interpretation of the AER instructions set out in Section 4 of the RIN I&Ds.

AusNet Transmission has recorded assets in the RAB in asset classes that allow a direct attribution into the AER's Economic Benchmarking RAB Asset classes. The exception is that there is no split in the

¹ AER Final Decision, AusNet Services transmission determination 2017–22 - Attachment 2 - Regulatory asset base, April 2017, p.15.

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transmission RAB between overhead and underground assets. The existing disaggregated RAB consists of the following asset categories:

- Lines (Towers and Conductors)
- Transformers
- Switchgear
- Reactive
- Establishment
- Secondary
- Communications
- Land
- Easements
- Inventory
- IT
- Vehicles
- Premises
- Other (non-system)
- Equity Raising Costs (2008-13)

For each category above, opening value, Inflation addition, Straight line depreciation, Regulatory depreciation, Actual additions (recognised in RAB), Disposals and Closing value for overhead transmission asset value is determined.

Variable	Information	Assumptions for Estimated Information
TRAB0201 to TRAB0307	Estimated Public	Overhead transmission assets and Underground transmission assets is considered Estimated Information. Refer to discussion in the preparation, source, and methodology column. The information provided was estimated based on an assessment by a suitable subject matter expert (SME) and is considered Management's best estimate based on the information available. Based on the RIN Instructions and Definitions, this information is permitted to be Estimated Information on an ongoing basis.

Preparation, Source & Methodology - Estimated

Information was sourced from the AER Final Decision AusNet Services Transmission determination 2017–18 to 2021–22, the 2019 Economic benchmarking RIN and underlying workings to the 2019-20 Annual Regulatory Accounts.

Each line of the RAB information Opening value, Inflation addition, Straight line depreciation, and Regulatory depreciation, Actual additions (recognised in RAB), Disposals and Closing value for transmission asset value is aggregated as per the table below:

Benchmarking Asset Classes	RAB Asset Classes
Overhead transmission assets (wires and towers/poles etc.)	Towers and Conductors*
Underground transmission assets (cables, ducts, etc.)	Towers and Conductors*

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*To determine the split between overhead and underground assets for 2019-20, the RAB Asset Class 'Towers and Conductors' (Inflation, Straight line depreciation, Regulatory depreciation) was allocated proportionally based on their share of the 2019-20 Opening RAB values.

All additions relate to overhead transmission assets. Consistent with the prior year, Engineering assessments were used as the basis for determining the aggregation of the RAB Asset Classes into the prescribed Benchmarking Asset Classes. Straight-line depreciation reported in Table 3.3.2 is based on forecast straight-line depreciation per the AER's Final Decision 2018-2022 PTRM (expressed in real \$2016-17 dollars), adjusted for actual inflation. The allocation of depreciation from RAB Asset Class to Benchmarking Asset Classes is applied according to the above mapping table.

Variable	Information	Assumptions for Estimated Information
TRAB0401 to TRAB0707	Actual Public	n/a

Preparation, Source & Methodology - Actual

Information was sourced from the AER Final Decision AusNet Services Transmission determination 2017–18 to 2021–22, the 2019 Economic benchmarking RIN and underlying workings to the 2019-20 Annual Regulatory Accounts.

Each line of the RAB information Opening value, Inflation addition, Straight line depreciation, and Regulatory depreciation, Actual additions (recognised in RAB), Disposals and Closing value for transmission asset value is aggregated as per the table below:

Benchmarking Asset Classes	RAB Asset Classes
Substations, switchyards	Switchgear Transformers Reactive Establishment Land
Easements	Easements
Other assets with long lives (please specify)	Secondary Communications Premises Other Equity Raising Costs
Other assets with short lives (please specify)	Inventory IT Vehicles

Table 3.3.3 Total Disaggregated RAB Asset Values

Variable	Information	Assumptions for Estimated Information
TRAB0801 to TRAB0802	Estimated Public	Consistent with Table 3.3.2, the data presented in relation to Overhead transmission assets and Underground transmission assets is considered

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Variable	Information	Assumptions for Estimated Information
		Estimated Information. Based on the RIN Instructions and Definitions, this information is permitted to be Estimated Information on an ongoing basis.

Preparation, Source & Methodology - Estimated

The total disaggregated RAB values are taken directly from Table 3.3.2 and are calculated as the average of the opening and closing RAB values from Table 3.3.2.

Variable	Information	Assumptions for Estimated Information
TRAB0803 to TRAB0806	Actual Public	n/a

Preparation, Source & Methodology - Actual

The total disaggregated RAB values are taken directly from Table 3.3.2 and are calculated as the average of the opening and closing RAB values from Table 3.3.2.

3.3.4 Asset Lives

Variable	Information	Assumptions for Estimated Information
TRAB0901 to TRAB0903 and TRAB1001 to TRAB1003	Estimated Public	Data for Asset Lives is considered Estimated Information. Estimates and assumptions have been outlined below. This is Management's best estimate based on the data available. Per the RIN Instructions and Definitions, this information is permitted to be Estimated Information on an ongoing basis.

Preparation, Source & Methodology

Estimated service life of new assets

Data reported as the 'Estimated service life of new assets' is consistent with the information reported in the previous regulatory year 3.3 Assets (RAB) Template. The data reported was reviewed by a SME and no changes were required for the Current Regulatory Year.

Estimated residual service life

The 'Estimated residual service life' for TRAB1001, TRAB1002 and TRAB1003 was calculated based on data reported in Template 5.2 Asset Age. The Asset Installation dates included in Template 5.2 Asset Age were used to calculate the Average Asset Lives in each of the Asset Categories. The 'Estimated Residual Service Life' was calculated as the difference between the 'Estimated Service Life of New Assets' and the Average Asset Lives.

Variable	Information	Assumptions for Estimated Information
TRAB0904 to TRAB0905 and	Actual Public	n/a

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Variable	Information	Assumptions for Estimated Information
TRAB1004 to TRAB1005		

Preparation, Source & Methodology

Estimated service life of new assets

The 'Estimated standard service life' for TRAB0904 and TRAB0905 was calculated based on each asset category's share of the Closing RAB for the Current Regulatory Year.

Estimated residual service life

The 'Estimated residual service life' for TRAB1004 and TRAB1005 was calculated based on each asset category's share of the Closing RAB for the Current Regulatory Year.

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3.4 Operational Data

Table 3.4.1 Energy Delivery

Table 3.4.2 Connection Points

Table 3.4.3 System Demand

The above tables have not been completed as the required information is maintained by AEMO.

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3.5 Physical Assets

Table 3.5.1 Transmission System Capacities

Table 3.5.1.1 Overhead Network Length of Circuit at Each Voltage

Variable	Information	Assumptions for Estimated Information
TRA0101 to TPA0109	Actual	n/a

The overhead network length of circuit at each voltage level has been reported. The network length of circuit is the circuit length (measured in kilometres) of lines in service. A double circuit line counts as twice the length. Length does not consider vertical components such as sag.

Preparation, Source & Methodology

Information reported was sourced using a query script run in the SDME Asset Management System.

Table 3.5.1.2 Underground Cable Circuit Length at Each Voltage

Variable	Information	Assumptions for Estimated Information
TRA0201 to TPA0211	Actual Public	n/a

The underground cable circuit length at each voltage level has been reported. The underground cable circuit length is the circuit length (measured in kilometres) of lines in service. Underground cable under terminal stations is excluded from the data reported.

Preparation, Source & Methodology

Information reported was sourced using a query script run in the SDME Asset Management System.

Table 3.5.1.3 Estimated Overhead Network Weighted Average MVA Capacity by Voltage Class and

Table 3.5.1.4 Estimated Underground Network Weighted Average MVA Capacity by Voltage Class

Variable	Information	Assumptions for Estimated Information
TRA0301 to TPA0411	Actual Public	n/a

Weighted average capacities have been reported for both the overhead and underground network for each of the listed voltage classes. The data provided is based on weighted average carrying capacities under normal circumstances taking account of limits imposed by thermal ratings and voltage drop or voltage stability considerations for the longer high voltage (330 kV and 500 kV) transmission lines.

Preparation, Source & Methodology

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Overhead lines and Underground cable information was sourced from SDME for each span of transmission circuit. Data extracted included details of the conductor voltage (Volts) and current rating (Amps). The line length in kilometres (length) for each section of line was sourced from SDME for Overhead lines and Underground cable.

The weighted average was calculated based on the following methodology:

$$\frac{\text{Line 1: (length * Volts * Amps) + Line 2: (length * Volts * Amps) + Line 3: (length * Volts * Amps) etc.}}{(\text{Line 1 length} + \text{Line 2 length} + \text{Line 3 length etc.}) * 1,000,000}$$

For three phase lines each group in the numerator has also been multiplied by $\sqrt{3}$.

Eleven of AusNet Services' 500 kV and 330 kV overhead transmission lines are limited by voltage and stability constraints. The loadability of these eleven 500 kV and 330 kV transmission lines has been calculated by using an industry recognised methodology that uses the "St. Clair Curve". This methodology recognises that transmission lines that are longer than 80 km are generally limited by voltage and stability constraints rather than thermal ratings. This methodology has been agreed with AEMO and uses the following assumptions to calculate transmission line loadability based on the respective transmission line's Surge Impedance Loading (SIL):

- The loadability of transmission lines that are between 80 km and 150 km has been calculated as 2.5 times the SIL
- The loadability of transmission lines that are between 150 km and 230 km has been calculated as 2.0 times the SIL
- The loadability of transmission lines that are between 230 km and 300 km has been calculated as 1.5 times the SIL.

Loadability, instead of summer MVA thermal rating ($\sqrt{3} * \text{Volts} * \text{Amps}$), is used in the numerator of the above formula for these eleven transmission lines.

In the calculation of 66kv capacity, two lines at Templestowe Terminal Station are owned by AusNet and operated by another utility company. As such, no rating information is available, and the line length has been removed from the capacity calculation.

The actual information provided is materially dependent on information used in the normal course of business and is not contingent on judgments and assumptions for which there are valid alternatives which could lead to materially different information being reported.

The carrying capacities included in the above weighted average calculation assume all assets have summer peaking Maximum Demands, which is a reasonable assumption given summer capacity is lower as the network is more constrained during this period compared to winter.

Capacity voltage drop considerations have been considered. There are eleven 500 kV and 330 kV overhead transmission lines that cannot be operated up to their thermal ratings due to voltage and stability constraints on the transmission system. Approximate line loadability ratings have been calculated for these eleven overhead transmission lines. The methodology that has been used to calculate the capacity of the eleven 500 kV and 330 kV transmission lines that are limited by voltage or stability constraints has been agreed with AEMO and is an industry recognized methodology to estimate the loadability of longer transmission lines.

Table 3.5.1.5 Installed Transmission System Transformer Capacity and Table 3.5.1.6 Cold Spare Capacity

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Variable	Information	Assumptions for Estimated Information
TRA0501 to TPA06 <i>Except</i> TPA0504	Actual Public	n/a

Transformer capacity involved in the prescribed transformation levels has been reported. The transformer capacities reported in Table 3.5.1.5 are inclusive of Cold Spare Capacity which has been separately disclosed in Table 3.5.1.6. Data presented relates to assets providing Prescribed Transmission Services.

For each category, the summation of normal assigned continuous rating has been reported (including forced cooling or other capacity improving factors where relevant). Assigned ratings have been determined by the nameplate rating. Only regulated transformers (included in the Regulatory Asset Base) have been included. Step-up transformers at generation connection locations have been excluded. Oil insulated or cooled reactors and station service transformers which provide auxiliary AC and DC for secondary systems in terminal stations have also been excluded.

Preparation, Source & Methodology

Data for both in-service and disposed-of transformers was calculated based on prior year information used in the RIN (from the Asset Management System) adjusted for transformer movements in the Current Regulatory Year.

Movements in the Current Regulatory Year were determined based on a combination of data extracted from the SAP systems using the AusNet Services Information Management platform and the knowledge of an SME. It is noted that this data has been subject to cleansing, continuing reviews and updating over the Regulatory Years.

Variable	Information	Assumptions for Estimated Information
TPA0504	Estimate Public	As AusNet Transmission has no direct knowledge of the cooling equipment installed by these end users, these ratings should be considered estimates only.

For variable TPA0504 'Transformer capacity for directly connected end-users owned by the end-user' AusNet Transmission has used nameplate ratings records held in its own Asset Management Systems and verified them where possible with AEMO. Nonetheless, these ratings are valid only under certain assumptions with regards to cooling equipment. As AusNet Transmission has no direct knowledge of the cooling equipment installed by these end users, these ratings should be considered estimates only.

Preparation, Source & Methodology

Asset Management Systems and verified them where possible with AEMO. Nonetheless, these ratings are valid only under certain assumptions with regards to cooling equipment.

Basis of Preparation – Economic Benchmarking

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3.6 Quality of Services**Table 3.6.1 Service Component****Table 3.6.1.1 Service Parameter 1 – Average Circuit Outage Rate (referred as Unplanned outage circuit event rate in V5)**

Variable	Information	Assumptions for Estimated Information
TQS0101 to TQS0115	Actual Public	n/a

'Outage' means 'loss of connection' rather than loss of supply by a connected system or customer. To allow summation into an overall Average Circuit outage rate, both numerator (number of events with defined circuits unavailable per annum) and denominator (total number of defined circuits) have been provided as well as the calculated percentage rate for each item.

The parameter variables TQS0101 to TQS02 have been provided based on a calendar year (from 1 January 2018 to 31 December 2018) as STPIS performance reporting is undertaken on a calendar year basis.

Preparation, Source & Methodology

Unplanned outages on Assets and the corresponding outage data is recorded in the Asset Management System and periodically included in internal reports and AER submissions. The reports from the Asset Management System were reviewed and amended to align with requested information (e.g. unregulated asset information excluded). The data reported aligns with the AER's decision on 2018 STPIS performance as confirmed in email correspondence received from the AER dated 26 March 2019. We are still waiting for an official letter from the AER conveying its final decision.

The reported 'Number of lines fault outages' (TQS0102) and 'Number of defined lines' (TQS0103) was used to calculate the 'Lines outage rate – fault' (lines event rate – fault) percentage (TQS0101).

The reported 'Number of Transformer fault outages' (TQS0105) and 'Number of defined Transformers' (TQS0106) was used to calculate the 'Transformers outage rate - fault' (transformer event rate – fault) percentage (TQS0104).

The reported 'Number of Reactive plant fault outages' (TQS0108) and 'Number of defined reactive plant' (TQS0109) was used to calculate 'Reactive plant outage rate - fault' (reactive plant event rate – fault) percentage (TQS0107).

The reported 'Number of defined lines' (TQS0103) and 'Number of Lines forced outages' (TQS0111) was used to calculate the 'Lines outage rate – forced outage' (lines event rate – forced) (TQS0110).

The reported 'Number of defined Transformers' (TQS0106) and 'Number of Transformers forced outages' (TQS0113) was used to calculate the 'transformer outage rate – forced outage' (transformer event rate – forced) (TQS0112).

The reported 'Number of defined reactive plant' (TQS0109) and 'Number of reactive plant forced outages' (TQS0115) was used to calculate 'Reactive plant outage rate – forced outage' (reactive plant event rate – forced) (TQS0114).

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Data presented relates to assets providing Prescribed Transmission Services.

Table 3.6.1.2 Service Parameter 2 – Loss of Supply Event Frequency – Number in Ranges Specified

Variable	Information	Assumptions for Estimated Information
TQS0116 to TQS0131	Actual Public	n/a

The loss of supply event frequency thresholds of 0.05 and 0.30 system minutes per annum have been applied based on the AER Transmission Network Service Provider (**TNSP**) STPIS. The data reported aligns with the AER's decision on 2018 STPIS performance as confirmed in email correspondence received from the AER dated 26 March 2019. We are still waiting for an official letter from the AER conveying its final decision.

Preparation, Source & Methodology

The required parameters were obtained from the AER TNSP STPIS. Information reported was based on data reported in the annual AER 2018 Transmission Service Standard Compliance Report which was ultimately sourced from the Asset Management System.

Table 3.6.1.3 Service Parameter 3 – Average Outage Duration

Variable	Information	Assumptions for Estimated Information
TQS0118	Actual Public	n/a

Preparation, Source & Methodology

Average Outage Duration was derived by performing a simple average calculation of the total number of minutes for outages divided by the number of outages which caused loss of supply. The data reported aligns with the AER's decision on 2018 STPIS performance as confirmed in email correspondence from the AER dated 26 March 2019. We are still waiting for an official letter from the AER conveying its final decision.

Table 3.6.1.4 System Parameter 4 – Proper Operation of Equipment – Number of Failure Events

Variable	Information	Assumptions for Estimated Information
TQS0119 to TQS0121	Estimated Public	<p>The number of material failures of SCADA system (TQS0120) is considered Estimated Information as it is based on data provided by AEMO and is not materially dependent on information recorded in AusNet Services' records used in the normal course of business.</p> <p>In relation to 'Incorrect operational isolation of primary or secondary equipment' (TQS0121), Incorrect operational isolation is defined in the AER TNSP STPIS as incidents "irrespective of whether an outage occurred". AusNet Services does not capture incidents where no outage results. Based on this, the number of incidents of Incorrect operational isolation of primary or secondary equipment which resulted in an outage</p>

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Variable	Information	Assumptions for Estimated Information
		has been used as a proxy for the data requested. Therefore, the information provided is considered Estimated Information, which is Managements best estimate.

Preparation, Source & Methodology

'Failure of protection system' (TQS0119) and 'Incorrect operational isolation of primary or secondary equipment' (TQS0121): Information on system incidents was extracted from the Asset Management System. A detailed analysis was performed of this information and based on this review, the relevant data requested was captured and summed.

'Material failure of Supervisory Control and Data Acquisition (**SCADA**) system (TQS0120): Information in relation to material SCADA failures was obtained directly from AEMO.

Table 3.6.2 – Market Impact Component

Variable	Information	Assumptions for Estimated Information
TQS02	Actual Public	n/a

Quality of services is reported in accordance with the definitions specified in the October 2015 TNSP STPIS (version 5 - corrected) document per the AER RIN Instructions and Definitions and validated by the AER's template spreadsheet.

Preparation, Source & Methodology

Data reported was sourced from AEMO's Markets Management System using software packages (e.g. Ez2View provided by Global Roam). The cause of each constraint was manually allocated including outages caused by AusNet Services. Exclusions are claimed by AusNet Services and granted by the AER through interpretations of the STPIS. Version 5 has an unplanned outage cap that further limits the number of dispatch intervals.

Table 3.6.3 System Losses

Variable	Information	Assumptions for Estimated Information
TQS03	Actual Public	n/a

System losses (TQS03) were calculated as the difference between electricity inflows and outflows as a percentage of electricity inflows.

Electricity inflows is the total electricity inflow into the transmission network including from generation, other connected TNSPs at the connection point, and connected Distribution Network Service Providers as measured by revenue meters.

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Electricity outflows is the total electricity outflow into the networks of connected distribution network service providers, other transmission networks and directly connected end-users as measured by revenue meters.

Preparation, Source & Methodology

Data metering systems collect and process energy metering data for all terminal stations. At each terminal station, the total cumulative received energy (inflows) and transferred energy (outflows) in Watt hour (**Wh**) associated with connections are collected and recorded in Data Metering Systems.

Using this information, the System Loss percentage was calculated for the Calendar Year (required by the AER template) by calculating the difference between inflows and outflows for the months January 2019 December 2019 and dividing by the total inflows for this same period.

Information captured and reported relates to both the Regulated and Unregulated Network. The methodology used to calculate the losses associated with the supply of electricity through AusNet Services' electricity transmission network is outlined in SOP35-20 Transmission Network Energy Loss.

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3.7 Operating Environment

Table 3.7.1 Terrain Factors

Variable	Information	Assumptions for Estimated Information
TEF0101	Actual Public	n/a

'Total number of maintenance spans' is the total count of spans (e.g. segments) in the network that are subject to active vegetation management practices in the Current Regulatory Year. Active vegetation management practices do not include inspection of vegetation maintenance segments.

Preparation, Source & Methodology

Information in relation to the total number of vegetation maintenance spans was sourced from a report generated in SAP. This report includes information such as Network, Feeder, Segments Assessed (disaggregated into P1, P30, P90, P180, P365, P900, P6Y), Segments Actioned (disaggregated into the P classifications), and Segments Cut (disaggregated into the P classifications). The 'P' represents the number of days that action needs to be taken by for a segment e.g. a P365 segment is where vegetation maintenance is required within the next 365 days on that segment. Therefore, the report details actions that have been taken for each type of segment within the selected dates.

The report was pivoted to calculate the Operating Environment table variables. The total count of segments in the network that are subject to active vegetation management practices are represented by the 'Cut' columns in the report (i.e. 'Assess' columns includes number of inspections, therefore, is not compliant with the RIN requirements). A count of all Cut P1, P30, P90, P180, P365, P900 and P6Y segments was determined via a pivot table.

The maintenance segments reported include only segments subject to action/cutting rather than inspection or assessment only, therefore meeting the RIN requirements.

Variable	Information	Assumptions for Estimated Information
TEF0102	Actual Public	n/a

Maintenance span cycle refers to the planned number of years (including fractions of years) between which cyclic vegetation maintenance is performed for the relevant area.

Preparation, Source & Methodology

Information in relation to the average vegetation maintenance span cycles was obtained from the vegetation management plan whereby 3 patrols are conducted per annum, with an aim to clear segments on a 3-year cycle.

Variable	Information	Assumptions for Estimated Information
TEF0103	Estimated	The information provided is considered an estimate as the average was calculated based on the maintenance spans with recorded data from the

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Variable	Information	Assumptions for Estimated Information
	Public	2017 Regulatory Year. This represents approximately 33% of the total Number of Maintenance Spans. Based on the RIN Instructions and Definitions, this information is permitted to be Estimated Information on an ongoing basis.

The ‘average number of trees per maintenance span’ includes only trees that require active vegetation management to meet its vegetation management obligations. It excludes trees that only require inspections and no other vegetation management activities required to comply with AusNet Transmission’s vegetation management obligations.

Preparation, Source & Methodology

Vegetation Management field staff manually record the number of trees to be actioned (P1, P30, P90, P180, P365, P900 and P6Y) in each segment, into an excel spreadsheet. System analysts calculated the average number of actioned trees per maintenance segment across the HBRA and LBRA areas in Urban and Rural areas.

Variable	Information	Assumptions for Estimated Information
TEF0104	Actual Public	n/a

Defects are defined as any recorded incidence of non-compliance with vegetation clearance standards. Defects on a vegetation segment are recorded as one, regardless of the number of defects on the segment.

Preparation, Source & Methodology

Information to calculate the average number of defects per vegetation maintenance segment was extracted from SAP. The total number of defects was calculated as the number of P1 and P30 Cut segments as per the Report extracted from SAP. To calculate the average number of defects, the total number of defects was divided by the number of vegetation maintenance segments (i.e. spans).

Variable	Information	Assumptions for Estimated Information
TEF0105	Actual Public	n/a

Tropical spans are the approximate total number of urban and rural Maintenance Spans in the Hot Humid Summer and Warm Humid Summer regions as defined by the Australian Bureau of Meteorology Australian Climatic Zones map (based on temperature and humidity).

Preparation, Source & Methodology

There are no Tropical Spans in AusNet Transmission’s Maintenance Spans.

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Variable	Information	Assumptions for Estimated Information
TEF0106	Estimated Public	Data provided is considered Estimated Information as the information required was not separately captured by the existing systems. The estimation process as described is considered Management's best estimate of the data required based on the information available.

Standard vehicle access refers to areas which are serviced through made roads, gravel roads and open paddocks (including gated and fenced paddocks). This relates to segments that can be accessed by a vehicle.

Preparation, Source & Methodology

Segments, other than those which were actioned by non-standard and no vehicle access, have standard vehicle access.

The percentage of segments which were actioned by Standard Vehicle Access, was calculated using AusNet Services Vegetation Management System (Distribution). This identified the priority segments (P1, P30, P90, P180, P365, P900 and P6Y) and how many Standard Vehicle Access to action during the Regulatory Year. This figure was divided by the total priority segments and converted into a percentage.

The following calculation was performed: (Standard Vehicle Access percentage in Distribution) multiplied by the Transmission overhead route line length in kilometres. This determined standard vehicle access.

Variable	Information	Assumptions for Estimated Information
TEF0107	Actual Public	n/a

Altitude is the route line length 600 meters above sea level.

Preparation, Source & Methodology

Information in relation to altitude was obtained by reviewing profile drawings and PLS-Cadd line terrain models to identify levels for tower bases at the start and end of route sections above 600 meters above sea level.

Variable	Information	Assumptions for Estimated Information
TEF0108	Actual Public	n/a

Bushfire risk is the number of Maintenance Spans in high bushfire risk areas.

Preparation, Source & Methodology

An 'IW64 report' was generated in SAP which shows the fire zone each maintenance spans is recorded in. The number of HBRA spans were then combined to yield the total maintenance spans in HBRA.

Table 3.7.2 Network Characteristics

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Variable	Information	Assumptions for Estimated Information
TEF0201 and TEF0204	Actual Public	n/a

The Route Line Length is the aggregate length in kilometres of lines, measured as the length of each conductor span between poles and/or towers and does not include vertical components such as line sag. Each easement span is considered only once irrespective of how many circuits it contains.

Preparation, Source & Methodology

The Route Line Length reported includes both Overhead Route Line Length and Underground Route Line Length.

Underground Route Line Length data was sourced directly from SDME.

Information in relation to Overhead Route Line Length and Total Number of Spans was obtained from the SDME Asset Management System. The data extracted provided wire segment and functional location information. Using the coordinates of in-service towers, Overhead Route Line Length was determined. Based on this data, the number of spans was calculated.

Variable	Information	Assumptions for Estimated Information
TEF0202 and TEF0203	Actual Public	n/a

The data is maintained by AEMO and is not required to be disclosed by AusNet Transmission.