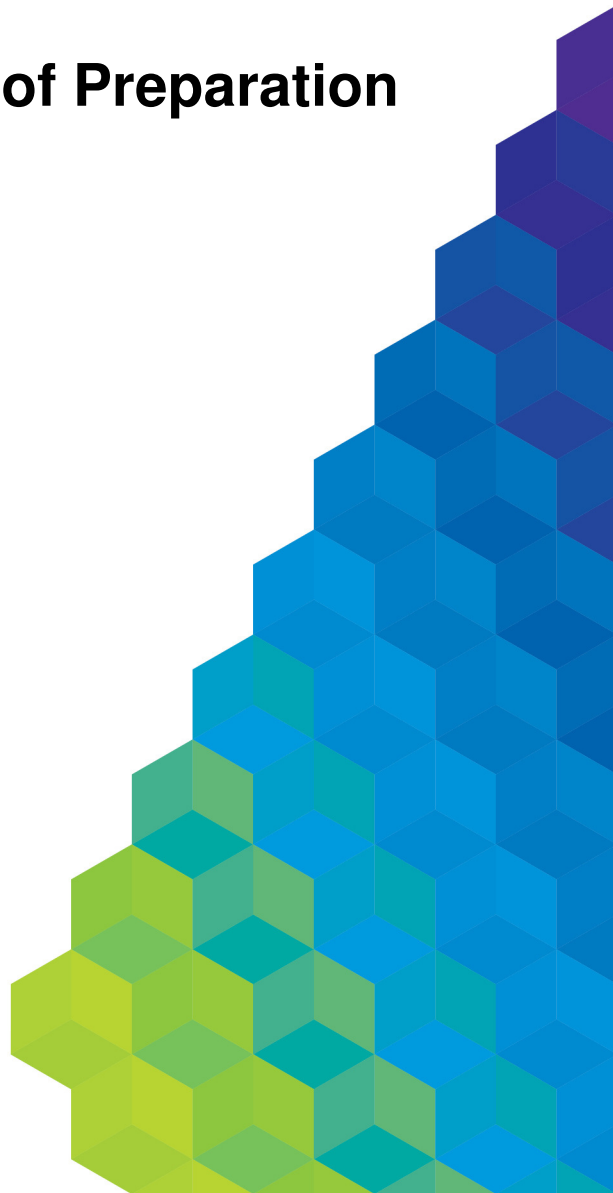
AusNet Transmission Group Pty Limited

AER Category Analysis
Regulatory Information Notice

2018 Regulatory Year Basis of Preparation



1. Overview

This Basis of Preparation document supports the preparation and reporting of the 2018 Regulatory Year data presented in AusNet Transmission Group Pty Limited's ("AusNet Transmission" or the "Company") reports entitled '2017-18 AusNet Services Category Analysis - Actual Information', '2017-18 AusNet Services Category Analysis - Estimated Information', '2017-18 AusNet Services Category Analysis - Consolidated Information' and 'Other Supporting Information' ("the Reports"). The Reports provide data solely for the use of the Australian Energy Regulator ("the AER") to perform category analysis 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 7 March 2014 and other authoritative pronouncements of the AER.

Some information required in the reports is 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 not provided any details in relation to the Basis of Preparation of these variables.

AusNet Transmission's 2018 Regulatory Year is the period 1 April 2017 to 31 March 2018 ("Regulatory Year"). Data included in the Reports has been reported for the 2018 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 of the Company is AusNet Services Ltd. The AusNet Services' Group owns and operates 3 regulated networks – an electricity distribution network, a gas distribution network and an electricity transmission network, as well as unregulated businesses. Employees of the AusNet Services Group work across the networks/businesses and there are shared costs, overheads and other corporate costs that cannot be directly allocated to a particular network or business. These costs are proportioned amongst AusNet Services' 3 regulated networks, as well as unregulated businesses, based on an Activity Based Costing ("ABC") survey process. An ABC survey is completed by all cost centre managers on a monthly basis - in accordance with AusNet Services' Cost Allocation Methodology ("CAM").

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.

Based on the RIN instructions and other supplementary guidance received from the AER, AusNet Services must report all variables as 'Actual Information', unless it is unable to do so.

'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 taken into account 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.

Based on the RIN instructions and other supplementary guidance received from the AER, in circumstances where AusNet Transmission is unable to provide 'Actual Information', the information is required to be 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. Based on supplementary guidance received from 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 and why the estimate is AusNet Transmission's best estimate have also been set out below. On this basis, AusNet Transmission considers data provided is in compliance with 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. There were no changes in Accounting Policies in the 2018 Regulatory Year (in comparison with the previous Regulatory Year) which 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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2.1 Expenditure Summary

Capital Expenditure ("Capex") reported is the capital costs and capital construction costs of operating the network and relates to prescribed transmission services ("PTS") only.

Operating Expenditure ("Opex") reported is the costs of operating and maintaining the network (excluding all Capex) and relates to PTS only.

Table 2.1.1 Prescribed transmission services Capex (as incurred) and
Table 2.1.2 Prescribed transmission services Opex

Preparation Methodology:

The information reported was prepared using Capex and Opex data extracted from the SAP Financial System and also from the workings to the other RIN Templates. The expenditure in the Capex and Opex categorisations in Table 2.1.1 and Table 2.1.2 is mutually exclusive and collectively exhaustive.

Amounts reported for Replacement expenditure, Connections, Non-network, Vegetation Management and Maintenance relate to direct costs only and excludes expenditure on overheads. Total Capex and Opex have been reported on an 'as incurred' basis. All expenditure has been presented in nominal dollars.

Amounts reported as Replacement Expenditure and Connections Capex do not reconcile to Templates 2.2 Repex and 2.5 Connections, as data in these Templates is reported on a 'project close' basis.

Augmentation expenditure has been left blank as the required information is captured by the Australian Energy Market Operator ("AEMO").

The 'balancing items' represent the differences between expenditure included in the Annual Regulatory Accounts which doesn't meet the definitions of data requested in the Category Analysis templates and expenditure included in the Category Analysis templates which are not required to be reported in the Annual Regulatory Accounts (for example, Connection projects).

Estimated Information:

The information reported is considered Actual Information as no estimates were required.

2.2 Repex

Replacement Expenditure ("Repex") is the non-demand driven Capex to replace an asset with its modern equivalent where the asset has reached the end of its economic life. Capex has a primary driver of replacement expenditure if the factor determining the expenditure is the existing asset's inability to efficiently maintain its service performance requirement.

Asset Failure (Repex) is the failure of an asset to perform its intended function safely and in compliance with jurisdictional regulations, not as a result of external impacts such as:

- extreme or atypical weather events; or
- third party interference, such as traffic accidents and vandalism; or
- wildlife interference, but only where the wildlife interference directly, clearly and unambiguously influenced asset performance; or
- vegetation interference, but only where the vegetation interference directly, clearly and unambiguously influenced asset performance.

It excludes planned interruptions.

Asset refurbishments/ life extension Capex is the non-demand driven Capex to restore an asset to its former functionality where the asset has reached the end of its economic life. The works undertaken must result in a material extension in the expected life of the asset.

The following definitions have been applied in the preparation of the data:

Asset Type	Definition
Transmission towers	These are vertically oriented assets that provide load bearing structural support for conductors or other lines assets. This also includes associated transmission tower support structures, insulators, earthing, footings, where these are replaced in conjunction with a transmission tower replacement project. It excludes any assets that are included in any other asset group.
Transmission Tower Support Structures	These are horizontally oriented structures and their components that provide support for conductors or other line assets to be located on a transmission tower and provide adequate clearances. This expenditure relates to that which TNSPs incur when transmission tower support structures are replaced independently of the transmission tower they are located on. This includes tower section, arms, insulators, earthing. It excludes any assets that are included in any other asset group.
Conductors	These assets have the primary function of transmitting power, above ground, within the transmission network. It excludes any assets that are included in any other asset category.
Single circuit configuration	A single circuit configuration is a transmission line that has one set of conductors that are operated as a single electrical circuit. However, for the purposes of this definition, where a line has been constructed as a multi-circuit line but operates as a single circuit line, it should be included as a multi-circuit line.
Multiple circuit configuration	A multiple circuit configuration is a transmission line that includes more than one electrical circuit.
Transmission cables	These assets have the primary function of transmitting power, below ground, between segments of the network. This includes the material primarily used to transmit the power and cable ends, joints, terminations and associated hardware and equipment (e.g.

	surge diverters, etc.), cable tunnels, ducts, pipes, pits and pillars. It excludes any assets that are included in any other asset group.
Substation switchbays	These are all assets used to provide switching within the substation and includes disconnect switches, circuit breakers, current transformers, voltage transformers and associated busbars and steelwork. It excludes any assets that are included in any other asset group.
Circuit breaker	A switch that can open under fault current conditions to protect equipment and electrical circuits from damage.
Gas Insulated Switchgear Unit	Enclosed gas insulated switchgear that may comprise circuit breakers, disconnectors, isolators, and other gas insulated components.
Substation power transformers	These are assets used to transform between voltage levels within segments of the network. This includes all its components such as the cooling systems and tap changing equipment. It excludes any assets that are included in any other asset group. For the avoidance of doubt, this does not include instrument transformers as defined in the National Electricity Rules.
Substation reactive plant	These are assets used to support the transfer of real power across the network. This includes reactors, synchronous condensers, shunt capacitors, static VAR compensators, dynamic VAR compensators. It excludes any assets that are included in any other asset group.
SCADA and Network Control and Protection systems replacement	Replacement expenditure associated with SCADA and network control hardware, software and associated IT systems. Includes replacement of protection and control systems and communication systems. This excludes all costs associated with SCADA and Network Control Expenditure that exist within gateway devices (routers, bridges etc.) at corporate offices. A protection system has the meaning prescribed in the National Electricity Rules.

Table 2.2.1 – Replacement Expenditure, Volumes and Asset Failures by Asset Category

Replacement expenditure and volumes have been provided for the prescribed standardised asset categories. Capex and associated non-financial information has been reported against the Regulatory Year on a 'project close' basis.

Financial Information

Expenditure reported relates to costs directly attributable to replacement/refurbishment of the asset and excludes expenditures on Overheads. All Capex has been presented in nominal dollars.

Preparation Methodology:

Financial information was sourced from the SAP Financial System.

Multiple SAP reports were generated showing all completed projects in the Transmission business. Using work codes, replacement projects were identified. A report was then generated in SAP which provided the life to date direct costs of the replacement projects and a Fixed Asset report was generated showing all assets (life to date) commissioned. Projects which were confirmed as complete by projects managers were also added to the list of projects commissioned.

The Fixed Asset report provided the disaggregation of costs between the relevant Asset Types – Secondary, Communications, Switchgear, Transformers, Reactive, Transmission Lines, Establishment,

Network Switching Centre, Easements, Land and Non-system. This information was provided to a subject matter expert ("SME") who reviewed the data and where necessary amended classifications or cost allocations.

It is noted that some projects were listed as closed in previous RIN submissions but have subsequently incurred additional post-commissioning expenditure. The additional expenditure incurred on these projects has been disclosed in Template 2.2.

Estimated Information:

Financial information reported is considered Actual Information based on the approach outlined above.

Non-Financial Information

Asset replacements are the replacement of a complete asset in each Asset Category except the 'Other' categories. Asset replacements reported in the 'Other' categories are replacement/refurbishment of components and replacement of assets in the Asset Group that do not fit the description of one of the defined Asset Categories.

Asset failures are the failure of an asset to perform its intended function as described in the AER RIN Instructions and Definitions. Failures reported represent only those assets where failures resulted in replacement.

Preparation Methodology:

For the 2018 Regulatory Year, the Asset Replacement quantity data was sourced from SAP.

Using a combination of data from the SAP Fixed Asset Register, historical or average unit rates used in the business and/or a review of business cases by SMEs, the Asset Replacement quantities were determined and assigned to the respective AER asset category.

Asset Failure data was sourced from the list of replacement projects which were completed in the 2018 Regulatory Year. Information sourced included Project details, notification number and cost of notification. Notifications relate to incident reports are created in the Asset Management System when a fault or system incident occurs. Each notification is connected to a specific asset in SAP. This data was reviewed and the project unit rate (total project costs divided by quantities of assets replaced) was applied to the value of the notification to derive the quantity of replacements due to failure (over the life of the project). Asset Categories for failures were aligned to the SME determined categories for Replacement Quantities.

Estimated Information:

Asset replacements and Asset Failures are considered Estimated Information based on the approach outlined above. Data reported is considered Management's best estimate, based on information available.

Table 2.2.2 – Selected Asset Characteristics

The total volume of assets currently in commission and the replacement volumes of certain asset groups by specified aggregated metrics have been provided. MVAr refers to reactive capacity.

Preparation Methodology:

Conductor material type:

Using a report from SAP; ACSR, AAAC and AAC volumes were identified.

- The value of OP Ground Wire was extracted from 5.2 Asset Age Profile (ultimately sourced from the SDME asset management system).
- The remainder of the Total volume of conductors were allocated between asset categories (Steel Ground Wire and ACSR Ground Wire) based on the proportion of the 2016 Regulatory Year asset breakdown.

Asset replacements were obtained from the Asset Replacements in Table 2.2.1 and allocated into categories by an SME. There were no quantities to report in 2018 Regulatory Year for Conductor.

Substation reactive plant:

Data reported as the 'Reactive Capacity' Volumes Currently in Commission is based on the capacity by equipment report. The capacity information was sourced from SAP and mapped to the list of equipment to be reported for 2018 Regulatory Year. This list was further filtered to reflect the Regulatory asset volumes.

There were no quantities to report as Asset replacements for 2018 Regulatory Year.

Estimated Information:

The Asset volumes data included for Conductors and Substation reactive plant in Table 2.2.2 is considered Actual Information, no estimate were required.

Asset replacements are considered Estimated Information as they were extracted from Table 2.2.1 which is Estimated Information.

2.3 Augex

Table 2.3.1 — Augex asset data - Substations
Table 2.3.2 — Augex asset data - Lines
Table 2.3.3 — Augex data - total expenditure

The above tables have not been completed as the required network augmentation information is captured by AEMO.

2.5 Connections

Connections expenditure, connection rating and connection voltage have been reported for all Transmission Terminal Stations where complex connection projects have been installed. Data provided relates to prescribed connection services (as defined in the National Electricity Rules) only and excludes negotiated connection services and contestable works. AEMO connection projects have been excluded.

Expenditure reported is nominal direct Capex and excludes expenditure on Overheads and Capitalised Finance Charges. Capex and the associated non-financial information have been reported against the Regulatory Year on a 'project close' basis - i.e. against the year in which the project was completed.

Connection rating (MVA) is the normal cyclic rating and Connection voltage (KV) is the Nominal voltage.

Table 2.5.1 Expenditure on Connection Projects

Preparation Methodology:

A capex report was obtained which provided a list of all Capex projects which incurred expenditure during the 2018 Regulatory Year. This report included project number details and work codes. Using work codes, a list of all connections projects was obtained. For these projects, a report was generated in SAP which provided project status information. Projects with a "Closed" or "TECO" status were identified (to captures completed projects).

The above list of projects was then assessed by an SME to determine whether projects met the prescribed definition of Connections projects. Once the projects were identified as per above, life to date costs associated with these projects were extracted using the SAP Analysis tool. This provided the Direct Labour and Direct Material costs for inclusion in Table 2.5.1.

Estimated Information:

Direct Labour and Material costs are considered Actual Information as information was extracted directly from the Financial System and no estimates or adjustments were required.

Table 2.5.2 Description of Connection Projects

Preparation Methodology:

Information in relation to the Connection Voltage, Underground/Overhead and Year of Connection Project Completion was obtained from the SAP, Stations Rating Systems and the Engineering Enquiry System.

The Regulatory Year that each connection project was completed is noted in the column 'Year of Connection Project Completion'.

Information in relation to the Connections Rating for transformer connection projects, new switchyard bays and extensions, and protection changes and upgrades on feeders and lines were obtained as follows:

1. For transformer connection projects, the MVA rating of the transformer was used.
2. For new switchyard bays and extensions, the MVA rating of the bay was used.

3. In relation to projects involving distribution business connections, any augmentations done to existing protection schemes, and any feeder rearrangements, do not change the MVA ratings of the primary assets.

Table 2.5.2 only allows each project to be designated as either an 'Overhead' or 'Underground' connection. For projects which display both characteristics, an analysis was performed to determine which characteristic was more predominant; and the choice to allocate each project as either an 'Overhead' or 'Underground' connection was based on this predominance.

Estimated Information:

Information is considered Actual Information as no estimates were required.

2.6 Non-network

Non-network expenditure reported relates to direct Opex and direct Capex costs only (i.e. only costs directly attributable to the prescribed expenditure categories) and excludes expenditures on Overheads. Capex and associated non-financial information has been reported against the Regulatory Year on an 'as incurred' basis. All Capex and Opex have been presented in nominal dollars.

Table 2.6.1 Non-network Expenditure

IT and Communications Expenditure

Non-network IT & Communications Expenditure which is directly attributable to IT and communications assets including replacement, installation, operation, maintenance, licensing, and leasing costs at corporate offices have been reported. All costs associated with SCADA and Network Control Expenditure that exists beyond gateway devices has been excluded. Expenditure reported has been allocated between 'Client Devices', 'Recurrent' and 'Non-recurrent Expenditure'.

Client Devices Expenditure is expenditure related to a hardware device that accesses services made available by a server. Client Devices Expenditure includes hardware involved in providing desktop computers, laptops, tablets and thin client interfaces and handheld end user computing devices including smart phones, tablets and laptops.

Recurrent expenditure is all IT & Communications Expenditure that returns time after time, excluding any expenditure reported as Client Devices Expenditure. Temporally, expenditure that would be expected to be reasonably consistent from regulatory period to regulatory period would be recurrent expenditure.

Non-recurrent expenditure is all IT & Communications Expenditure that is not Recurrent expenditure excluding any expenditure reported under Client Devices Expenditure.

Non-network IT & Communications Expenditure has been split between Capex and Opex.

Preparation Methodology:

Opex:

Total IT Opex relating to PTS was from SAP. The data was analysed by an SME and the Non-recurrent operating costs identified. The Recurrent portion was calculated by deducting this non-recurrent portion from the Total PTS IT and Communications Expenditure.

Capex:

Data was obtained from the 2018 Annual Regulatory Accounts and the supporting working files which include a list of projects and the associated financial information (excluding overheads). An appropriate SME performed an assessment of the nature of each of the projects (recurrent expenditure, non-recurrent expenditure or client device expenditure) and based on this assessment, the expenditure was classified into the prescribed categorisations in Table 2.6.1. The allocations are performed at a project level (i.e. whether the project is recurring). Where a project has been split between recurrent and non-recurrent, this was based on the approved Transmission Revenue Reset and is not considered to represent Estimated Information.

Estimated Information:

Whilst total IT Opex is Actual Information, the split of IT Opex into Recurrent and Non-Recurrent is considered Estimated Information based on the approach outlined above.

All other information reported is considered Actual Information as no estimates were required.

Motor Vehicles

Motor Vehicle Expenditure is all expenditure directly attributable to motor vehicles including: purchase, replacement, operation and maintenance of motor vehicles assets registered for use on public roads, excluding mobile plant and equipment. It excludes expenditure on vehicles not generally moved large distances on public roads under their own power.

The following definitions have been applied to determine the categorisation of motor vehicles:

Car	Cars are Motor Vehicles other than those that comply with the definition of Light commercial vehicle, Heavy commercial vehicle, or Elevated Work Platform. Motor Vehicles are any motor vehicle registered for use on public roads excluding motor vehicles not generally moved large distances on public roads under their own power (e.g. tractors, forklifts, backhoes, bobcats and any other road registered mobile plant).
Heavy Commercial Vehicle (HCV)	Heavy commercial vehicles (HCVs) are Motor Vehicles that are registered for use on public roads excluding Elevated Work Platform (HCVs) that: ➢ have a gross vehicle mass greater than 4.5 tonnes; or ➢ are articulated Vehicles; or ➢ are buses with a gross vehicle mass exceeding 4.5 tonnes.
Light Commercial Vehicle (LCV)	Light commercial vehicles (LCVs) are Motor Vehicles that are registered for use on public roads excluding Elevated Work Platforms that: ➢ are rigid trucks or load carrying vans or utilities having a gross vehicle mass greater than 1.5 tonnes but not exceeding 4.5 tonnes; or ➢ have cab-chassis construction, and a gross vehicle mass greater than 1.5 tonnes but not exceeding 4.5 tonnes; or ➢ are buses with a gross vehicle mass not exceeding 4.5 tonnes.
Elevated Work Platform (EWP - HCV)	Elevated Work Platform (EWP - HCV) are HCV's that have permanently attached elevating work platforms.
Elevated Work Platform (EWP - LCV)	Elevated Work Platform (EWP - LCV) are LCV's that have permanently attached elevating work platforms.

Preparation Methodology:

Opex:

For the 2018 Regulatory Year, a report was generated from the Fleet System showing the total Motor Vehicle Opex. The report provides operating expenditure for each motor vehicle and specifies vehicle type. Vehicle types were aggregated into the prescribed categories in Table 2.6.1 to determine total Opex by vehicle type.

A report was generated in SAP to determine the amount of motor vehicle PTS Opex in Transmission (post-ABC Survey capitalisation). The total Opex Motor Vehicle report (discussed above) was scaled down proportionately by vehicle type to match the PTS Opex amount.

Capex:

A fixed asset additions list was generated in the Financial System (fixed asset register) which provided details of all motor vehicles acquired during the 2018 Regulatory Year. A motor vehicle report was generated from the Fleet System which provided additional information regarding the motor vehicle type of vehicles purchased. Using the additional Fleet System data, the fixed asset register information was allocated into the prescribed vehicle categorisations. Only vehicles relating to the Transmission business were included.

Estimated Information:

The information provided in relation to Motor Vehicle Capex is considered Actual Information.

Opex Data reported for Motor Vehicle is considered Estimated Information due to the estimation of the percentage of expenditure which relates to PTS use. Estimation is required as the data is not is captured by vehicle type in the Financial or Fleet Systems.

This is considered Management's best estimate based on the data available.

Buildings and Property Expenditure

Expenditure directly attributable to non-network buildings and property assets has been reported, including the replacement, installation, operation and maintenance of non-network buildings, fittings and fixtures. It includes expenditure related to real chattels (e.g. interests in land such as a lease) but excludes expenditure related personal chattels (e.g. furniture).

Preparation Methodology:

Opex:

A detailed Income Statement report was extracted from the Financial System for the 2018 Regulatory Year's based on Buildings and Property cost centres. An analysis was performed of the General Ledger accounts in the Income Statement to determine whether the costs incurred were in accordance with the Buildings and Property definition prescribed by the AER. Expenditure not directly attributable to the replacement, installation, operation and maintenance of non-network buildings, fittings and fixtures was excluded. The relevant costs were summed for the 2018 Regulatory Year and reported in Table 2.6.1. In

addition, Taxes and Charges Opex per the Regulatory Accounts was included, as this represents additional Building and Property Opex (e.g. Land Tax) per the Financial System.

Capex:

Project reports were generated from the Financial System (excluding overheads) using the relevant Buildings and Property work codes and cost codes. The reports were reviewed for any expenditure on projects which met the definition of Buildings and Property expenditure. Projects which did not meet the definition were included in 'Other Expenditure' as described below.

Estimated Information:

The information provided in relation to Buildings and Property Opex and Capex is considered Actual Information as it was extracted from financial records.

Other Expenditure

Other Expenditure consists of expenditure directly attributable to the following:

- Motor Vehicles which are not reported within Motor Vehicles Expenditure as per above (e.g. trailers)
- Buildings and Property which is not reported within Buildings and Property Expenditure as per above, such as personal chattels (e.g. furniture); and
- Other general assets.

Preparation Methodology:

When determining the Motor Vehicle expenditure which meets the AER prescribed definitions, 'other' motor vehicle expenditure was identified.

When determining the Buildings and Property expenditure which meets the AER prescribed definitions, 'other' building and property expenditure was identified.

Using data extracted from the Financial System for the preparation of the Annual Regulatory Accounts, Other General Assets information was calculated. All expenditure reported relates to direct costs only.

Estimated Information:

The information provided in relation to Other Opex and Capex is considered Actual Information.

Other Expenditure – Tools and Equipment

As $1 million or less (nominal) in capital expenditure has been incurred in the 2018 Regulatory Year for Tools and Equipment, this has not been disclosed separately. Tools and Equipment relates to miscellaneous tools, equipment and office furniture.

Preparation Methodology:

Using data extracted from the Financial System for the preparation of the Annual Regulatory Accounts, total Tools and Equipment Expenditure was calculated. Expenditure reported relates to direct costs only.

Estimated Information:

The information provided in relation to Tools and Equipment Capex is considered Actual Information.

Table 2.6.2 Annual Descriptor Metrics – IT & Communications Expenditure

Employee Numbers

Employee numbers are the average number of employees engaged in prescribed transmission services work over the year scaled for time spent on prescribed transmission services ("PTS") work. This metric does not include labour engaged under labour hire agreements.

Preparation Methodology:

A report showing the number of full time employees and equivalents (by month) was generated in the HR/Payroll System. This report included information in relation to the 2018 Regulatory Year and provided Employee Numbers in total across all AusNet Services' businesses.

Using Activity Based Costing ("ABC") surveys, the headcount report was allocated between Distribution Regulated, Transmission Regulated (PTS) and Unregulated. The information from ABC surveys has been applied to all employees in a cost centre, assuming that the survey results are applicable to employees who are directly involved in projects as well as those that are not directly involved in projects. The March 2018 ABC survey was to derive an estimate of the Employee Numbers for the 2018 Regulatory Year.

Estimated Information:

The data reported is considered Estimated Information due to the assumptions involved in the percentage allocations as described above. An estimate was required as the information is not separately captured by the business.The information provided is considered Management's best estimate given the data available.

User Numbers

User numbers are defined as active IT system log in accounts scaled for prescribed transmission services use.

Preparation Methodology:

The Total User Numbers was extracted from the domain IT system. The data extracted provided User Numbers in total across all AusNet Services' businesses. User Numbers in the Transmission business (prescribed transmission services use) was derived by applying the ABC Survey percentage allocation outcome as described under 'Employee Numbers' above.

Estimated Information:

While the Total User Numbers across the AusNet Services businesses is considered Actual Information, the subsequent split between Distribution Regulated, Transmission Regulated (PTS) and Unregulated are considered estimates based on ABC surveys. An estimate was required as the information is not separately captured by the business. The data provided is considered Management's best estimate of the information required.

Client Devices

Device numbers are defined as the number of client devices scaled for prescribed transmission services use. Client Devices are hardware devices that access services made available by a server.

Preparation Methodology:

Information in relation to the number of laptops and desktop computers was obtained from ICT Desktop Support and is extracted from the Microsoft System Centre Configuration Manager ("SCCM") system. The report provided the number of devices across the AusNet Services businesses.

Information in relation to handheld devices (smartphones and tablets) was obtained from a from ICT Desktop Support and is extracted from the Microsoft System Centre Configuration Manager ("SCCM") system, The report provided the number of devices across the AusNet Services businesses and filtered to ensure that the list reflected devices acquired on or before 31 March 2018.

The reports described above were summed to provide the total number of Client Devices across the AusNet Services businesses. Using the same percentages applied in allocating 'Employee Numbers and 'User Numbers', the number of Client Devices in the Transmission business (used for prescribed transmission service activities only) were derived.

Estimated Information:

Client device information is considered Estimated Information due the approximate percentages applied to derive an estimate of the devices owned by AusNet Transmission in relation to PTS.

An estimate was required as the information is not separately captured by the business. The calculation performed is considered Management's best estimate of the required information.

Table 2.6.3 Annual Descriptor Metrics – Motor Vehicles

Average Kilometres Travelled

Preparation Methodology:

For the 2018 Regulatory Year, total yearly kilometres travelled per vehicle was obtained directly from the Fleet System. The report was filtered to exclude Distribution business vehicles and to exclude vehicles which did not meet the motor vehicle definitions prescribed by the AER. Total kilometres travelled per category was calculated then divided by the number of vehicles in each category to obtain the average kilometres travelled.

The average kilometers travelled per vehicle was scaled for PTS use. The percentage of PTS use that was applied was consistent with the 'Proportion of Total Fleet Expenditure Allocated as Regulatory Expenditure' as discussed below.

Estimated Information:

This information provided is considered Estimated Information due to the approximation of PTS use. An estimate is required as the system does not capture the data needed. The data provided is considered Management's best estimate of the information required.

Number Purchased, Number Leased and Number in Fleet

Preparation Methodology:

Number Purchased was obtained from the Fixed Asset Register in SAP. Vehicles which did not meet the prescribed Motor Vehicle definition were excluded.

The total number leased and total number in fleet for the Regulatory Year was sourced from motor vehicle reports generated from the Fleet System. A monthly average was calculated to determine the average number leased and average number in fleet. Vehicles which did not meet the prescribed Motor Vehicle definition were excluded. For the 2018 (and 2017) Regulatory Year, 'number leased' is interpreted as number of vehicles leased in fleet rather than the number of new leases entered into during the Regulatory Year.

The number of vehicles in the fleet purchased, the number of vehicles leased in the fleet and the total number of vehicles in the fleet were scaled for PTS use. The percentage of PTS use that was applied was consistent with the 'Proportion of Total Fleet Expenditure Allocated as Regulatory Expenditure' as discussed below.

Estimated Information:

This information provided is considered Estimated Information due to the approximation of PTS use. An estimate is required as the system does not capture the data needed. The data provided is considered Management's best estimate of the information required.

Proportion of Total Fleet Expenditure Allocated as Regulatory Expenditure

Preparation Methodology:

The 'Proportion of Total Fleet Expenditure Allocated as Regulatory Expenditure' was calculated based on information contained in the Annual Regulatory Accounts. The percentage reported is the amount of Operating Costs relating to Prescribed Transmission Services divided by the total Operating Costs. This calculation was performed for the 2018 Regulatory Year.

Estimated Information:

Information reported is considered Actual Information. No estimates were required.

2.7 Vegetation Management

Vegetation management zones are segments of the transmission network distinguished from other vegetation management segments by material differences in recognised cost drivers.

An assessment of vegetation management zones has been performed taking into consideration areas where bushfire risk mitigation costs are imposed by legislation, regulation or ministerial order and areas of the network where other recognised drivers affect the costs of performing vegetation management work. The key driver of vegetation management costs across AusNet Services' businesses is the level of bushfire risk. The Transmission network vegetation management program does not separate high bush fire risk areas from low bushfire risk areas – as the vegetation management program is in accordance with the requirements of the Electrical Safety Regulations (for Transmission businesses). Based on this, one vegetation management zone has been identified within AusNet Transmission's network.

The Electrical Safety (Electric Line Clearance) Regulations impose a material cost on performing vegetation management works. The cost of compliance is consistent with the information reported in Table 2.7.2.

There are no self-imposed standards per AusNet Transmission's Vegetation Management program.

Route Line Length within Zone

The route line length is the aggregate length in kilometers 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 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 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.

Estimated Information:

The information provided is considered Actual Information as no estimates were required.

Number of Maintenance Spans

The 'Number of maintenance spans' is the total count of spans in the network that are subject to active vegetation management practices in the 2018 Regulatory Year.

Active vegetation management practices do not include inspection of vegetation maintenance segments where 'inspection' is only for the purpose of identifying trees or other vegetation that require trimming or removal and include vegetation scoping works.

Preparation 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, 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, 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.

Estimated Information:

The information provided is considered Actual Information as no estimates were required.

Total Length of Maintenance Spans

Preparation Methodology:

The Total Length of Maintenance Spans is not separately captured within AusNet Services' systems. The 'Total Length of Maintenance Spans' was calculated by dividing the total line length in kilometres (derived from GIS and provided by Asset Analytics department of AusNet Services) by the total number of towers (supplied by Asset Analytics department of AusNet Services) to derive an estimate of the average kilometre line length for each Transmission segment.

This average was multiplied by the Number of Maintenance Spans (as above) to derive an estimate of 'Total Length of Maintenance Spans' for the relevant Regulatory Year.

Estimated Information:

Data provided is considered Estimated Information as it is not separately captured. This is considered the best estimate of the data requested.

Average Number of Trees per Maintenance Span

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 Methodology:

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

Estimated Information:

The information provided is considered an estimate as the average was calculated based on the maintenance spans with recorded data. 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.

Length of Vegetation Corridors

A vegetation corridor is a tract of land along which vegetation is maintained in order to form a passageway along the route of a power line or lines that is free of vegetation encroachment into the asset clearance space. This does not include portions of the corridor where no managed vegetation exists or where vegetation is not managed.

Preparation Methodology:

The total length of vegetation corridors in not separately captured within SAP. It is estimated through the following process -

From the above discussed report, the total number of P1, P30, P180, P365, P900 and P6Y vegetation maintenance segments was obtained over a period of 3 years (FY16-FY18). Duplicated segments over this period were removed from the final figure. The remaining segments maintained over the 3 year cycle are determined to be vegetation corridors

This total is multiplied by the average length of a maintenance segment (as derived in the calculation of 'Total Length of Maintenance Spans') to provide an estimate of the 'Length of Vegetation Corridors'.

Estimated Information:

The data provided is considered Estimated Information based on the approach outlined above. This is considered Management's best estimate of the information requested.

Average Width of Vegetation Corridors

The average width of vegetation corridors is determined by using a sample range of corridor widths and applying this across the network.

Preparation Methodology:

The width of vegetation corridor is the total width of a vegetation corridor (the entire width of the tract of land along which vegetation is maintained).

The information provided has been estimated based on Transmission network data extracted from SAP. Using a sample of easement segments (where easement width information was available) the average width per easement segment was calculated to give an indicative average easement width.

Estimated Information:

It has been assumed that the easement widths in the sample are representative of the easement widths of all segments. The data provided is considered Estimated Information as it is not separately captured. This is considered Management's best estimate of the information requested.

Average Frequency of Cutting Cycle

The cutting cycle is the average planned number of years (including fractions of years) between which cyclic vegetation maintenance is performed within vegetation management zones. It has been assumed that cutting cycles are the same as maintenance span cycles (the planned number of years (including fractions of years) between which cyclic vegetation maintenance is performed).

Preparation 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.

Estimated Information:

The information provided is considered Actual Information as no estimates were required.

Table 2.7.2 – Expenditure Metrics by Zone

Table 2.7.2 has been completed based on the one vegetation management zone identified above. Expenditure provided relates to direct costs, excluding overhead expenditure and has been presented in nominal dollars.

Preparation Methodology:

Data was extracted from the SAP Financial System based on the Vegetation Management work code. The information extracted included project data for the various vegetation management functions.

The 'Mandatory Works' project provided the total expenditure on both 'Tree Trimming' and 'Vegetation Corridor Clearance'. The allocation between 'Tree Trimming' and 'Vegetation Corridor Clearance' was determined based on an analysis of the underlying supplier information.

The 'Management Labour' project provided the expenditure on 'Inspection', 'Audit' and 'Contractor Liaison Expenditure'. The allocation of Management Labour to categories was based an analysis of the time spent by employees involved in performing these activities (as determined by an SME).

The balance of costs (i.e. the difference between the total costs included in Vegetation Management work code and the above categories) has been allocated to 'Other Vegetation Management Costs not Specified in Sheet'.

Estimated Information:

The data reported for 'Tree Trimming', 'Vegetation Corridor Clearance' and 'Other Vegetation Management Costs not Specified in Sheet' is considered Actual Information as it is based on information directly extracted from SAP.

The information reported for 'Inspection', 'Audit' and 'Contractor Liaison Expenditure', although subject to SME allocation, is considered to constitute Actual Information on the basis of materiality. The expenditure in total is from project information and is not considered material to the total Vegetation Management expenditure. Therefore, any alternative allocation approaches between the three categories would not lead to a materially different presentation.

Table 2.7.3 – Descriptor Metrics Across All Zones – Unplanned Vegetation Events

Unplanned vegetation events are system outages and fire starts caused by either vegetation grow-ins or vegetation blow-ins/fall-ins.

Number of Fire Starts Caused by Vegetation Grow-Ins (NSP Responsibility);
Number of Fire Starts Caused by Blow-Ins and Fall-Ins (NSP Responsibility);
Number of Outages Caused by Vegetation Grow-Ins (NSP Responsibility); and
Number of Outages Caused by Blow-Ins and Fall-Ins (NSP Responsibility)

Preparation Methodology:

A review of information contained in the Incident Management System was performed. Based on this review, there have been no Fire Starts or Outages caused by vegetation grow-ins, blow-ins or fall-ins (AusNet Transmission responsibility) in the 2018 Regulatory Year.

Number of Fire Starts Caused by Vegetation Grow-Ins (Other Party Responsibility);
Number of Fire Starts Caused by Blow-Ins and Fall-Ins (Other Party Responsibility);
Number of Outages Caused by Vegetation Grow-Ins (Other Party Responsibility); and
Number of Outages Caused by Blow-Ins and Fall-Ins (Other Party Responsibility)

Preparation Methodology:

AusNet Transmission is responsible for all vegetation clearing in its network. Based on this, the above variables are not applicable and have been disclosed as zero.

2.8 Maintenance

Maintenance relates to operational repairs and maintenance of the transmission system, including testing, investigation, validation and correction costs not involving capital expenditure.

Table 2.8.1 – Descriptor Metrics for Routine and Non-Routine Maintenance

Preparation Methodology:

Asset quantity information has been provided for the total number of assets (population) at the end of the 2018 Regulatory Year (for each asset category) and the number of assets inspected or maintained during the 2018 Regulatory Year (for each asset category).

Asset Quantity at Year End

In the 2018 Regulatory Year, 'Asset Quantity' was calculated as the cumulative sum of installed assets (the quantity currently in commission).

Asset Quantity data was obtained from the following sources -

- *Transmission Towers* - data reported was sourced from Template 5.2 Asset Age Profile. Data is considered Actual Information.

- *Transmission support structures* - data reported was sourced from Template 5.2 Asset Age Profile. Data is considered Estimated Information as the Asset Management System does not contain the attributes required to meet the definition of Transmission support structures. The asset quantity reported is the volume of insulators (which form part of the Transmission support structure).

- *Conductors* - data reported was sourced from the SDME Asset Management System. Data is considered Actual Information.

- *Transmission Cables* -data reported was sourced from the SDME Asset Management System. Data is considered Actual Information.

- *Substation Switchbays (incl. Reactive plant)* - data reported was sourced from Template 5.2 Asset Age Profile. Quantity data was calculated as the cumulative sum of installed assets in the asset categories - Substation switchbays Air insulated circuit breakers and GIS modules. This is considered Estimated Information as there is not a direct relationship between circuit breakers and switchbays.

- *Substation Power Transformers* - data reported was sourced from Template 5.2 Asset Age Profile. Data is considered Actual Information.

- *Substation Property* - the number of 'Substation Properties' has not changed since 2014 and therefore the same quantity has been included in Table 2.4.1 for the 2018 Regulatory Year.

- For the 2014 submission, the number of 'Substation - Properties' was based on data contained in: AusNet Services internal document 'PGI 67-01-01 List of Transmission and Sub-transmission Stations and Communication Sites';
- Asset Management Strategy 'AMS 20-55: Civil Infrastructures';
- Asset Management Strategy 'AMS 10-55 Civil Infrastructure, Terminal Stations'; and
- Site information.
- Information provided for 'Substation – Property' is considered Estimated Information as all civil infrastructure properties at one terminal station or zone substation have been assumed as one property. This assumption has been made as the AER's definition of 'Substation – Property' is not separately captured.
- For AusNet Services purposes, civil infrastructure properties include a large number of assets, such as buildings, environmental systems, fire protection systems etc. Therefore Management's best estimate of 'Substation – Property' is to consider all civil infrastructure properties at one terminal station or zone substation to be classified as one property.

- *SCADA & network control maintenance* - data reported was sourced from Template 5.2 Asset Age Profile. Quantity data was calculated as the cumulative sum of installed assets in the asset categories in all asset categories under SCADA, Network Control and Protection systems except Protection schemes/systems. Data is considered Actual Information.

- *Protection systems maintenance* - data reported was sourced from Template 5.2 Asset Age Profile. Quantity data was calculated as the cumulative sum of installed assets in the asset category Protection schemes/systems. Data is considered Actual Information.

Asset Quantity Inspected/Maintained

Financial and non-financial data was extracted from the SAP system based on project work codes. The financial component of the extract was reconciled to Maintenance Opex in the Annual Regulatory Accounts (to ensure completeness of the extract).

The data extracted provided project number, project description, work order or network order, assembly code, number of records, 'equipment' and 'functional location' details. Assembly codes represent type of asset and type of work being performed. Number of records reflects quantities of assets maintained.

Assembly codes for each maintenance work order were mapped to the prescribed Maintenance Asset Categories by an SME. To derive the 'Asset Quantity Inspected/Maintained' the quantities maintained were summed. Where assembly codes were not available, data was classified into Asset Categories based on work order descriptions by an appropriate SME.

For the following Maintenance Asset Categories, information provided has been calculated as the sum of the 'Asset Quantity at Year End' divided by the 'Inspection Cycle' in years and 'Asset Quantity at Year End' divided by the 'Maintenance Cycle' in years –

- Transmission Towers
- Transmission Tower Support Structures
- Conductors and Cable
- SCADA & network control maintenance

- Protection Systems Maintenance.

For these maintenance categories, the calculation performed is considered to be more indicative of the quantity inspected and maintained than information from other sources. For conductor and cable, this approach provides the kilometers of cable or conductor inspected or maintained.

For the category 'SCADA & network control maintenance', the assets on hand which are run to failure were excluded from the calculation performed.

Estimated Information

A degree of judgment was required to allocate the data extracted into the categories required in the templates. SMEs were engaged to derive these allocations. Based on this, all information provided is considered Estimated Information. This is considered Management's best estimate based on the data available.

Average Age of Asset Group

Preparation Methodology:

The Average Age of each group of assets has been calculated based on the age profile, and asset lives from Template 5.2 Asset Age profile, except for Substation property. The age of each asset is determined from the current year and the year of installation. The average age is a simple average of all the asset ages for all the assets in each group. No weighting has been applied to this average to account for differences in cost or type of asset. The judgment of an SME was used to align the asset categories in the Asset Age Profile model to the Maintenance Asset Categories. Categorisations are consistent with previous RINs.

The data provided is considered Actual Information based on the approach outlined above.

For Substation Property, the Average Age has been assumed to be consistent with the prior year. This was calculated from the age of each station and the age of each station (determined from the year each station was constructed). This is considered Management's best estimate of the data required.

Estimated Information

Any estimates required in Table 2.8.1 have been outlined above. Estimated Information has been provided in circumstances where the Asset Management System does not capture the maintenance information needed. The data provided is considered Management's best estimate of the information required.

Inspection Cycle and Maintenance Cycle

A 'Maintenance cycle' is the planned or actual duration between two consecutive maintenance works on an asset. An 'Inspection cycle' is the planned or actual duration between two consecutive inspections of an asset.

The 'Inspection cycle' and the 'Maintenance cycle' for each maintenance subcategory have been expressed as the number of years in the respective cycles. Where there are multiple inspection and maintenance activities, the cycle that reflects the highest cost activity has been reported.

	Maintenance Cycle (Years) and Inspection Cycle (Years)
Transmission towers	Maintenance cycle and inspection cycle data is consistent with information reported in the 2016 and 2017 Regulatory Years. Data was obtained from 'BFM 10-02 BFM Plan Transmission v17 Final' and 'LPP 09-06 – Condition Assessment of Overhead Lines – Lines Practices & Procedures' and is considered 'Actual Information'. As Conductors are not routinely maintained, 'Maintenance Cycles' of zero have been reported.
Transmission support structures	
Conductors	
Transmission cables	
Substation switchbays (incl. Reactive plant)	Average maintenance cycle' is based on Class 1 (minor) maintenance works and 'Average inspection cycle' is based on the comprehensive yearly inspection of equipment (including scanning). This is considered Actual Information.
Substation power transformers	Maintenance and inspection cycles have not changed since the 2015 submission. Data provided in 2015 was based on the AusNet Services' internal policy document 'PG 02-01-02 Summary of Maintenance Intervals – Transmission Plant Guidance and Information PGI-MTCE INTERVALS-T'. 'Average maintenance cycle' is based on major maintenance works (Class 2 tap changer maintenance) and not minor maintenance (Class 1). Routine maintenance of all auxiliaries is scheduled every four years. 'Average inspection cycle' is based on the comprehensive yearly inspection of equipment (including scanning and oil testing). This is considered Actual Information.
Substation property	Inspection cycles have not changed since the 2015 submission. Data provided in 2015 was based on the AusNet Services' internal policy document 'PG 02-01-02 Summary of Maintenance Intervals – Transmission Plant Guidance and Information PGI-MTCE INTERVALS-T'. This is considered Actual Information.
SCADA & network control maintenance	Information reported for 'Maintenance cycles' and 'Inspection cycles' was obtained from internal policies and the Asset Management System. It is noted that SCADA and Network Control assets are subjected to either the reported cycles or no cycles, as certain asset classes obtain no benefit from inspections or maintenance and use a 'run to failure' and 'life cycle' strategy. These are usually implicitly monitored via the availability of the end service; therefore do not require routine inspection or maintenance cycles. As per the RIN requirements, as there are multiple inspection and maintenance activities, the cycle that reflects the highest cost activity has been reported. This is considered Actual Information.
Protection systems maintenance	Data provided was extracted from AusNet Services' internal policy document 'Summary of Maintenance Intervals – Transmission: Plant Guidance and

	Maintenance Cycle (Years) and Inspection Cycle (Years)
	Information PGI-MTCE INTERVALS-T' as the maintenance interval for Protection Schemes. Conventional technology is maintained on a 3 year cycle and newer (digital) technology is maintained on a 6 year cycle. Certain asset classes obtain no benefit from inspections or maintenance and use a 'run to failure' and 'life cycle' strategy. A 3 year cycle has been reported based on the highest cost of the maintenance cycles. The inspection and maintenance cycles are the same for Protection System assets as inspection and maintenance is performed simultaneously. This is considered Actual Information.

Table 2.8.2 – Cost Metrics for Routine and Non-Routine Maintenance

Maintenance expenditure has been provided for each of the prescribed maintenance categories. The financial information is reported in nominal dollars.

Routine maintenance costs are costs of recurrent/programmed activities undertaken to maintain assets, performed regardless of the condition of the asset. Costs of activities are predominantly directed at discovering information on asset condition and often undertaken at intervals that can be predicted. Routine maintenance is activities to maintain asset condition and/or to maintain the capacity of the transmission system to transmit electricity, and where the activities are:

- routine in nature;
- indiscriminately carried out for a pre-defined set of assets; and
- scheduled to occur at pre-defined intervals.

Routine maintenance may include activities to inspect, survey, audit, test, repair, alter, or reconfigure assets.

Routine maintenance expenditure excludes costs of activities that are designed to increase or improve the capacity of the transmission system to transmit electricity, except where the increase or improvement is incidental to the maintenance of the transmission system. It also excludes costs associated with asset removal, asset replacement, new asset installation, vegetation management, and emergency response.

Non-routine maintenance costs are costs of activities predominantly directed at managing asset condition or rectifying defects. The timing of these activities depends on asset condition and decisions on when to maintain or replace the asset, which may vary over time. Non-routine maintenance is activities to maintain asset condition and/or to maintain the capacity of the transmission system to transmit electricity, and where the activities are not routine in nature.

Non-routine maintenance expenditure excludes activities that are designed to increase or improve the capacity of the transmission system to transmit electricity, except where the increase or improvement is incidental to the maintenance of the transmission system.

Preparation Methodology:

Data was sourced from SAP based on the Maintenance work codes. The data sourced from SAP is the same information used in preparing the Asset Quantities Inspected/Maintained. As such, the same categorisations were applied to the corresponding financial information to determine the Maintenance Asset Category.

Cost information is captured based on work orders and network orders.

- Work orders include details of the underlying assembly codes. In order to assign work order costs to the relevant Maintenance Asset Subcategory, work order data was extracted from the Financial System and mapped to a relevant Maintenance Asset Subcategory and also Routine vs Non-Routine classifications using the work codes and assembly codes. In some instances, additional information was needed from the work order (e.g. floc description, floc type and work code) in order to classify the work order into the Maintenance Asset Subcategory.

- Network orders were classified into Maintenance Asset Subcategory and also Routine vs Non-Routine classifications based on the order descriptions and work code information. These classifications were performed by an SME.

Estimated Information:

All data provided is considered Estimated Information. A degree of judgment was required to allocate expenditure in each work code to the categories required in the templates. SMEs were engaged to derive these allocations. This is considered Management's best estimate based on the data available.

2.10 Overheads

Overhead Expenditure is expenditure that cannot be directly attributed to a work activity, project or work order. It consists of labour, materials, contract costs and other costs. Overheads have been disaggregated as Network Overheads and Corporate Overheads. Overhead expenditure has been reported before it is allocated to services or direct expenditure and before any part of it is capitalised.

Table 2.10.1 – Network Overheads Expenditure & Table 2.10.2 – Corporate Overheads Expenditure

Network Overhead costs refer to the provision of management services and other related operational, network planning, asset management and compliance functions that cannot be directly associated with any specific operational activity (such as routine maintenance, vegetation management, etc.).

Network Overhead comprises -

- Maintenance Support expenditure: expenditure on activities and services that directly support field maintenance activities but are not directly attributable to working on an item of plant or equipment.
- Network Monitoring & Control expenditure: expenditure associated with activities in operating and monitoring assets in the field and the control centre.
- Asset Management Support expenditure: expenditure on operational activities and services associated with managing and developing the transmission network, and supporting the strategic development of the network, but not directly attributable to maintaining or operating the network.

Corporate Overhead costs refer to the provision of corporate support and management services by the corporate office that cannot be directly identified with specific operational activity. Corporate Overhead expenditure aligns with the reported expenditure in AusNet Transmission's Annual Regulatory Accounts.

Amounts reported as Opex reflect overheads that have not been capitalised. Amounts reported under 'Other Services' are the sum of Opex and Capex overheads.

Preparation Methodology:

Using information from the Financial Systems that was used to prepare the Annual Regulatory Accounts, Overheads Expenditure was classified into Network and Corporate overheads and into service classifications.

Estimated Information:

All Opex information and 'Other Distribution Services' data is considered Actual Information. No estimates were required.

For Capex, the split of capitalised overheads into Network and Corporate Overheads was estimated using underlying ABC survey data. This is not considered to result in Estimated Information as the data used was system generated and there isn't a valid, alternative approach that would lead to materially different data being reported.

2.11 Labour

The total cost of labour reported is equal to the total labour costs reported against the Capex and Opex categories listed in Template 2.12 Input Tables.

Labour costs relating to labour hire contracts have been included within the classification levels. Labour used in the provision of contracts for both goods and services, other than contracts for the provision of labour (e.g. labour hire contracts) have not been reported.

Quantities of labour, expenditure, or stand down periods have not been reported multiple times across the labour categories.

The following 3 categorisations have been applied -

1. Corporate Overhead costs - refers to the provision of corporate support and management services by the corporate office that cannot be directly identified with specific operational activity.
2. Network Overhead costs - refers to the provision of management services and other related operational, network planning, asset management and compliance functions that cannot be directly associated with any specific operational activity.
3. Direct Network Labour - includes workers who primarily undertake field work in their job. This includes:
    - Field tradespeople including workers working in field depots (e.g. fitters and turners and mechanics working in depots).
    - Apprentices training for work that would primarily be field work (i.e. irrespective of whether most of their current work or training is not undertaken in the field).

It is noted that a broader definition of overheads is prescribed for the completion of the Labour Template than in Template 2.10 Overheads. In the Labour Template there are only four categories of 'Direct Labour' (Skilled electrical worker, Skilled non electrical worker, Apprentice and Unskilled worker). All other labour costs are treated as Overheads costs, even though the employees might directly work on projects.

The below definitions have been applied in the preparation of Tables 2.11.1 and 2.11.2.

Labour Classification Level	
Executive manager	A manager responsible for managing multiple senior managers. For example General Manager - Regulated Energy Services.
Senior Manager	A manager responsible for managing multiple managers who each manage work teams and projects within the organisation.
Manager	A manager responsible for managing teams of staff.
Professional	Professional workers who do not have a primary role as staff managers. These may include lawyers, accountants, economists etc.
Semi professional	Workers with some specialist training supporting fully trained professionals (e.g. draftsperson, bookkeeper etc.).
Support staff	Non-professional support staff not undertaking field work (e.g. clerical support, secretaries).
Intern, junior staff, non-field work apprentice	Interns, junior staff and apprentices undertaking non field work. All apprentices undertaking or training to undertake field work are reported

	under Labour Classification Level – Apprentice.
Skilled electrical worker	Fully qualified/trained electrical workers. This will include line workers, cable jointers, electrical technicians and electricians who have completed an apprenticeship.
Skilled non electrical worker	Skilled non electrical worker employed for their skill set. Examples are tradesmen who have completed an apprenticeship such as carpenters, mechanic, painters and arborists.
Apprentice	A field worker employed as part of a government accredited apprenticeship program. This includes all apprentices who will not primarily be working in offices once fully trained (e.g. apprentices training to become electrical workers, fitters and turners, plumbers, painters, mechanics and arborists).
Unskilled worker	Field workers with limited specialist training. This includes workers who have completed short courses with no other qualifications (e.g. labourer, arborist's assistant, traffic controller, meter reader).

Table 2.11.1 – Cost Metrics per Annum

For the 2018 Regulatory Year, the following reports were used –

- Report 1: A timesheet report was generated in SAP which provided timesheet information for all employees who charged time to Transmission business projects. The report included details of labour costs, normal time/overtime/allowances and activity type information. The data was further grouped into labour category and classification as required per the Labour Template.
- Report 2: A labour hire report was generated in SAP using the Transmission Labour Hire General Ledger account. Total labour hire costs were split into RIN Labour categories using cost centres.
- Report 3: A labour report was generated in SAP which provided the total labour costs in the Transmission business. The data was grouped into labour category and classification for each of the required RIN labour categories. Report 1 was subtracted from the total labour report to derive the total labour costs for employees in the Transmission Business that have not completed timesheets.

For Reports 1 and 3, labour categorisations were derived based on a combination of job titles, activity types, cost centres and the AusNet Services organisational chart. Judgments were made by an appropriate expert when determining the categorisations.

In relation to Report 2, labour category and classification were based on the nature of activity that is usually under taken by the cost centre business unit.

Based on assumptions made, all data presented in Template 2.11 is considered Estimated Information (excluding Stand Down Occurrences). Data provided is considered Management's best estimate, based on the information available.

Average Staffing Level ("ASL")

One ASL is a full-time equivalent employee undertaking PTS work receiving salary or wages over the entire year. For avoidance of doubt, a full time employee equating to one full-time equivalent ("FTE") over the course of the year that spends 50% of their time on PTS work is 0.5 ASL.

Preparation Methodology:

The total hours were divided by 1800 (reflecting the average annual hours worked - based on 48 weeks at 37.5 hours per week) to derive the number of ASLs.

Total hours were calculated as follows –

- For Report 1, total hours were obtained from timesheet data
- For Report 2, total hours were calculated as labour hire costs divided by hourly rates (i.e. the rates equivalent to the average normal time rate for contractors within same labour category and classification level) per the timesheet report.

The methodology applied is based on the number of people required to meet hours worked (i.e. if an employee works 1800 normal hours plus 400 overtime hours, the ASL calculation equates to 1.2 ASLs).

Estimated Information:

For all FTEs, ASLs were derived using an estimation of the total annual hours worked. For labour hire employees and non-timesheet employees, further judgments were made in relation to the hourly rates used. Data provided is considered Management's best estimate of the information required based on the information available.

Total Labour Cost

'Total labour cost' is the total labour costs associated with the total ASLs in a given classification level. Labour costs are the costs of Labour hire, Ordinary time earnings, Other earnings, on-costs and taxes and superannuation.

'Ordinary time earnings' means expenditure that was required under contracts of employment with AusNet Services and which constitutes ordinary time salaries and wages. It excludes expenditure required under contracts other than employment contracts, irrespective of whether or not the contract includes a labour component.

Preparation Methodology:

Information reported in relation to 'Total labour costs' was obtained from Reports 1, 2 and 3.

However, given the requirement to reconcile Total Direct Labour Costs reported in Template 2.12 Input Tables to Template 2.11 Labour, an adjustment was made. The adjustment was calculated as the difference between these 2 templates and was allocated on a pro-rata basis across all employee classifications in Table 2.11.1. Given the need to reconcile the Labour template to the Input Tables template, data reported in the Labour template is a combination of Prescribed Transmission Services and Non-Regulated Transmission Services.

Estimated Information:

Based on the above, the information provided is considered Estimated Information. Data provided is Management's best estimate of the information required based on the information available.

Average Productive Work Hours per ASL

Productive work hours are hours worked undertaken by the employee/labour hire person's substantive job. Productive work hours include:
- Supervised on the job training including supervision of apprentices, mentoring and normal employee feedback and development.
- All normal work involved in undertaking the person's substantive job including time spent on meetings and travel between different work areas.

Non-productive work hours are work hours that are non-productive such as annual leave, sick leave, training course and sessions (that are more than supervised on the job training, mentoring and normal employee feedback and development) and other non-productive work hours.

Preparation Methodology:

'Average Productive Work Hours per ASL' was calculated as the total hours (discussed above) less non-productive hours divided by ASLs. It has been assumed all hours for Reports 2 and 3 are productive hours.

Estimated Information:

This is considered Estimated Information as it has been assumed that all labour costs incurred in relation to Reports 2 and 3 relate to productive work only. Further assumptions were applied in relation to the total hours used, i.e. hourly rates applied. This is considered Management's best estimate based on the data available.

Stand Down Occurrences per ASL

'Stand down occurrences per ASL' is the average number of stand down periods per ASL in each labour classification level over the year. Based on the nature of operations, stand down occurrences are considered rare and not material to the business.

Preparation Methodology:

Stand down information is maintained in the SAP (Payroll) module. Based on information extracted from the Payroll System, there was no stand down occurrences in the 2018 Regulatory Year.

Estimated Information:

Data provided is considered Actual Information.

Table 2.11.2 – Extra Descriptor Metrics for Current Year

Average Productive Work Hours per ASL – Ordinary Time

'Average Productive Work Hours per ASL – Ordinary Time' is the average productive work hours per Regulatory Year per ASL in each classification level spent on PTS work that are 'Ordinary time earnings'.

Preparation Methodology:

For Report 1, information in relation to normal (ordinary) time is available. 'Average productive work hours per ASL – ordinary time' was calculated as total productive normal time divided by ASLs.

For Reports 2 and 3, 'Average productive work hours per ASL – ordinary time' was calculated as Total labour cost divided by hourly rates (as discussed above).

Estimated Information:

This is considered Estimated Information as it has been assumed that all labour costs incurred in relation to Reports 2 and 3 relate to ordinary time only. It is assumed that any overhead costs associated with 'Direct Network Labour' Category is Non-Productive and all overhead costs associated with all other category is productive work. Further assumptions were applied in relation to the total hours used, i.e. hourly rates applied. This is considered Management's best estimate based on the data available.

Average Productive Work Hours Hourly Rate per ASL – Ordinary Time

'Average Productive Work Hours Hourly Rate per ASL – Ordinary Time' is the Regulatory Year's average productive work hours (spent on PTS) hourly rate per ASL for each Classification level including labour costs that are direct on costs related to 'Ordinary time earnings'.

Preparation Methodology:

For Reports 1, 2 and 3, the rate was calculated as total ordinary time labour costs less ordinary time unproductive labour costs divided by total ordinary time productive hours.

Estimated Information:

This is considered Estimated Information as it has been assumed that all labour costs incurred in relation to Reports 2 and 3 relate to ordinary time only. It is assumed that any overhead costs associated with 'Direct Network Labour' Category is Non-Productive and all overhead costs associated with all other category is productive work. Further assumptions were applied in relation to the total hours used, i.e. hourly rates applied. This is considered Management's best estimate based on the data available.

Average Productive Work Hours per ASL – Overtime

'Average productive work hours per ASL – Overtime' is the average overtime hours for the Regulatory Year paid per ASL for each classification level per year spent on standard control services. Overtime hours are paid productive work hours that are not 'Ordinary time earnings'.

Preparation Methodology:

For Report 1, information in relation to overtime is available. 'Average productive work hours per ASL – overtime' was calculated as total productive overtime hours divided by ASLs.

Estimated Information:

This is considered Estimated Information as it has been assumed that all labour costs incurred in relation to Reports 2 and 3 relate to ordinary time only.

Average Productive Work Hours Hourly Rate per ASL – Overtime

'Average Productive Work Hours Hourly Rate per ASL' is the Regulatory Year's average productive work hours (spent on PTS) hourly rate per ASL for each classification level including labour costs that are direct on costs related to productive overtime hours that are not 'Labour Costs – ordinary time earnings'.

Preparation Methodology:

The average hourly rate per ASL for each of the labour classification was obtained from Report 1 using total overtime labour costs less unproductive overtime labour costs divided by total overtime productive hours.

Estimated Information:

This is considered Estimated Information as it has been assumed that all labour costs incurred in relation to Reports 2 and 3 relate to ordinary time only.

2.12 Input tables

Information reported in Template 2.12 Input Tables relates to direct costs for Prescribed Transmission Services. Data reported excludes overheads and is presented on an 'as incurred' basis in accordance with the response to issue number 125 on the AER Issues Register. Contract Costs are presented inclusive of any applicable Related Party Contract Cost and Related Party Contract Margin.

The summation of Direct Materials, Direct Labour, Contract Costs and Other Costs for each category reconcile to total expenditure amounts reported in each of the respective templates (with the exception of Template 2.2 Repex and Template 2.5 Connections, due to these templates being on a 'project close' basis).

Direct Costs

Preparation Methodology:

Vegetation Management, Routine and Non-Routine Maintenance, Connections, Replacement and Non-Network Expenditure

Information was obtained from the workings to the Annual Regulatory Accounts and the workings to other Category Analysis RIN Templates (ultimately sourced from the SAP Financial System). Capex and Opex reports were run based on work codes which provided a split of costs into Direct Materials, Direct Labour, Contract Costs and Other Costs.

Work codes were aligned to each of the Input Table categories. This provided the Direct Material, Direct Labour, Contract and Other splits by Input Table category.

For the categories in the Input tables which required sub-categorisations (e.g. Transmission Towers, Conductors, etc.), the work code data was allocated into the subcategories based on the proportion of costs allocated into the subcategories within the respective Templates.

Overheads

The information was sourced from the Financial System and the workings to the Annual Regulatory Accounts. Data was split between Network Overheads and Corporate Overheads based on the nature of the costs.

Augmentation

Data in the Augmentation category is blank as the required network augmentation information is captured by AEMO. This is consistent with Template 2.3 Augex.

Estimated Information:

The information provided in relation to Replacement and Overheads is considered Estimated Information due to the approach to allocate costs into the sub-categories required. This allocation approach was required as the information needed was not directly captured by the Financial System. The information

provided in relation to Maintenance is also Estimated Information as the underlying data was estimated (refer to section 2.8).

Related Party Costs and Margin

Preparation Methodology:

Related Party Costs were obtained from the workings to the Annual Regulatory Accounts (ultimately sourced from SAP) and were allocated into the categories required using project work codes.

In relation to each Replacement capex project, the Related Party Cost was allocated across the various Replacement sub-categories on the same basis as that applied to that project's total direct cost per SME's assessment.

Amounts reported under 'Related Party Contract Expenditure' represent the total related party costs, inclusive of margins. The margins are also separately shown.

Estimated Information:

Related Party data provided in relation to Replacement is considered Estimated Information due to the sub-category allocations required. Sub-categories were estimated using the same percentage applied to allocate the direct costs - as the information needed is not directly captured in the Financial System. This considered Management's best estimate, based on the data available.

All other information is considered Actual Information.

5.2 Asset age profile

For each prescribed asset category, the age profile for assets currently in commission has been provided. Data reported corresponds with the replacement volumes and cost data in Template 2.2 Repex. Where required, additional rows have been added to Table 5.2.1 to ensure all assets are reported and asset refurbishments are captured.

'Installed assets – quantity currently in commission by year' is the number of assets currently in commission and the year they were installed.

Economic life is the estimated period after installation of the new asset during which the asset will be capable of delivering the same effective service as it could at its installation date. The period of effective service considers the life cycle costs between keeping the asset in commission and replacing it with its modern equivalent. Life cycle costs of the asset include those associated with the design, implementation, operations, maintenance, renewal and rehabilitation, depreciation and cost of finance.

Table 5.2.1 – Asset Age Profile

Preparation Methodology:

Information was sourced from the SAP (Asset Management System) and SDME. SDME contains Cable and Conductor records. All other information was sourced from SAP. It is noted that the Asset Management System data has been subject to data cleansing over the Regulatory Years and is subject to continuing reviews and data migration.

The AusNet Transmission asset categories do not directly align with the prescribed AER asset categories. In order to populate Table 5.2.1, engineering judgement has been applied to align assets in the required categorisations. If AusNet Transmission identified assets that cannot be aligned to the asset categories prescribed by AER, the 'Other' categories are populated.

There have been no classification changes in the data reported in the 2018 Regulatory Year compared to the 2017 Regulatory Year.

Equipment quantities reported in the Transmission Tower category have increased compared to prior year as rack structures (gantries) were previously counted as one structure but in 2018, the number of legs were counted (based on the separate SAP equipment records). This resulted in increased tower quantities.

The asset quantities reported in the Transmission Tower Support Structures category is the volume of insulators (which form part of the Transmission support structure). This was required as the Asset Management System does not contain the attributes required to meet the definition of Transmission support structures. This is consistent with previous RINs.

Data reported in the Cables and Conductor categories reflects the kilometers of cables and conductor in service. The 'Other' category under Conductor relates to ground wire kilometers. Equipment records and lengths were sourced from SDME. However, SDME does not contain installation dates. As such, the prior year age profile was applied to 2018 data to provide the information reported.

In relation to Power Transformers, station service transformers are included in the "< = 33 kV ; < = 10" MVA reporting category. Also, quantities reported reflect equipment records in the SAP system which

includes components of transformers (i.e. 1 transformer bank may have multiple records based on the components recorded in the system). This is consistent with data reported in previous years.

Data reported in Other - Station Property & Civil Infrastructure is estimated based on engineering judgment. This includes the number of substation properties and various components of civil infrastructure (including fences, environmental systems, fire protection systems, buildings, station service supplies, access roads and switchyard services). Estimates applied are consistent with previous years and is required as the data is not separately captured in the Asset Management System.

The quantity of assets included in age profile for each year has been determined based on the month and year of installation to provide the number of assets installed by financial year. Assets with no installation date in the Asset Management System or with an installation year of 1901 (which is a default for an unknown installation date) have been re-profiled (pro-rata allocated) into installation years. Allocations were derived using the profile of other assets in the asset category (for the data with installation dates).

The Economic Life for each asset has been based on the 'Asset Life Evaluation' contained in AusNet Services' 'Asset Management Strategy AMS 10-101'. The AER asset categories have been aligned with AusNet Transmission's asset categories to populate the required Economic Life information. Refer to Table 1 below.

AMS 10-101 includes a range around the Expected Asset Life. For the purposes of populating Table 5.2.1, it has been assumed that the asset life can be represented by a Normal distribution and that the range between 'Earliest Life' and 'Latest Life' in AMS 10-101 represents two standard deviations around the mean. To calculate one standard deviation the 'Earliest Life' has been deducted from the 'Latest Life' and the result divided by 2.

It has been assumed that the Economic Life of Refurbished assets mirrors the Economic Life and Standard Deviation provided for the corresponding AER Replacement asset category. This is an estimate as it is not possible to provide an accurate Economic Life for the collection of refurbishment projects included.

Estimated Information:

Data provided in relation to Transmission Tower Support Structures, Cables and Conductor is considered Estimated Information based on the preparation approach outlined above. Other - Station Property & Civil Infrastructure is also Estimated Information.

All other data provided in relation to Installed Asset Quantities is considered Actual Information as it was extracted from the SAP Asset Management System. The re-profiling of assets which have no installation date is not considered to represent Estimated Information as it accounts for less than 5% of any given Asset Category. This is not considered material.

Economic Life and Standard Deviation data is considered Estimated Information based on the approach and assumptions outlined above. The information required is not separately captured in Asset Management System. The data provided is considered Management's best estimate of the data required based on the information available.

Table 1: Expected Life and Standard Deviation Match to AMS 10-101

Asset Category	Asset Type	Asset Age Profile Category	Earliest	Expected	Latest	One Standard Deviation
AIS Switchbay SF6 CB	Average of All SF6 CB	Other: BUS, Other: Surge Diverters	35	40	45	5
	500kV HPL		35	40	45	5
	500kV FA4		35	40	45	5
	500kV 3AT5		35	40	45	5
	330kV LTB		35	40	45	5
	330kV HPL		35	40	45	5
	275kV FXT15		35	40	45	5
	220kV 3AQ1EE		35	40	45	5
	220kV 3AS2		35	40	45	5
	220kV 3AQ2E1		35	40	45	5
	220kV LTB		35	40	45	5
	220kV HPL		35	40	45	5
	220kV FL245		35	40	45	5
	220kV FXT14		35	40	45	5
	66kV EDF SKF		35	40	45	5
	66kV S1-72.5		35	40	45	5
	66kV HGF		35	40	45	5
Metal Enclosed Switchgear	22kV 22L42T Bulk Oil Indoor		50	53	55	2.5
	220kV SF6 Dead Tank Outdoor	Substation Switchbays - Air Insulated Isolators /Earth Switch	40	45	50	5
GIS Bays	500kV Outdoor[1]	Substation Switchbays - GIS Module 330-500 kv, Switchbays - Other	35	40	45	5
	220kV Indoor	Substation Switchbays - GIS Module 0 <330 kv	45	50	55	5
Current Transformers – single phase, oil insulated	Average	Transformers, Substation Switchbays CT, Substation Switchbays VT		40		6
	Tyree		27	33	39	6
	Brown Boveri		36	42	48	6
	ASEA		40	47	54	7
	ABB		24	30	37	6.5
	Other		38	44	50	6
Capacitor Bank	Pre 1970	Reactive Plant (SVCS, Capacitors, Oil Filled Reactors)	35	40	45	5
	Post 1970		30	35	40	5
Synchronous Condenser	Machine w/o refurbishment	Reactive Plant: Other	32	34	35	1.5
	Auxiliary Equipment		32	34	35	1.5
	Refurbished (rotor, auxiliaries and stator re-wedge)		45	47	50	2.5
Power Transformers	Individual transformers have an assessed life within this range	Power Transformers	40	50	60	10
Station Infrastructure	Bench and general civil works		60	70	80	10
	AC Supplies		40	45	50	5
	Buildings	Other - Station Property & Civil Infrastructure	40	45	50	5
	Other Infrastructure		40	45	50	5
ACSR Conductor (& ground wire)		Other Infrastructure: Earth Grid	35	60	70	17.5
Towers		Transmission Towers, Transmisison Tower Support Structures	60	70	85	12.5
HV and EHV Power Cable		Conductors, Conductors - Other, Transmission Cables	40	60	70	15
Protection & Control Scheme	**Average - Protection and Control, SCADA, Control Centre, DC Supplies**	Used for SCADA - Control Equipment, Infrastructure, Metering, Total Secondary, Generator and Motors, Infrastrucutre Compressor, OTHER: NEUTRAL EARTH COMPENSATORS/RESISTORS		20		5
	Average of Protection and Control Scheme	Protection schemes		25		5
	(A1) Electro-mechanical with continuous moving parts e.g. RI		22	29	34	6
	(A2) Electro-mechanical with occasionally moving parts		26	32	36	5
	(A3) Electro-mechanical with electro-magnetic operation		29	35	39	5
	(B2) Analogue electronic based mainly on solid state discrete components		18	24	28	5
	(B3) Analogue electronic device using discrete components & integrated circuits		17	23	27	5
	(C1) Hybrid analogue/digital device (analogue measuring and signal comparators and digital logic) no serial connectivity minimal self monitoring		12	19	23	5.5
	(C2) Hybrid analogue/digital device (analogue measuring and signal comparators and digital logic) with serial connectivity and comprehensive self monitoring		13	21	25	6
	(D1) Digital device incoming signals converted to digital form		13	19	23	5
SCADA	Station RTUs (B2) Analogue electronic based mainly on solid state discrete components	Communications Network Assets	18	24	28	5
	Station RTUs (B3) Analogue electronic device using discrete components & integrated circuits		19	23	29	5
	Station RTUs (D1) Digital device incoming signals converted to digital form		13	19	23	5
Control Centre	Master SCADA system	Station SCADA and Control Systems	10	12	15	2.5
	Host computer equipment		2	3	5	1.5
DC Supplies	Batteries (pasted plate)		13	15	16	1.5
	Home lighting		4	5	7	5
	Battery Chargers (Early Analogue)		20	24	30	5
	Battery Chargers (Digital Control)		10	15	20	5

5.3 Maximum Demand at Network Level

Table 5.3.1 — Raw and Weather Corrected Coincident Maximum Demand at Network Level

The above table has not been completed as the required information is owned and maintained by AEMO.

5.4 Maximum Demand and Utilisation at Spatial Level

Table 5.4.1 — Non-Coincident and Coincident Maximum Demand

The above table has not been completed as the required information is owned and maintained by AEMO.