

Jemena Electricity Networks (Vic) Ltd

Response to the Category Analysis Regulatory Information Notice for regulatory year 2015

Basis of preparation

Information from the 2015 regulatory year

Public



Jemena
Vital Service. Vital Planet.

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Notice for the 2015 regulatory year - Basis of preparation

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GLOSSARY

ACS	Alternative Control Service
AER	Australian Energy Regulator
BOM	Bureau of Meteorology
CAM	Cost Allocation Method
CFA	Country Fire Authority
CIS	Customer Information System
CMOS	Customer Minutes Off Supply
CPI	Consumer Price Index
CY	Calendar Year
DLF	Distribution Loss Factor
DNSP	Distribution Network Service Providers
DRC	Depreciated Replacement Cost
DUoS	Distribution Use of System
EBSS	Efficiency Benefit Sharing Scheme
EBT	Economic benchmarking asset categories
EDPR	Electricity Distribution Price Review
ERP	Enterprise Resource Planning
ESC	Essential Services Commission
FQ	Fee and quote based services
FY	Financial Year
GIS	Geospatial Information System
GL	General Ledger
HV	High Voltage
IMS	Interval Meter Store
JAM	Jemena Asset Management Pty Ltd
JAM6	Jemena Asset Management 6 Pty Ltd
JEN	Jemena Electricity Networks (Vic) Limited
KPI	Key Performance Indicators
LV	Low Voltage
MD	Maximum Demand
MED	Major Event Day
MVA	Megavolt Amperes
MVA _r	Megavolt Ampere Reactive
MW	Mega Watts

NEL	National Electricity Law
NMI	National Meter Identifiers
NPV	Net Present Value
NS	Network Services
OH	Overhead
OMS	Outage Management System
ORG	Office of the Regulator General
P&L	Profit and Loss
PF	Power Factor
RAB	Regulated Asset Base
RAS	Regulatory Accounting Statements
RFM	Roll-forward model
RIN	Regulatory Information Notice
SCS	Standard Control Services
STPIS	Service Target Performance Incentive Scheme
TNSP	Transmission Network Service Provider
TT	Thomastown Terminal
UG	Underground
VMS	Vegetation Management System
WACC	Weighted Average Cost of Capital
WBS	Work Breakdown Structure

OVERVIEW

1. This basis of preparation document has been prepared by Jemena Electricity Networks (Vic) Ltd (**JEN**) in response to the category analysis Regulatory Information Notice (**RIN**), covering calendar year 2015. RIN data templates and accompanying audit report and review report is due to the Australian Energy Regulator (**AER**) by 30 April 2015. The RIN was served upon JEN by the AER under the National Electricity Law (**NEL**) on 7 March 2014.
2. Section 1.2 of Schedule 2 of the RIN requires JEN to prepare a 'basis of preparation' in accordance with the requirements specified in Schedule 1. This document—JEN's basis of preparation (for each variable and any other information):
 1. demonstrates how the information provided is consistent with the requirements of the RIN
 2. explains the source from which JEN obtained the information provided
 3. explains the methodology JEN applied to provide the required information, including the assumptions (if any) JEN made
 4. explains, in circumstances where JEN cannot provide input for a variable using actual information and therefore must provide input using estimated information:
 - a) why an estimate is required, including why it is not possible for JEN to use actual financial information or actual non-financial information (as the case may be, depending on the variable)
 - b) the basis for the estimate, including the approach used, assumptions made and reasons why the estimate is JEN's best estimate, given the information sought in the RIN.
3. The RIN requires that the basis of preparation—for every variable in the Excel templates—explains the basis upon which JEN prepared information to populate the input cells. JEN notes that the AER intends to publish JEN's basis of preparation along with the RIN Excel templates.
4. JEN considers this basis of preparation complies with the AER requirement that the basis of preparation must follow a logical structure that enables auditors, assurance practitioners and the AER to clearly understand how JEN has complied with the requirements of the RIN. JEN has structured this basis of preparation to align with sections, worksheets and tables of the same numerical reference in the Excel templates (for example, section 2.2 *Repex* of this basis of preparation document refers to worksheet 2.2 *Repex* in the Excel templates).
5. JEN has included in its basis of preparation all other information JEN prepared in accordance with the requirements of the RIN.

PROCESS REQUIREMENTS

6. JEN's basis of preparation is verified by statutory declaration by 29 April 2016, as part of the audit or review of the economic benchmarking data templates. The auditor **reviewed** JEN's basis of preparation when conducting their audit of actual information and issuing their review conclusion on estimated information.

BEST ESTIMATES

7. Where JEN cannot populate an input cell in the Excel templates with actual information, it has provided its best estimate, considering data availability constraints, JEN's knowledge of how the information may be applied or

interpreted by the AER and JEN being unaware of a superior estimation technique at the time. Accordingly, JEN cautions the AER from using this data to inform regulatory decisions without first confirming with JEN its understanding of the methodologies used, availability of data and any other limitations that may exist.

8. Due to the requirement for JEN to populate input cells relating to a number of previous years, JEN has estimated some variables.
9. Where JEN has provided an estimate, it has, in its basis of preparation, explained:
 1. why it could not use actual information
 2. the basis upon which the estimate was made including detail of the methodology applied, and
 3. why it is JEN's best estimate.

DEFINITION OF ACTUAL INFORMATION

10. JEN has adopted the AER's definition of 'actual information' in its response to the RIN. The RIN and explanatory statement define actual information as:

Information presented in response to the Notice whose presentation is Materially dependent on information recorded in JEN's historical accounting records or other records used in the normal course of business, and whose presentation for the purposes of the Notice is not 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.

'Accounting records' include trial balances, the general ledger, subsidiary accounting ledgers, journal entries and documentation to support journal entries. Actual financial information may include accounting estimates, such as accruals and provisions, and any adjustments made to the accounting records to populate JEN's regulatory accounts and responses to the Notice. 'Records used in the normal course of business', for the purposes of non-financial information, includes asset registers, geographical information systems, outage analysis systems, and so on.

WHERE JEN HAS BLACKED OUT CELLS

11. In some limited circumstances, JEN has blacked out input cells. These circumstances are limited to those that the RIN and its explanatory statement clearly identify as potentially not applicable to JEN.
12. The only circumstance where the AER determined that a variable could potentially be not applicable to JEN is when JEN does not currently measure the information in accordance with the variable requirement and the AER considers that it would be both:
 - unnecessarily burdensome for JEN to estimate the information; *and*
 - illogical for JEN to enter '0' in response to the variable when posed as a question
13. these cells are coloured orange in the clean Excel templates.
14. For each variable identified in the RIN and the Excel templates (through orange shading) as potentially not applicable, JEN has considered whether the variable is actually applicable to it.

15. Where the variable is actually applicable, JEN has completed the variable in accordance with the RIN and its explanatory statement. However, where specified above, in some cases JEN has blacked out the cells relating to that variable rather than input information. This does not mean that JEN has not responded to part of the RIN. Rather, it means that, in the circumstances set out above, the correct response required by the RIN is a blacked out cell. JEN has not applied any other use of blacked out or empty cells.

HOW JEN'S RESPONSE TO EACH VARIABLE MEETS THE REQUIREMENTS OF THE RIN

16. JEN considers that all information provided in this response—for each variable and any other information—is consistent with the requirements of the RIN. This is evident in that:
- JEN has provided complete Microsoft Excel workbooks attached at Appendix A of the RIN that accord to the RIN and the principles and requirements in Appendix E of the RIN
 - JEN has provided a basis of preparation that demonstrates JEN's compliance with each of the information requirements. JEN's basis of preparation, for each variable and any other information:
 - Explains the source from which JEN obtained the information provided
 - Explains the methodology JEN applied to provide the required information, including any assumptions made
 - Where JEN has estimated information, its basis of preparation explains why an estimate was required, including why it was not possible for JEN to use actual information, and explains the basis of the estimate, including the approach used, assumptions made and why JEN considers the estimate to be JEN's best estimate
 - JEN has provided supporting information or documentation used to comply with the requirements of the RIN
 - JEN has provided the audit and review reports in accordance with the requirements of the RIN.

JEN HAS COLOUR CODED ITS RESPONSE TO EACH VARIABLE IN THE RIN

17. JEN has colour-coded both the templates and the basis of preparation to disclose the level of robustness of estimated information submitted in JEN's response to the RIN.
18. Actual data has been colour coded green and is considered to be reliable for the purpose of informing regulatory decisions. Estimated data that has been colour coded yellow is considered a good estimate and could be used to inform regulatory decisions also. Data that has been colour coded orange or red is considered a highly subjective estimate and should not be used to inform regulatory decision-making in JEN's view.
19. Below is a copy of JEN's colour coding schedule, including the definitions that distinguish between colour classifications.

Colour Code	Availability of data from NSP's primary system	Additional work around/estimation techniques
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Colour Code	Availability of data from NSP's primary system	Additional work around/estimation techniques
Green	Available and verifiable	Simple – no additional work or minor work around (e.g. source data from a secondary system)
Yellow	Available but with some gaps	Moderate – estimate based on statistically significant sample size
Orange	Little or no data available	Complex – estimate based on formula, standard parameters or other source
Red	Little or no data available	Subjective – based on significant estimates, judgements and assumptions
Black	Not applicable to relevant NSP	Not applicable to relevant NSP

2. EXPENDITURE

2.1 EXPENDITURE SUMMARY & RECONCILIATION

General Approach

Although some of the data that flows into the expenditure summary template is a mix of actual and estimate data, JEN has populated the ‘consolidated’ template only. This is consistent with JEN’s prior year submission. The categorisation of actual and estimate data in the tables below mirrors the categorisation—be it actual or estimated—from the source categorisation from the respective source templates.

2.1.1 STANDARD CONTROL SERVICES CAPEX

Actual information

Variable	Source and why actual	Methodology	Assumptions
Capitalised Corporate Overhead	The data is sourced from actual template of 2.10 Overheads	Refer to the Basis of Preparation for 2.10 Overheads	None
Customer Contributions	This information is sourced directly from JEN’s SAP ERP system.	This data is derived from a defined general ledger account.	None

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Replacement Expenditure (Repex)	The data is sourced from the estimate template of 2.2 Repex	Refer to the Basis of Preparation for 2.2 Repex.	Refer to the Basis of Preparation for 2.2 Repex.	Refer to the Basis of Preparation for 2.2 Repex.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Connections	The data is sourced from the estimate template of 2.5 Connections.	Refer to the Basis of Preparation for 2.5 Connections.	Refer to the Basis of Preparation for 2.5 Connections.	Refer to the Basis of Preparation for 2.5 Connections
Augmentation Expenditure (Augex)	The data is sourced from the estimate template of 2.3 Augex	Refer to the Basis of Preparation for 2.3 Augex.	Refer to the Basis of Preparation for 2.3 Augex.	Refer to the Basis of Preparation for 2.3 Augex.
Non-Network	The data is sourced from template 2.6 Non-Networks where the bulk of the information is estimated.	Refer to the Basis of Preparation for 2.6 Non-Networks.	Refer to the Basis of Preparation for 2.6 Non-Networks.	Refer to the Basis of Preparation for 2.6 Non-Networks.
Capitalised Network Overheads	The data is sourced from the estimate template of 2.10 Overheads	Refer to the Basis of Preparation for 2.10 Overheads.	Refer to the Basis of Preparation for 2.10 Overheads.	Refer to the Basis of Preparation for 2.10 Overheads.
Balancing Item	<p>The balancing item is the outcome from the reconciliation made to SCS Capex reported in the Category Analysis RIN submissions.</p> <p>As the items making up the balance consist of estimated items and/or items not reported in RIN submissions, it is estimated data. Refer to Appendix A.</p>	Refer to Appendix A – Balancing Items Reconciliation for details of the balancing items	As Balancing Items is not reported as a separate category in the RIN submissions, JEN has deemed this data as an estimate.	JEN is not aware of a superior estimation technique.

2.1.2 STANDARD CONTROL SERVICES OPEX BY CATEGORY

Actual Information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Corporate Overheads	The data is sourced from the actual template in 2.10 Overheads.	Refer to the Basis of Preparation 2.10 Overheads.	Refer to the Basis of Preparation 2.10 Overheads. It is assumed that IT non network costs are included in the “Corporate overhead expenditure - Overhead expenditure before allocation standard control services” section of template 2.10 Overheads, To avoid the impact of double counting, JEN removed the IT costs that were disclosed in the non-network template.	Refer to the Basis of Preparation 2.10 Overheads.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Vegetation Management	The data is sourced from the estimate template in 2.7 Vegetation Management.	Refer to the Basis of Preparation 2.7 Vegetation Management.	Refer to the Basis of Preparation 2.7 Vegetation Management.	Refer to the Basis of Preparation 2.7 Vegetation Management.
Maintenance	The data is sourced from the estimate template in 2.8 Maintenance.	Refer to the Basis of Preparation 2.8 Maintenance.	Refer to the Basis of Preparation 2.8 Maintenance.	Refer to the Basis of Preparation 2.8 Maintenance.
Emergency Response	The data is sourced from the estimate template in 2.9 Emergency Response.	Refer to the Basis of Preparation 2.9 Emergency Response.	Refer to the Basis of Preparation 2.9 Emergency Response.	Refer to the Basis of Preparation 2.9 Emergency Response.
Non-Network	The data is sourced from the estimate template in 2.6 Non-Networks (IT, Motor Vehicle and Building & Property costs)	Refer to the Basis of Preparation 2.6 Non-Networks.	Refer to the Basis of Preparation 2.6 Non-Networks.	Refer to the Basis of Preparation 2.6 Non-Networks.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Network Overheads	The data is sourced from the estimate template in 2.10 Overheads	Refer to the Basis of Preparation for 2.10 Overheads.	Refer to the Basis of Preparation for 2.10 Overheads.	Refer to the Basis of Preparation for 2.10 Overheads.
Balancing item	<p>The balancing item is the outcome from the reconciliation made to SCS opex reported in the annual RIN submissions.</p> <p>As the items making up the balance consist of estimated items and/or items not reported in RIN submissions, it is estimated data. Refer to Appendix A.</p>	Refer to Appendix A – Balancing Items Reconciliation for details of the balancing items	As Balancing Items is not reported as a separate category in the RIN submissions, JEN has deemed this data as an estimate.	JEN is not aware of a superior estimation technique.

2.1.3 ALTERNATIVE CONTROL SERVICES CAPEX

Actual Information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Capitalised Corporate Overheads	The data is sourced from actual template of 2.10 Overheads.	Refer to the Basis of Preparation for 2.10 Overheads.	None	N/A

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Capitalised Network Overheads	The data is sourced from the estimate template of 2.10 Overheads.	Refer to the Basis of Preparation for 2.10 Overheads.	Refer to the Basis of Preparation for 2.10 Overheads.	Refer to the Basis of Preparation for 2.10 Overheads.
Connections	The data is sourced from the estimate template of 2.5 Connections.	Refer to “Connections” in section 2.1.1 above. JEN notes that although it disclosed connections costs as part of Fee and Quoted Services, these should also be disclosed as ACS Connections, with the “duplication” impact disclosed in the “balancing Item” line item.	Refer to the Basis of Preparation for 2.5 Connections.	Refer to the Basis of Preparation for 2.5 Connections.
Metering	The data is sourced from template 4.2 Metering. The estimated cost category with reference to template 4.2. JEN used allocation to apply costs to the service subcategories.	Refer to the Basis of Preparation for Other Metering in template 4.2 estimate.	Refer to the Basis of Preparation for Other Metering in template 4.2 estimate.	Refer to the Basis of Preparation for Other Metering in template 4.2 estimate.
Public Lighting	The data is sourced from the estimate template of 4.1 Public Lighting.	Refer to the Basis of Preparation for 4.1 Public Lighting.	Refer to the Basis of Preparation for 4.1 Public Lighting.	Refer to the Basis of Preparation for 4.1 Public Lighting.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Fee & Quoted	The data is sourced from the estimate templates of 4.3 Fee-Based and 4.4 Quoted Services.	<p>Refer to the Basis of Preparation for 4.3 Fee-Based and 4.4 Quoted Services.</p> <p>JEN included the following items as capex:</p> <ul style="list-style-type: none"> • Routine Connections -customers <100 amps that was sourced from table 4.3.1 in template 4.3 • Customer recoverable works that was sourced from table 4.3.1 in template 4.4 • Routine Connections > 100 amps that was sourced from table 4.4.1 in template 4.4. 	Refer to the Basis of Preparation for 4.3 Fee-Based and 4.4 Quoted Services.	Refer to the Basis of Preparation for 4.3 Fee-Based and 4.4 Quoted Services.
Balancing Item	<p>The balancing item is the outcome from the reconciliation of ACS Capex reported in the RIN submissions and the inputs from the templates in the category analysis RIN.</p> <p>As the items making up the balance consist of estimated items and/or items not reported in RIN submissions, it is hence deemed an estimated data; refer to Appendix A.</p>	Refer to Appendix A – Balancing items reconciliation for details of the balancing items.	<p>Refer to Appendix A – Balancing items.</p> <p>This item is solely dependent on assumptions made and explained in other templates.</p>	Refer to Appendix A – Balancing items. This item is solely dependent on best estimates made and explained in other templates.

2.1.4 ALTERNATIVE CONTROL SERVICE OPEX

Actual information

Corporate Overheads	The data is sourced from actual template of 2.10 Overheads	n/a	None	n/a
Non Network	Data is based on the ACS component for IT Opex which uses the JEN CAM to calculate these costs.	n/a	None	n/a
Corporate Overheads	The data is sourced from actual template of 2.10 Overheads	Refer to the Basis of Preparation for 2.10 Overheads	None	N/A

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Metering	<p>The data is sourced from the estimate template in 4.2 Metering.</p> <p>The estimated cost categories with reference to template 4.2 are as follows:</p> <ul style="list-style-type: none"> • Meter Testing • Meter Investigation • Scheduled Meter Reading • Meter Maintenance • Remote Meter Reading • IT Infrastructure - Opex • Communications Infrastructure - 	Refer to the Basis of Preparation for each estimated cost category in 4.2 Metering.	Refer to the Basis of Preparation for each estimated cost category in 4.2 Metering.	Refer to the Basis of Preparation for each estimated cost category in template 4.2.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	Opex Other Metering – Opex part representing asset strategy & planning and AMI transitional business activities costs.			
Connections	The data is sourced from the estimate template of 2.5 Connections.	Refer to “Connections” in section 2.1.1 above. JEN notes that although it disclosed connections costs as part of Network and Corporate Overheads, these should also be disclosed as ACS Connections, with the “duplication” impact disclosed in the “balancing Item” line item.	Refer to the Basis of Preparation for 2.5 Connections.	Refer to the Basis of Preparation for 2.5 Connections.
Network Overheads	The data is sourced from the estimate template of 2.10 Overheads	Refer to the Basis of Preparation for 2.10 Overheads.	Refer to the Basis of Preparation for 2.10 Overheads.	Refer to the Basis of Preparation for 2.10 Overheads.
Public Lighting	The data is sourced from the estimate template in 4.1 Public Lighting.	Refer to the Basis of Preparation for 4.1 Public Lighting.	Refer to the Basis of Preparation for 4.1 Public Lighting.	Refer to the Basis of Preparation for 4.1 Public Lighting.
Fee & Quoted	The data is sourced from the estimate templates in 4.3 Fee-Based & 4.4 Quoted Services.	Refer to the Basis of Preparation for 4.3 Fee-Based & 4.4 Quoted Services. JEN included the following items as opex: <ul style="list-style-type: none"> • Various opex type items, which include energisation, de-energisation, service truck visits, reserve feeder maintenance, wasted truck visits, etc. These were sourced from table 4.3.1 of 	Refer to the Basis of Preparation for 4.3 Fee-Based & 4.4 Quoted Services.	Refer to the Basis of Preparation for 4.3 Fee-Based & 4.4 Quoted Services.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<p>template 4.3.</p> <p>Various opex type items that includes Supply abolishment, Emergency recoverable works, After hour's truck by appointment. These, were sourced from table 4.4.1 of template 4.4.</p>		
Balancing Items	The data is sourced from the actual template in 2.10 Overheads under the heading Corporate Overheads ACS. This balancing item represents the duplication of IT opex that is included in Corporate overheads. Refer to Appendix A.	Refer to the Basis of Preparation 2.10 Overheads.	Refer to the Basis of Preparation 2.10 Overheads.	Refer to the Basis of Preparation 2.10 Overheads.

2.1.5 DUAL FUNCTION ASSETS CAPEX

Not applicable.

2.1.6 DUAL FUNCTION ASSETS OPEX BY CATEGORY

Not applicable.

APPENDIX A – Balancing Item Reconciliation RY15

JEN RIN C - SCHEDULE OF "BALANCING ITEMS" - EXPENDITURE SUMMARY TEMPLATE 2.1	Amount
TABLE 2.1.1 - STANDARD CONTROL SERVICES CAPEX	
Public Lighting - Duplication of Direct costs as it appears in both the Repex and Public lighting templates	(763,431)
Replacement of Public Lighting Lantern included as part of Repex	(1,174)
Connections - Duplication of direct costs Fee Based back office functions. This also appears in the Fee Based template	(1,873,736)
Connections - Duplication of direct costs for overhead and underground activities (CMZ / CMU). These also appear in Fee Based and Quoted templates.	(2,857,535)
Connections - Duplication of overheads costs for overhead and underground activities (CMZ / CMU). These also appear in Fee Based and Quoted templates.	(898,549)
Alternate control services share of Non Network (Motor Vehicle) duplicated in Non-Network items	(49,589)
Other	(12,432)
TOTAL	(6,456,446)
TABLE 2.1.2 - STANDARD CONTROL SERVICES OPEX	
Non Network IT cost duplication that appears in Non Network Opex and Corporate Overheads (SCS)	(4,217,139)
Non Network IT cost duplication that appears in Non Network Opex and Corporate Overheads (ACS)	(303,209)
Maintenance number duplicated when categorising 'by location' and 'by voltage'	(31,857)
TOTAL	(4,552,205)
TABLE 2.1.3 - ALTERNATIVE CONTROL SERVICES CAPEX	
Replacement of Public Lighting Lantern included as part of Repex	1,174
Alternate control services share of Non Network (General Equipment)	34,488
Alternate control services share of Non Network (Motor Vehicle) duplicated in SCS	49,589
Connections - Duplication of direct costs for overhead and underground activities (CMZ / CMU). These also appear in Fee Based and Quoted templates.	(2,857,535)
TOTAL	(2,772,285)
TABLE 2.1.4 - ALTERNATIVE CONTROL SERVICES OPEX	
Non Network IT cost duplication that appears in Non Network Opex and Corporate Overheads	(303,209)
Other	0
Connections - Duplication of overheads costs for overhead and underground activities (CMZ / CMU). These also appear in Fee Based and Quoted templates.	(898,549)
TOTAL	(1,201,757)

2.2 REPEX

2.2.1 REPLACEMENT EXPENDITURE, VOLUMES AND ASSET FAILURES BY ASSET CATEGORY

Actual information

Variable	Source and why actual	Methodology	Assumptions
ASSET FAILURE - VOLUMES (for all of table 2.2.1)	<p><u>Asset Failures</u></p> <p>Source of data: Outage Management System (OMS) – Outage notification report (accidental) for all except public lighting assets.</p> <p>This data was able to be provided without estimation due to the completeness of the outage notification report (accidental).</p> <p>For public lighting assets the data is sourced from SAP Notifications.</p> <p>The notification is created against the specific light that requires replacement. This allows the attributes of the public light such as whether it is located on a Major Road or Minor Road to be analysed and reported on.</p>	<p>The report is filtered by:</p> <ol style="list-style-type: none"> 1. Year -> 2015 2. Outage type -> ACR (AC), Feeder (FD), Distribution Substations (DS), Low Voltage (LV), Line Fuse (LF), Premises (PR), and Switching Zone (SZ) 3. Primary cause of description that aligns with the definition of asset failure. <ul style="list-style-type: none"> - Asset – Electrical Failure - Asset – Mechanical Damage - Asset – Rot or Termites - Asset – Underground - Elements – Aged and deteriorated - Misc – No Identified Cause 	<p>No assumptions were made.</p>
POLES BY: HIGHEST OPERATING	<p>The data is sourced from project cost line item reports from JEN's internal SAP</p>	<p>Pole Staking:</p> <p>Used existing JEN BRIO Query Staked Poles By Feeder to extract details of poles staked for the 2015 calendar year.</p>	<ul style="list-style-type: none"> • The poles were replaced in the year that they were booked to the job.

Variable	Source and why actual	Methodology	Assumptions
VOLTAGE ; MATERIAL TYPE; STAKING (IF WOOD) (ASSET REPLACEMENTS)	<p>systems. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. These reports detail actual pole numbers booked to the relevant Work Breakdown Structure (WBS) Elements over 2015 with additional details from associated Plant Maintenance (PM) Orders and Equipment records.</p> <p>As the data is maintained within JEN's internal systems, it is considered actual information.</p>	<p>Pole Replacement: Extract from SAP for Calendar Year 2015:</p> <p>SAP report S_ALR_87013543 was used to extract Total Cost data (excluding settlement) from projects linked to Pole Replacement activities (AAA and BAA-RPL, RPH, RPS for JSAP) including details of WBS Elements and associated PM Orders. From this report JEN extracted the Materials Expenditure Actuals figure and extracted details of materials (poles) booked to this Activity during 2015. This data was used to determine the number of poles replaced under these activities for the year (poles booked equals poles replaced).</p> <p>From these PM Orders (pole replacement jobs worked on for the specified period), a list of the linked equipment records and the associated equipment characteristics was generated. These associated characteristics along with the Functional Location linked to the relevant PM Order were used to determine the split of poles replaced by classification and voltage.</p>	<ul style="list-style-type: none"> • The number of poles booked to these PM Orders over 2015 equals the number of poles replaced. • The classification (use and voltage) of the pole removed is representative of the pole installed. • Where the classification of the replaced pole could not be ascertained then it was determined by the pole size. I.e 11m = LV pole.

Variable	Source and why actual	Methodology	Assumptions
POLE TOP STRUCTURES BY: HIGHEST OPERATING VOLTAGE (ASSET REPLACEMENTS)	<p>The data is sourced from project cost line item reports from JEN's internal SAP systems. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. These reports detail actual crossarm numbers booked to the relevant work breakdown structure (WBS) Elements over 2015 with additional details from associated Plan Maintenance (PM) Orders and Equipment records.</p> <p>As the data is maintained within JEN's internal systems, it is considered actual information.</p>	<p>Extract from SAP for calendar year 2015:</p> <p>SAP report S_ALR_87013543 were used to extract Total Cost data (excluding settlement) from projects linked to Crossarm Replacement activities (AAA and BAA-RXL, RXH, RXS), including details of WBS Elements and associated PM Orders. From this report JEN extracted the Materials Expenditure Actuals figure and extracted details of all materials (crossarms) booked to these Activities over 2015. This data was used to determine the number of crossarms replaced under these activities for the year.</p> <p>For crossarms booked to RPH (HV Crossarm Replacement). The functional locations linked to the PM Orders were used to determine the relevant voltage.</p> <p>Crossarms of type L11 to L55 are LV. For the remaining HV and ST crossarms, the functional locations linked to the associated PM Orders were used to determine the specific voltages.</p>	<ul style="list-style-type: none"> • The crossarms were replaced in the year that they were booked to the job. • The number of crossarms booked to these PM Orders over the period in question equals the number of crossarms replaced.

Variable	Source and why actual	Methodology	Assumptions
<p>OVERHEAD CONDUCTORS BY: HIGHEST OPERATING VOLTAGE; NUMBER OF PHASES (AT HV) (ASSET REPLACEMENTS)</p>	<p>The data is sourced from project cost line item reports from JEN's internal SAP system. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. These reports detail actual Overhead Conductor lengths booked to the relevant WBS Elements over 2015 with additional details from associated Project Systems (PS) Networks, PM Orders and equipment records.</p> <p>As the data is maintained within JEN's internal systems, it is considered actual information.</p>	<p>Extract from for calendar year 2015:</p> <p>SAP report S_ALR_87013543 was used to extract Total Cost data (excluding settlement) from projects linked to OH Conductor Replacement activities (AAA and BAA-ROH, ROA, ROL) including details of WBS Elements and associated PM Orders. From this report JEN extracted the Materials Expenditure Actuals figure and extracted details of all materials (Overhead Conductor) booked to these activities for the year. This data was used to determine the length of OH conductor replaced under these activities for the year.</p> <p>From these PM Orders (Overhead Conductor jobs worked on for 2015), a list of the linked equipment records and the associated equipment characteristics was generated. These associated characteristics along with the Functional Location linked to the relevant PM Order were used to determine the split of Overhead Conductor replaced by classification and voltage and to facilitate the derivation of the route length from the length of conductor booked. Where this data was not readily available individual PM Orders and/or PS Networks were individually interrogated to determine these details.</p> <p>The split of OH Conductor Replacement quantities between Urban and Short Rural were determined by considering the Feeder associated with the OH conductor replaced. The feeders designated as Short Rural are</p> <ul style="list-style-type: none"> • COO-011 • SA0-002 • SBY-011 • SBY-014 • SBY-032 • SHM-011 • KLO-013 • KLO-021 • KLO-022 <p>All other distribution and subtransmission feeders are designated Urban.</p>	<ul style="list-style-type: none"> • Overhead Conductor was replaced in the year that it was booked to the job. • The length of Overhead conductor booked to the job equals the length of individual Overhead conductors replaced.

Variable	Source and why actual	Methodology	Assumptions
<p>UNDERGROUND CABLES BY: HIGHEST OPERATING VOLTAGE (ASSET REPLACEMENTS)</p>	<p>The data is sourced from project cost line item reports from JEN's internal SAP systems. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. These reports detail actual UG Cable lengths booked to the relevant WBS Elements over the defined period with additional details from associated PM Orders and Equipment records.</p> <p>As the data is maintained within JEN's internal systems, it is considered actual information.</p>	<p>Extract from SAP for calendar year 2015:</p> <p>SAP report S_ALR_87013543 were used to extract Total Cost data (excluding settlement) from projects linked to UG Cable Replacement activities (AAA and BAA-RUA, RUC, RUS) including details of WBS Elements and associated PM Orders. From this report, JEN extracted the Materials Expenditure Actuals figure and extracted details of all materials (Underground Cable) booked to these Activities for the year. This data was used to determine the length of UG cable replaced under these activities for the year.</p> <p>From these PM Orders (Underground Cable Replacement jobs worked on for the specified period), a list of the linked equipment records and the associated equipment characteristics was generated. These associated characteristics along with the Functional Location linked to the relevant PM Order were used to determine the split of Underground Cable replaced by classification and voltage.</p> <p>The split of UG Cable Replacement quantities between Urban and Short Rural was determined by considering the Feeder associated with the UG Cables replaced. The feeders designated as Short Rural are</p> <ul style="list-style-type: none"> • COO-011 • SA0-002 • SBY-011 • SBY-014 • SBY-032 • SHM-011 • KLO-013 • KLO-021 • KLO-022 <p>All other distribution and subtransmission feeders are designated Urban.</p>	<ul style="list-style-type: none"> • All Underground Cable was replaced in the year that it was booked to the job. • The length of cable booked to the job equals the length of cable replaced.

Variable	Source and why actual	Methodology	Assumptions
SERVICE LINES BY: CONNECTION VOLTAGE; CUSTOMER TYPE; CONNECTION COMPLEXITY (ASSET REPLACEMENT)	<p>The data is sourced from JEN's internal SAP systems. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. These reports detail actual service lines installed in 2015.</p> <p>As the data is maintained within JEN's internal systems, it is considered actual information.</p>	<p>Extract from SAP for calendar year 2015:</p> <p>Data is extracted from SAP for all service lines that were installed in 2015. These are reported in this category as service line replacements.</p> <p>These services consist of various customer classes;</p> <ul style="list-style-type: none"> • Commercial classification consists of commercial, industrial and street lighting services. • Residential consists of residential services. 	<ul style="list-style-type: none"> • All service lines installed in 2015 are assumed to be replacement service lines.

Variable	Source and why actual	Methodology	Assumptions
<p>TRANSFORMERS BY: MOUNTING TYPE; HIGHEST OPERATING VOLTAGE ; AMPERE RATING; NUMBER OF PHASES (AT LV) (ASSET REPLACEMENTS)</p>	<p>The data is sourced from project cost line item reports from JEN's internal SAP systems. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. These reports detail actual transformers booked to the relevant WBS Elements over the defined period.</p> <p>As the data is maintained within JEN's internal systems, it is considered actual information.</p>	<p>Extract from SAP for calendar year 2015:</p> <p>SAP report S_ALR_87013543 were used to extract Total Cost data (excluding settlement) from projects linked to Transformer Replacement activities (AAA-RHA, RHB, RHD, RHK), including details of WBS Elements and associated PM Orders. From this report JEN was able to determine the Materials Expenditure Actuals figure and extract details of all materials (transformers) booked to these Activities over the year. This information was used to determine the number of transformers replaced under these activities for the year.</p> <p>The material description, which contains the transformer voltage, rating and phase details, was used to determine the split of transformers by these attributes as required in the template.</p> <p>Note:</p> <p>1). JEN has redistributed the replacement cost for a portion of Ground Outdoor / Indoor Chamber Mounted; >33kV & <= 66kV; >15MVA and <=40MVA into > 11 kV & < = 22 kV Circuit Breaker; in order to correctly represent the expenditure associated with the asset replaced.</p> <p>2). JEN has deliberately put zero for the number of asset replacements in the asset category: Ground Outdoor / Indoor Chamber Mounted; >33kV & <= 66kV; >15MVA and <=40MVA. The reason for this is that expenditure has been incurred establishing the projects, however the corresponding volumes will not materialise until construction begins in 2016 and the assets are installed.</p>	<ul style="list-style-type: none"> The transformers were replaced in the year that they were booked to the job. The number of transformers booked to these jobs over the period in question equals the number of transformers replaced.

Variable	Source and why actual	Methodology	Assumptions
<p>SWITCHGEAR BY: HIGHEST OPERATING VOLTAGE; SWITCH FUNCTION (ASSET REPLACEMENTS)</p>	<p>The data is sourced from project cost line item reports from JEN's internal SAP systems. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. These reports detail actual switchgear booked to the relevant WBS Elements over the defined period.</p> <p>As the data is maintained within JEN's internal systems, it is considered actual information.</p>	<p>Extract from SAP for calendar year 2015:</p> <p>Fuse & Switch Replacement:</p> <p>SAP report S_ALR_87013543 were used to extract Total Cost data (excluding settlement) from projects linked to Switchgear Replacement activities (AAA and BAA-RHE, RHG, RHH, RHJ, RHL, RHO, RHF, RXF, RXJ, RHI), including details of WBS Elements and associated PM Orders. From this report, JEN was able to determine the Materials Expenditure Actuals figure and extract details of all materials (switchgear) booked to these Activities over the year. This information was used to determine the number of items of switchgear replaced under these activities for the year. The material description was used to determine the split of switchgear items by these attributes.</p> <p>Circuit Breaker Replacement:</p> <p>The number of CB replacements was determined by extracting the list of SAP equipment type ZS_CCT_BRK that have been set to status RMVD and then determining which of those have been replaced (new equipment exists in SAP) and using the Status Change date to determine the Year of replacement. The voltage was determined by considering the Zone Substation to which the equipment was linked.</p>	<ul style="list-style-type: none"> The Switchgear items were replaced in the year that they were booked to the job.

Variable	Source and why actual	Methodology	Assumptions
<p>PUBLIC LIGHTING BY: ASSET TYPE; LIGHTING OBLIGATION (ASSET REPLACEMENTS)</p>	<p>The public lighting asset replacements have also been reported in the Public Lighting Tab 4.1.</p> <p>Public Light (luminaire) replacement work is recorded using SAP Notifications. The notification is created against the specific light that requires replacement.</p> <p>Public Lighting Pole replacement work is also recorded using SAP Notifications. The notification is created against the specific pole that requires replacement.</p> <p>The other source of data is the monthly reports from the public lighting prime contractor.</p> <p>This allows the attributes of the public light such as whether it is located on a Major Road or Minor Road to be analysed and reported on.</p>	<p>By extracting the SAP notifications related to specific SAP Public Lighting Codes we can determine the quantity of Public Light replacement activities and categorise them according to Major and Minor Roads.</p> <p>Similarly, by extracting the SAP notifications related to specific SAP Public Lighting Codes and using monthly PL Pole replacement quantities supplied to us by our prime public lighting contractor, we can determine the quantity of public light pole replacement activities.</p> <p>The relevant SAP Public Lighting Codes (MAQ) were;</p> <p>RLJ (Replace Single Light on Main Road) – All notifications with activity code RLJ relate to “Major Road Light Replacement”.</p> <p>RLM (Replace Single Light Minor Road) – All notifications with activity code RLM relate to “Minor Road Light Replacement”.</p> <p>RPA (Public Lighting Pole Replacement on Main Road) – All notifications with activity code RPA relate to “Major Road Light Pole Replacement”.</p> <p>RPB (Public Lighting Pole Replacement on Minor Road) – All notifications with activity code RPB relate to “Minor Road Light Pole Replacement”.</p>	<p>Jemena uses a prime contractor for public lighting services and as such the public lighting replacement work is recorded using SAP notifications and the above mentioned Public Lighting Codes (MAQ). It has been assumed that public lighting replacement work that is performed by resources other than the prime contractor have also been consistently recorded using SAP notifications.</p>

Variable	Source and why actual	Methodology	Assumptions
SCADA, NETWORK CONTROL AND PROTECTION SYSTEMS BY: FUNCTION (ASSET REPLACEMENTS)	<p>The data is sourced from JEN's internal SAP systems. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. SAP extracts equipment lists and details of associated equipment status changes.</p> <p>As the data is maintained within JEN's internal systems, it is considered actual information.</p>	<p>Field Devices (Zone Sub Relays & SCADA):</p> <p>The list of ZS_RELAY equipment that had been set to a status of removed (RMVD) in 2015 was extracted and the RMVD date was used in conjunction with this list to determine the quantities of Zone Substation Relays replaced in each year.</p> <p>Note:</p> <p>1). JEN has deliberately put zero for the number of asset replacements in the asset category: Communication Network Assets. The reason for this is that expenditure has been incurred establishing the project management and front-end design works, however the volumes will not materialise until 2016 when construction occurs and the assets are installed.</p>	<ul style="list-style-type: none"> The ZS Relay equipment status of INAK / RMVD was set in the year that the service was removed. All Zone Sub Relays that were removed (set to RMVD) were subsequently replaced.

Variable	Source and why actual	Methodology	Assumptions
<p>OTHER BY: FUNCTION (ASSET REPLACEMENTS)</p>	<p>The data is sourced from JEN's internal SAP systems. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. SAP extracts equipment lists and details of associated equipment status changes.</p> <p>As the data is maintained within JEN's internal systems, it is considered actual information.</p>	<p>Surge Diverter: SAP report S_ALR_87013543 was used to extract Total Cost data (excluding settlement) from projects linked to Switchgear Replacement activities (AAA and BAA-RXD, RXE), including details of WBS Elements and associated PM Orders. From this report, JEN was able to determine the Materials Expenditure Actuals figure and extract details of all materials (switchgear) booked to these Activities over the year. This information was used to determine the number of items of surge diverter replaced under these activities for the year.</p> <p>The material description was used to determine the split of switchgear items by these attributes..</p> <p>ZS Property (New Control Building at AW ZSS): SAP report S_ALR_87013543 was used to extract Total Cost data (excluding settlement) from projects linked to ZS Property projects, including details of WBS Elements and associated PM Orders.</p>	<ul style="list-style-type: none"> • The Surge diverter items were replaced in the year that they were booked to the job. • It is assumed there is correlation between number of projects and asset replacements.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
<p>GENERAL COMMENTS (apply to expenditure column for all asset groups);</p> <p>REPLACEMENT EXPENDITURE, ASSET CATEGORY Table 2.2.1</p>	<p>REPEX direct expenditure data for 2015 was sourced from JEN's internal SAP system. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. Although JEN was able to source the data at the asset group level and in some instances at the asset category level from its ERP systems, JEN provided its best estimate for areas within the asset category that are not recorded in its ERP systems at the detailed category level.</p>	<p>REPEX expenditure data disclosed in JEN's response to the category analysis RIN is sourced from SAP, the ERP system that JEN uses to capture its financial and some operational information.</p> <p>Activities or networks (cost collectors) are set up to collect costs at a micro level. These activities/networks are designed to collect costs based on the activity on which an individual works and to accept any external costs associated with that activity. Note that the SAP network codes are also designed to identify the Regulatory category i.e. Public Lighting, ACS.</p> <p>JEN uses time writing to capture internal labour costs. Jemena has been improving its capturing of time writing data over the past few years. Where practical and appropriate all employees time write to an activity/network or a client e.g. JEN. These form the direct costs incurred for a respective activity.</p> <p>Repex expenditure categorisation is based upon activity and service category codes in JEN's SAP system as well as ensuring all expenditure line items were assigned the appropriate categorisations.</p> <p>Expenditure data, categorised as described above, was entered into the relevant sections of the template.</p> <p>In order to populate the relevant sections of the</p>	None	<p>Direct expenditure data for 2015 was sourced from the JEN SAP system and reconciled back to JEN's Regulatory Accounts.</p> <p>JEN deems this to be the best estimate as the expenditure assigned to the Asset category level is based on the most relevant actual data—actual volumes recorded and expenditure assigned to the asset group level in SAP.</p> <p>JEN is unaware of a better estimation methodology.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<p>template, categorisation choices for “Class”, “Sub-class” and “Voltage” were derived from a project master-file data sheet. All expenditure line items were assigned to the appropriate classifications based upon project activity and project description.</p> <p>The first (and highest) level category used was “Class” These classes corresponded to the high level data input requirements of the category analysis RIN template. The following nine classes were used:</p> <ul style="list-style-type: none"> - OH Conductors - Other - Poles - Pole top Structures - Public Lighting - Service Lines - Switchgear - Transformers - UG Cables <p>The second level category used was “Sub-class” These sub-classes corresponded to more detailed level data input requirements of the category analysis RIN template. The following twenty sub-classes were used:</p> <ul style="list-style-type: none"> - Bus - Capacitor Bank - Circuit Breakers - Connectors 		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<ul style="list-style-type: none"> - Distribution Transformers - Earths - HV Installation - OH Conductors - Other - Poles - Public Lighting - Public Light Poles - Relays - Service Lines - Staking - Structures - Switchgear - UG Cables - ZSS Property - ZSS Transformers <p>The third (and lowest) level category used was “Voltage” These voltages corresponded to the most detailed level data input requirements of the category analysis RIN template. The following three voltages were used:</p> <ul style="list-style-type: none"> - High Voltage - Low Voltage - Sub-transmission <p>The information gathered (by the process described above) was analysed and sorted in excel (via v-lookup function and pivot tables) to provide</p>		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<p>an input sheet for entry of the data into Table 2.2.1 of the category analysis RIN template.</p> <p>Where JEN's expenditure categories did not precisely match the template classifications further analysis was performed on the detailed project data to allocate costs within high level asset categories across the detailed line items contained in the category analysis RIN template.</p> <p>To achieve the lowest level of expenditure to the asset category, the cost assigned to the Asset Group was split by the actual volume record for the year.</p>		

2.2.2 SELECTED ASSET CHARACTERISTICS

Actual information

Variable	Source and why actual	Methodology	Assumptions
TOTAL POLES BY FEEDER TYPE	All data for these categories are obtained from Template 5.2 - Asset Age Profile	The total volume was extracted from the system according to its feeder functional location. The AER definition of a rural short and urban feeder has been used to match the feeder functional location.	The assumptions are outlined in the basis of preparation for Template 5.2 – Asset Age Profile. There were no additional assumptions made in determining the asset volumes by asset group.
OVERHEAD CONDUCTORS BY: CONDUCTOR LENGTH BY FEEDER TYPE			
OVERHEAD CONDUCTORS BY: CONDUCTOR LENGTH BY MATERIAL TYPE			
UNDERGROUND CABLE BY: UNDERGROUND CABLE BY FEEDER TYPE			

Variable	Source and why actual	Methodology	Assumptions
(ASSET REPLACEMENTS (all)	To determine the volume of asset replacements by Asset Group, the volume of asset replacement by Asset Category has been used in conjunction with the definition of Rural Short and Urban Feeders. This is possible because the feeder that the replaced asset is connected to is known. The source of this data is JEN's internal SAP systems and for this reason, it is considered actual information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.	<p>The AER definition of a Rural Short and Urban Feeder has been used.</p> <p>The methodology for determining the asset replacements is documented in the relevant section of this basis of preparation.</p>	<p>The assumption for determining the asset replacements is documented in the relevant section of this basis of preparation.</p> <p>There were no additional assumptions made in determining the asset replacements by asset group.</p>
TRANSFORMERS BY: TOTAL MVA – replaced (Asset volumes currently in commission) Total MVA – disposed of (asset volumes currently in commission)	As the data is maintained within JEN's internal systems, it is considered actual information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.	The material description, which contains the transformer KVA, rating was used to determine the value for the TOTAL MVA REPLACED for 2015.	The MVA rating of the transformers booked to these jobs equals the MVA rating of the transformers removed.

2.3 AUGEX PROJECT DATA

General Approach

JEN has provided information allocated on a calendar year basis. It is assumed that the template column headings of 2014-15 read as 2015. In tables 2.3.1 and 2.3.2 where projects are required to be reported on project close JEN has reported these in real 2015 dollars.

Variable	Methodology	Assumptions
Classification of Projects	<p>JEN “Augex” projects and expenditure are classified by JEN’s oneSAP project codes beginning with D** (i.e. DOA, DSA, DSH, DSI, DSJ, DSS, DZA, DZC), PRA, PQA and PSA..</p> <p>A list of projects with the above service codes and costs incurred in 2015 is generated using SAP. These costs are then classified into the appropriate Augex categories (Table 2.3.4) based on project codes, except LV Feeders and Distribution Substation.</p> <p>Projects are classified into LV Feeders Augmentation with a more detailed manual approach, such as project description and business case cost estimates etc. See further information in section Error! Reference source not found.</p> <p>.</p>	<p>‘Other assets’ projects were defined as:</p> <ul style="list-style-type: none"> • Feeder Voltage conversion projects. These projects do not fall into any one category (i.e. they are not standard feeder augmentation projects and involve a mix of distribution substation and HV feeder works). • Communications projects. These do not fall into any one category. For example communications fibre loop does not fall into the RIN definition of zone-substation or HV feeder. <p>JEN considers these assumptions are reasonable to give the AER the desired information for capacity related projects in the categories it has requested.</p>
Material Projects (over Threshold)	<p>Projects are grouped into the appropriate categories (as described above) before the relevant materiality thresholds are applied, i.e. \$5M for zone substation and subtransmission lines, \$500k for HV feeders and \$50k for LV feeders.</p>	<p>Projects thresholds were applied on total nominal actual expenditure including overheads.</p>

Variable	Methodology	Assumptions
Project Close	<p>Project close is determined by project status in SAP, where a system generated report lists all the projects closed in 2015.</p> <p>However, due to system upgrades during 2015, new/alternative Work Breakdown Structures (WBS) has been created to replace the existing WBS for some on-going projects. Therefore, the system generated report (for closed projects) would include the replaced WBS while the new/alternative WBS for the same project remains open.</p> <p>In such cases, these projects have been identified and are not considered 'closed'.</p>	<p>Note that the as incurred expenditure in table 2.3.3.2 will not align with the quantities reported on project close as in 2.3.3.1, and could not be used to form a yearly unit rate. Material projects that are not complete will have cost in table 2.3.3.2 but no volume in 2.3.3.1.</p>

2.3.1 AUGEX ASSET DATA – SUBTRANSMISSION SUBSTATIONS, SWITCHING STATIONS AND ZONE SUBSTATIONS

Actual information

JEN had no zone substation projects over the \$5M threshold, or any zone substation land purchase or easement projects, which were closed off in 2014. JEN had only 2 non-material projects which were closed in 2014.

Variable	Source and why actual	Methodology	Assumptions
Years incurred	These were the years in which the projects reported had any expenditure incurred in accordance with the breakdown from JEN SAP system.	The total direct cost split by year was used to determine the years of expenditure.	None
Total non-material project expenditure	Cost data as extracted from SAP. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still	The sums of annual direct costs of the non-material projects are converted into 2015 dollars	None

Variable	Source and why actual	Methodology	Assumptions
	required to estimate this information as described in this basis of preparation.		

2.3.2 AUGEX ASSET DATA – SUBTRANSMISSION LINES

Material Projects

JEN had no material subtransmission line projects, or any subtransmission line land purchase or easement projects, which were closed off in 2015. JEN had only 3 non-material projects which were closed in 2015.

Actual information

Variable	Source and why actual	Methodology	Assumptions
Years incurred	These were the years in which the projects reported had any expenditure incurred in accordance with the breakdown from JEN's SAP system.	The total direct cost split by year was used to determine the years of expenditure	None
Total non-material project expenditure	Cost data as extracted from SAP. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.	The sums of annual direct costs of the non-material projects are converted into 2015 dollars	None

2.3.3 AUGEX DATA – HV/LV FEEDERS AND DISTRIBUTION SUBSTATIONS

2.3.3.1 Descriptor metrics

Actual information

Variable	Source and why actual	Methodology	Assumptions
HV Feeder Augmentations (volume)	Construction drawings stored in JEN's internal IT system software (DrawBridge) provide a source of actual information.	<p>JEN has obtained the km of overhead conductor and underground cable which were added or upgraded from the construction drawings stored in DrawBridge.</p> <p>Note that the 'as incurred' expenditure in table 2.3.3.2 will not align with the quantities reported in 2.3.3.1 due to the timing of expenditure incurred and asset install volumes not yet materialising--therefore this information should not be used to form a yearly unit rate. Also note that material projects that are not complete will have costs reported in table 2.3.3.2 but no volumes reported in 2.3.3.1.</p>	It was assumed that thermal uprating and re-conductoring were upgrades.
LV Feeder Augmentations (volume)	Construction drawings stored in JEN's internal IT system software (DrawBridge) provide a source of actual information.	<p>JEN has obtained the km of overhead conductor and underground cable which were added or upgraded from the construction drawings stored in DrawBridge.</p> <p>Note that the as incurred expenditure in table 2.3.3.2 will not align with the quantities reported in 2.3.3.1, due to the timing of expenditure incurred and asset install volumes not yet materialising--therefore this information should not be used to form a yearly unit rate. Also note that material projects that are not complete will have costs reported in table 2.3.3.2 but</p>	It was assumed that thermal uprating and re-conductoring were upgrades.

Variable	Source and why actual	Methodology	Assumptions
Distribution Substation Augmentations (volume)		no volumes reported in 2.3.3.1.	
	Construction drawings stored in JEN's internal IT system software (DrawBridge) provide a source of actual information.	<p>JEN has obtained the number of substations of each type which were added or upgraded from the construction drawings stored in DrawBridge.</p> <p>Note that the as incurred expenditure in table 2.3.3.2 will not align with the quantities reported in 2.3.3.1, due to the timing of expenditure incurred and asset install volumes not yet materialising--therefore this information should not be used to form a yearly unit rate. Also note that material projects that are not complete will have costs reported in table 2.3.3.2 but no volumes reported in 2.3.3.1.</p>	None

2.3.3.2 Cost metrics

The respective materiality threshold for HV Feeders (\$0.5M) and LV Feeders (\$50k) is applied to the total project cost as estimated in the relevant business cases. This is to capture material projects with cumulative costs falling below the materiality thresholds by the end of 2015.

Calculated Actual information

Variable	Why calculated actual	Basis for calculation	Assumptions	Why best methodology
HV feeder augmentations (expenditure)	<p>HV feeder projects are assigned the service codes of DSA and DSH.</p> <p>However, JEN does not separately record the overhead and underground cost.</p> <p>JEN considers these variables 'calculated actual' information on the basis that despite not being directly recorded variable within JEN's internal business records, its presentation for the purposes of the Notice is not contingent on judgement and assumptions which could lead to a materially different presentation in the response to the Notice.</p>	<p>JEN has estimated the percentage overhead and underground for each of its material projects by using the business case and cost estimates.</p> <p>The percentage overhead or underground estimated for each project was then applied to the project actual costs which were used to derive table 2.3.4.</p> <p>Note that the as incurred expenditure in table 2.3.3.2 will not align with the quantities reported on project close as in 2.3.3.1, and could not be used to form a yearly unit rate. Material projects that are not complete will have cost in table 2.3.3.2 but no volume in 2.3.3.1.</p>	<p>It is assumed that the business case and cost estimates are a reasonable basis for estimating proportion of underground or overhead.</p> <p>Where a new overhead switch was installed as part of an underground feeder project all cost has been allocated into underground feeder.</p> <p>Where there were parts of the cost estimate relevant to both overhead line and underground augmentations (i.e. design) these were ignored in determining the percentage split.</p>	<p>JEN considers this a reasonable methodology for estimating the quantity required. JEN is not aware of a superior estimation technique.</p>
LV feeder augmentations and Distribution Substation Augmentations (expenditure)	<p>JEN assigns the service code DSL to LV Feeders projects and DSJ to Distribution Substation projects.</p> <p>However, most of JEN's LV feeder augmentation works are</p>	<p>JEN has determined project type based on works description included in the business cases.</p> <p>For projects with works description for distribution substation, 100% of the costs incurred in 2015 are allocated to Distribution</p>	<p>It is assumed that the business case and cost estimates are a reasonable basis for estimating proportion of underground or overhead.</p>	<p>JEN considers this a reasonable methodology for estimating the quantity required. JEN is not aware of a superior estimation technique.</p>

Variable	Why calculated actual	Basis for calculation	Assumptions	Why best methodology
	<p>undertaken as part of the distribution substation augmentation works.</p> <p>JEN's system does not separately record the LV feeder cost and distribution substation cost within the same project.</p> <p>Also, JEN system does not separately record the overhead and underground costs.</p> <p>JEN considers these variables 'calculated actual' information on the basis that despite not being directly recorded variable within JEN's internal business records, its presentation for the purposes of the Notice is not contingent on judgement and assumptions which could lead to a materially different presentation in the response to the Notice.</p>	<p>Substations. The business case information also outlines the type of distribution substation (pole, ground or indoor).</p> <p>For projects contain both LV feeders and distribution substations works, a percentage is allocated to each category, based on business case cost estimates.</p> <p>The same business case cost information is also used in determining the percentage to be allocated to overhead and underground LV feeder.</p> <p>Note that the as incurred expenditure in table 2.3.3.2 will not align with the quantities reported on project close as in 2.3.3.1, and could not be used to form a yearly unit rate. Material projects that are not complete will have cost in table 2.3.3.2 but no volume in 2.3.3.1.</p>		

2.3.4 AUGEX DATA – TOTAL EXPENDITURE

Calculated Actual information

Variable	Why calculated actual	Basis for calculation	Assumptions	Why best methodology
Table 2.3.4 (Expenditure)	Augex expenditure data for 2015 was sourced from the JEN SAP	Augex expenditure categorisation was based upon activity and service category codes of	N/A	JEN considers this the best way it could accurately extract

Variable	Why calculated actual	Basis for calculation	Assumptions	Why best methodology
	<p>system and reconciled back to JEN's Regulatory Accounts. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. JEN considers these variables 'calculated actual' information on the basis that despite not being directly recorded variable within JEN's internal business records, its presentation for the purposes of the Notice is not contingent on judgement and assumptions which could lead to a materially different presentation in the response to the Notice.</p>	<p>the projects in JEN's SAP system as well as information provided by JEN Engineers. JEN Finance worked with JEN Engineers to ensure all expenditure line items were assigned the appropriate categorisations.</p> <p>In addition, the Augex expenditure data was further categorised in to the sub-categories required as outlined in section 2.3 "General Approach" above.</p> <p>For projects that contain both distribution substations and LV feeders, a percentage is allocated to each category, based on business case cost estimates.</p> <p>The same business case cost information is also used in determining the percentage to be allocated to LV feeder costs and distribution substation costs.</p> <p>Expenditure data, categorised as described above, was entered into the relevant sections of the category analysis RIN Template sheet 2.3.4. It was also used to populate the Augex section of the category analysis RIN Template sheet "2.1.2 – Inputs tables".</p>		<p>and categorise the direct expenditure data required. JEN is not aware of a superior estimation technique.</p>

2.5 CONNECTIONS

2.5.1 DESCRIPTOR METRICS

Actual information

Variable	Source and why actual	Methodology	Assumptions
General comments for Actual and Estimated Information	The allocation between Residential, Commercial, Subdivision and Embedded Generation Connections is based on the Activity Codes that have been used in SAP. SAP code allocation is based on the category classification definitions of the AER's RIN request.	<p>The basis of the information is the Regulatory Accounts. From this point we identified the internal orders which had settled their accounts.</p> <ul style="list-style-type: none"> Projects settled their accounts to the Asset Base or Regulatory Accounts. These Projects in many cases are based on an aggregated or summarised project for many Work Orders which either settled directly to the Project or had been resourced billed at the end of a year. This causes difficulty in reconciling volumes and costs for a specific period. As a result, the information is based on actual costs but the categories and splits of expenditure and volumes have been based on an estimated percentage split. 	<ul style="list-style-type: none"> No assumptions have been made
RESIDENTIAL UNDERGROUND CONNECTIONS (0'S) RESIDENTIAL OVERHEAD CONNECTIONS (0'S) COMMERCIAL/INDUSTRIAL	<p>The source of customer connection information is SAP ISU and the Customer Information System (CIS+).</p> <p>Note: Most new connections are entered into SAP ISU because they are made with AMI meters, however some new connections still utilise IMS meters (predominately only commercial connections) and are therefore still reported in CIS+ instead. CIS+ will be</p>	<p>The service orders are created at the time of the connection request.</p> <p>The date, category and service class are confirmed at the completion of the work.</p> <p>The SAP ISU and CIS+ reports are prepared for new connections completed in the desired reporting year. The number of connections</p>	No assumptions have been made.

Variable	Source and why actual	Methodology	Assumptions
<p>UNDERGROUND CONNECTIONS (0'S)</p> <p>COMMERCIAL/INDUSTRIAL OVERHEAD CONNECTIONS (0'S)</p>	<p>phased out when all new connections are made with AMI meters, at which point all new connections will be reported in SAP ISU.</p> <p>This data is based on actual service orders by category and date.</p>	<p>reported from each system are tallied up by customer type (Z001=commercial, Z002=Industrial, Z003=Residential) and service class (OH/UG). The totals of each customer type and service class from the two reports were then added to give the total connections made in the desired reporting year.</p>	
<p>RESIDENTIAL DISTRIBUTION SUBSTATION INSTALLED (MVA ADDED)</p> <p>COMMERCIAL/INDUSTRIAL DISTRIBUTION SUBSTATION INSTALLED (MVA ADDED)</p>	<p>The source of the data is SAP.</p> <p>The data is based on the actual MVA nameplate rating of the substations posted to the SAP projects during the period.</p>	<p>SAP transaction CJ13 provides the project category by year and also provides the material use posted during this period.</p> <p>The MVA description is available from the SAP material master.</p> <p>The added capacity is allocated to each category (residential/commercial/industrial) based on each project's WBS Activity Code.</p>	<p>No assumptions have been made.</p>
<p>SUBDIVISION DISTRIBUTION SUBSTATION INSTALLED (MVA ADDED)</p>	<p>The source of the data is SAP.</p> <p>The data is based on the actual MVA nameplate rating of the substations posted to the SAP projects during the period.</p>	<p>SAP transaction CJ13 provides the project category by year and also provides the material use posted during this period.</p> <p>The MVA description is available from the SAP material master.</p>	<p>No assumptions have been made.</p>
<p>SUBDIVISION DISTRIBUTION SUBSTATIONS INSTALLED (0'S)</p>	<p>The source of the data is SAP.</p> <p>The data is based on the actual volume of the substations posted to the SAP projects during the period.</p>	<p>SAP transaction CJ13 provides the project category by year and also provides the material use posted during this period.</p> <p>The number of substations is available from the SAP material master.</p>	<p>No assumptions have been made.</p>

Variable	Source and why actual	Methodology	Assumptions
RESIDENTIAL DISTRIBUTION SUBSTATIONS INSTALLED (0'S) COMMERCIAL/INDUSTRIAL DISTRIBUTION SUBSTATIONS INSTALLED (0'S)	The source of the data is SAP. The data is based on the actual volume of the substations posted to the SAP projects during the period.	SAP transaction CJ13 provides the project category by year and also provides the material use posted during this period.	No assumptions have been made.
RESIDENTIAL AUGMENTATION LV (TOTAL SPEND (\$0'S))	The source of the data is SAP. The data is based on the actual expenditure posted to the SAP projects during the period.	The actual expenditure for this variable is determined by SAP activity mapping methodology. The two SAP activities and the back-office support for new connections that are relevant for the connection subcategory "Residential" expenditure are: <ul style="list-style-type: none"> • Activities 'Dual and Multiple Occupancy' and • 'Services'. Both of these SAP activities involve minor augmentation on the LV network only, and as such 100% of capital expenditure associated with these two SAP activities would be captured under this variable, as well as connection classification "Simple residential connection LV" in Table 2.5.2.	No assumptions have been made.
RESIDENTIAL AUGMENTATION HV (TOTAL SPEND \$0'S)	The source of the data is SAP. The data is based on the actual expenditure posted to the SAP projects during the period.	Using the SAP activity mapping methodology, these two variables are not applicable within JEN Works Program definitions, and as such the expenditure is zero.	No assumptions have been made.

Variable	Source and why actual	Methodology	Assumptions
RESIDENTIAL DISTRIBUTION SUBSTATION (TOTAL SPEND \$0'S)			
RESIDENTIAL MEAN DAYS TO CONNECT RESIDENTIAL CUSTOMER WITH LV SINGLE PHASE CONNECTION (0'S)	<p>The source of the data is the Customer Information System (CIS+).</p> <p>This data is based on actual service orders by category and date.</p>	<p>This data is based on actual service orders by category and date.</p> <p>The service order is created and an Initiated Date is assigned at the top of the service order.</p> <p>The service order is physically completed and an Effective Date is assigned.</p> <p>The CIS+ report shows connections across all years, and was filtered by 'Completed Date' for the desired reporting year.</p> <p>The Mean Days is calculated as the average of the 'Days to action' over the desired reporting year.</p>	No assumptions have been made.
RESIDENTIAL VOLUME OF GSL BREACHES FOR RESIDENTIAL CUSTOMERS (0'S)	<p>The source of the data is the databases used to manage GSL's.</p> <p>The data is collected within the Stakeholder Relations area.</p>	The volume of GSL breaches are collated from the relevant business areas; New Connections, Appointments and Asset Performance. These are then validated and summated.	No assumptions have been made.
RESIDENTIAL VOLUME OF CUSTOMER COMPLAINTS RELATING TO CONNECTION SERVICES (0'S)	The source of the data is the Oracle Claims Database.	The volume of customer complaints is from direct contact with the customer. Each customer is assessed prior to being categorised as a complaint.	No assumptions have been made.
RESIDENTIAL GSL PAYMENTS (\$0'S)	<p>The source of the data is JEN's internal databases used to manage GSL's.</p> <p>The data is collected within the</p>	The volume of GSL payments are collated from the relevant business areas; New Connections, Appointments and Asset Performance. These are then validated and summated.	No assumptions have been made.

Variable	Source and why actual	Methodology	Assumptions
	Stakeholder Relations area.		
EMBEDDED GENERATION UNDERGROUND CONNECTIONS (0'S)	The source of the Embedded Generation is SAP ISU (EG BI Report) and GIS. This data is based on actual embedded generation connections by date.	As part of the embedded generation connection process, all new connections are recorded in SAP ISU with the date installed. The GIS Applications team extracted all embedded generator connections from SAP ISU (reported using the EG BI Report). This report was then filtered on the 'Date_Installed' for the desired reporting year.	No assumptions have been made.
EMBEDDED GENERATION OVERHEAD CONNECTIONS (0'S)		Details on whether the embedded generator was connected underground or overhead were extracted from GIS by matching the Supply Point ID (SPID) of EG connections with the LV service class. For connections with a blank LV service class, the connection type (underground or overhead) was identified visually by searching	

Variable	Source and why actual	Methodology	Assumptions
EMBEDDED GENERATION DISTRIBUTION SUBSTATIONS INSTALLED (MVA ADDED)	There are no recorded materials or costs incurred for JEN for Embedded generation connections.	N/A	There is an assumption that the lack of recorded costs signifies a lack of incurred costs.
EMBEDDED GENERATION DISTRIBUTION SUBSTATIONS INSTALLED (0's)			
EMBEDDED GENERATION DISTRIBUTION SUBSTATIONS INSTALLED (total spend \$0's)			
EMBEDDED GENERATION AUGMENTATION HV (NET CIRCUIT KM ADDED)			
EMBEDDED GENERATION AUGMENTATION HV (TOTAL SPEND \$0's)			
EMBEDDED GENERATION AUGMENTATION LV (NET CIRCUIT KM ADDED)			
EMBEDDED GENERATION AUGMENTATION LV (TOTAL SPEND \$0's)			

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
SUBDIVISION UNDERGROUND CONNECTIONS (0'S)	Although the number of pits installed are actual data extracted from GIS, these two variables are considered an estimate because the number of connections is assumed to be 1.7 times the number of pits installed.	The number of connections is estimated based on the actual number of pits installed (using GIS and SAP service codes CHH and CHL) multiplied by a factor of 1.7. On average, each pit services 1.7 connections. Refer to variable "SUBDIVISION COST PER LOT (\$)" in Table 2.5.1 for how this factor is calculated.	The assumption is each pit will service 1.7 connections.	It is considered to be the best estimate as this represents an average number of connections serviced by each pit over the longer term, which is more useful for the benchmark unit price. JEN is unaware of a superior estimation methodology.
SUBDIVISION OVERHEAD CONNECTIONS (0'S)				
RESIDENTIAL AUGMENTATION HV (NET CIRCUIT KM ADDED)	The source of the data is SAP. The data is based on the actual volume (length) of the conductor or cable posted to the SAP projects during the period.	SAP transaction CJ13 provides the project category by year and also provides the material use posted during this period. The material posted was then broken down into cable and conductor and summated.	Where there has not been a transformer allocated to a particular project, it has been assumed that there were no HV network augmentations performed as part of that project. Further, it has been assumed that for HV underground cable; <ul style="list-style-type: none"> for 3 core cables, the length of cable used is equal to the circuit length. For 1 core cable, the circuit length is the length of cable used divided by 3. 	This is the best estimate because it uses the material that has been allocated to the project to estimate the net circuit km added. JEN is unaware of a superior estimation methodology.
RESIDENTIAL AUGMENTATION LV (NET CIRCUIT KM ADDED)				
COMMERCIAL/INDUSTRIAL AUGMENTATION HV (NET CIRCUIT KM ADDED)	Although the GIS is the asset database and recorded the length of conductor and cable installed on the network, there has not been a relationship between the SAP project and the length of conductor or cable installed.		It has been assumed that for HV overhead conductor; <ul style="list-style-type: none"> any conductor less than or equal to 19/2mm and 7/4.50mm would be classified as HV. 	
COMMERCIAL/INDUSTRIAL AUGMENTATION LV (NET CIRCUIT KM ADDED)				
SUBDIVISION AUGMENTATION HV (NET CIRCUIT KM ADDED)			It has been assumed that for LV underground cable;	

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
SUBDIVISION AUGMENTATION LV (NET CIRCUIT KM ADDED)			<ul style="list-style-type: none"> That for 4 or 2 core cable the length of cable used is equal to the circuit length. For 1 core cable, the circuit length is the length of the cable used divided by 4. <p>It has been assumed that for LV overhead conductor;</p> <ul style="list-style-type: none"> any conductor other than 19/2mm and 7/4.50mm would be classified as LV. 	
COMMERCIAL/INDUSTRIAL AUGMENTATION HV (TOTAL SPEND \$0'S)	This variable is an estimate because we do not capture costs in SAP directly in accordance with the 'Descriptor Metric' categories as set out in the RIN.	The cost collectors within JEN's SAP system relating to connections have been used to establish this estimate. JEN uses mapping tables to map the cost collectors in the RIN categories e.g. connections.	2013 sample remains representative.	This is the best estimate at the time because the methodology applies is consistent with JEN's SAP activity-based costing system, the application of Connections projects within Works Program definitions and their alignment with RIN definitions.
COMMERCIAL/INDUSTRIAL AUGMENTATION LV (TOTAL SPEND \$0'S)	Although the actual expenditure for these variables are determined by SAP activity mapping methodology, projects that consist of costs associated with HV, LV and distribution substations augmentation are estimated based on a sample of projects cost split into these 'Descriptor Metrics' categories calculated in 2013.	The actual expenditure for these variables were estimated by using the SAP activity mapping methodology as follows: <ul style="list-style-type: none"> Commercial/ Industrial Simple Connection LV expenditure in Table 2.5.2 was allocated 100% to Commercial/ Industrial Augmentation LV expenditure; Commercial/ Industrial Complex Connection HV (customer connected at HV) expenditure in Table 2.5.2 was allocated 100% to Commercial/ Industrial Augmentation HV expenditure; and 		
COMMERCIAL/INDUSTRIAL DISTRIBUTION SUBSTATION (TOTAL SPEND \$0'S)				

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<ul style="list-style-type: none"> • Commercial/ Industrial Complex Connection HV (customer connected at LV, minor HV works) and Complex Connection HV (customer connected at LV, upstream asset works) expenditures in Table 2.5.2 were split based on a sample of projects and evaluation of material costs to determine the split as follows: <ul style="list-style-type: none"> - Distribution Substation: 73% - Augmentation HV: 18% - Augmentation LV: 9% <p>All costs were then amalgamated to produce the final result.</p> <p>Note that the Commercial/ Industrial Complex Connection Sub-transmission expenditure in Table 2.5.2 is not applicable for these variables.</p>		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
<p>SUBDIVISION AUGMENTATION HV (TOTAL SPEND \$0'S)</p> <p>SUBDIVISION AUGMENTATION LV (TOTAL SPEND \$0'S)</p> <p>SUBDIVISION DISTRIBUTION SUBSTATION (TOTAL SPEND \$0'S)</p>	<p>This variable is an estimate because we do not capture costs in SAP directly in accordance with the 'Descriptor Metric' categories as set out in the RIN.</p> <p>Although the actual expenditure for these variables are determined by SAP activity mapping methodology, projects that consist of costs associated with HV, LV and distribution substations augmentation are estimated based on a sample of projects cost split into these 'Descriptor Metrics' categories calculated in 2013.</p>	<p>The cost collectors within JEN's SAP system relating to connections have been used to establish this estimate. JEN uses mapping tables to map the cost collectors in the RIN categories e.g. connections.</p> <p>The actual expenditure for these variables were estimated by using the SAP activity mapping methodology as follows:</p> <ul style="list-style-type: none"> • Subdivision Complex Connection LV expenditure in Table 2.5.2 was allocated 100% to Subdivision Augmentation LV expenditure; and • Subdivision Complex Connection HV (no upstream asset works) expenditure in Table 2.5.2 was split based on a sample of projects and evaluation of material costs to determine the split as follows: <ul style="list-style-type: none"> - Distribution Substation: 30% - Augmentation HV: 40% - Augmentation LV: 30% <p>All costs were then amalgamated to produce the final result.</p> <p>Note that the Subdivision Complex Connection HV (with upstream asset works) expenditure in Table 2.5.2 generally have no expenditure and therefore no allocation is made to these variables.</p>	<p>2013 sample remains representative.</p>	<p>This is the best estimate at the time because the methodology applies is consistent with JEN's SAP activity-based costing system, the application of Connections projects within Works Program definitions and their alignment with RIN definitions.</p>
<p>SUBDIVISION</p>	<p>This variable is an estimate because we do not capture</p>	<p>The estimate is based on whole of project costs and the number of service pits</p>	<p>It has been assumed that the methodology used to calculate the</p>	<p>This is the best estimate because it uses the material</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
COST PER LOT (\$)	<p>costs in SAP in accordance with this requirement as set out in the RIN.</p> <p>The data is recorded only as a component of the whole project cost.</p>	<p>installed multiplied by the lots per pit factor.</p> <p>The lots per pit factor as determined from the average connections per pit for the period 2009 to 2013.</p> <p>This lots per pit factor was determined by extracting from GIS all of the External Plan References (XPR) installed since 1 January 2009.</p> <p>The XPR are a polygon in the GIS that covers the extents of the design drawing.</p> <p>All underground pits that were inside or touching each XPR were extracted.</p> <p>All underground nominal service cables (the connection between the pit and the supply point (customer meter)) that were inside or touching each XPR were also extracted.</p> <p>All pits and nominal service cables within each polygon were counted, and from the counts we calculated the average number of services supplied from a pit.</p> <p>SAP transaction CJ13 provides the project category by year and also provides the numbers of pits posted during this period. The “K” factor was then used to determine the number of serviced lots. Using the total cost of the subdivision (including transformers, HV and LV) divided by the number of lots, the cost per lot is determined.</p>	<p>number of services per pit is representative of the construction in the field.</p>	<p>that has been allocated to the project and the GIS data to be to be analysed to estimate the number of services connected for the number of pits installed. JEN is unaware of a superior estimation methodology.</p>

2.5.2 COST METRICS BY CONNECTION CLASSIFICATION

Actual information

Variable	Source and why actual	Methodology	Assumptions
EMBEDDED GENERATION SIMPLE CONNECTION LV (0'S)	The source of the Embedded Generation is SAP ISU (EG BI Report) and GIS. This data is based on actual embedded generation connections by date.	As part of the embedded generation connection process, all new connections are recorded in SAP ISU with the date installed. The GIS Applications team extracted all embedded generators from SAP ISU (reported using EG BI Report). This report was then filtered on the 'Installed Date' for the desired year. Details on whether the embedded generator was connected underground or overhead were extracted from GIS by matching the Supply Point ID (SPID) of EG connections with the LV service class. For connections with a blank LV service class the LV service class was identified visually by searching the connection point address on Google Earth. HV connections are reported to the Network Capacity and Planning team. No HV connections were made during the desired report period.	No assumptions have been made.
EMBEDDED GENERATION COMPLEX CONNECTION HV (small capacity) (0'S)			
EMBEDDED GENERATION COMPLEX CONNECTION HV (large capacity) (0'S)			
EMBEDDED GENERATION SIMPLE CONNECTION LV (\$0'S)	There are no recorded costs incurred for Jemena in the connection of an embedded generator.	N/A	There is an assumption that the lack of recorded costs signifies a lack of incurred costs.
EMBEDDED GENERATION COMPLEX CONNECTION HV (small capacity) (\$0'S)			

Variable	Source and why actual	Methodology	Assumptions
EMBEDDED GENERATION COMPLEX CONNECTION HV (large capacity) (\$0'S)			
RESIDENTIAL SIMPLE CONNECTION LV (\$0'S)	These costs are taken from SAP and filtered based on the activity codes.	Costs for all projects are extracted from SAP and then filtered based on service code to give a total cost for residential simple LV connections.	No assumptions have been made.
RESIDENTIAL COMPLEX CONNECTION LV (\$0'S)	There are no recorded costs incurred for Jemena for complex residential connections.	N/A	There is an assumption that the lack of recorded costs signifies a lack of incurred costs.
RESIDENTIAL COMPLEX CONNECTION HV (\$0'S)			
COMMERCIAL/INDUSTRIAL SIMPLE CONNECTION LV (\$0'S)	These costs are taken from SAP and filtered based on the activity codes.	Costs for all projects are extracted from SAP and then filtered based on service code to give a total cost for commercial/industrial simple LV connections.	No assumptions have been made.
COMMERCIAL/INDUSTRIAL COMPLEX CONNECTION HV (CUSTOMER CONNECTED AT HV) (\$0'S)	These costs are taken from SAP and filtered based on the activity codes.	Costs for all projects are extracted from SAP and then filtered based on service code to give a total cost for commercial/industrial complex HV connections.	No assumptions have been made.
COMMERCIAL/INDUSTRIAL COMPLEX CONNECTION SUB-TRANSMISSION (\$0'S)	There are no recorded costs incurred or connections for Jemena for sub-transmission commercial/industrial connections.	N/A	There is an assumption that the lack of recorded costs and connections signifies a lack of incurred costs.

Variable	Source and why actual	Methodology	Assumptions
RESIDENTIAL SIMPLE CONNECTION LV (0'S)	Volume is taken from SAP ISU and CIS+, as described for Table 2.5.2 volumes. The volume split (simple, complex, LV, HV etc.) is from SAP, based on service codes for individual projects.	Total connection volume by customer type is as done for Table 2.5.2. The proportional split of volume is done based on the WBS service code of completed projects within the desired reporting year. Note that the SAP project count does not match the number of connections because most projects cover multiple connections, so the SAP project count is used purely to allocate connections to a particular connection type (simple/complex, LV/HV, etc.).	No assumptions have been made.
RESIDENTIAL COMPLEX CONNECTION LV (0'S) RESIDENTIAL COMPLEX CONNECTION HV (0'S)	Volume is taken from SAP ISU and CIS+, as described for Table 2.5.2 volumes. The volume type split (simple, complex LV, HV, etc.) is from SAP, based on service codes for individual projects	Total connection volume by customer type is as done for Table 2.5.2. The proportional split of volume is done based on the WBS service code of completed projects within the desired reporting year. Note that the SAP project count does not match the number of connections because most projects cover multiple connections, so the SAP project count is used purely to allocate connections to a particular connection type (simple/complex, LV/HV, etc.). Note, there are no recorded connections for residential complex HV or LV connections. N/A	There is an assumption that the lack of recorded connections signifies a lack of connections performed.
SUBDIVISION COMPLEX CONNECTION LV (\$0'S) SUBDIVISION COMPLEX CONNECTION HV (NO UPSTREAM ASSET	These costs are taken from SAP and filtered based on the activity codes.	Costs for all projects are extracted from SAP and then filtered based on service code to give a total cost for subdivision connections.	No assumptions have been made.

Variable	Source and why actual	Methodology	Assumptions
WORKS) (\$0'S)			
SUBDIVISION COMPLEX CONNECTION HV (WITH UPSTREAM ASSET WORKS) (\$0'S)			

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
COMMERCIAL/INDUSTRIAL COMPLEX CONNECTION HV (CUSTOMER CONNECTED AT LV, MINOR HV WORKS) (\$0'S)	This is an estimate rather than an actual because there are not specific activity codes to differentiate between minor HV works and upstream asset works.	There has been an estimate of 80% of expenditure falling under Complex Connection HV (customer connected at LV, minor HV works) and 20% of expenditure falling under Complex connection HV (customer connected at LV, upstream asset works).	The assumption is that the 80/20 split used is a close approximation of the actual split of costs based on engineer' knowledge	This is the best estimate available with the information currently collected in SAP.
COMMERCIAL/INDUSTRIAL COMPLEX CONNECTION HV (CUSTOMER CONNECTED AT LV, UPSTREAM ASSET WORKS) (\$0'S)		This estimate has been formed based on an engineering judgment.		JEN is unaware of a superior estimation methodology.
COMMERCIAL/INDUSTRIAL SIMPLE CONNECTION LV (0's)	Although the number of commercial/industrial connections is an actual extracted from SAP ISU, This proportional split is an estimate because there is no relationship between the total connection volume and the t	There has been an estimate that the proportional split of cost between the commercial/industrial sub-categories is the same as the volume proportional split between the numbers of projects that make up the commercial/industrial expenditure.	The assumption is that the number of projects in each activity code is representative of the number of connections performed under each sub category.	This is the best estimate available with the information currently collected in SAP, SAP ISU and CIS+.
COMMERCIAL/INDUSTRIAL COMPLEX CONNECTION HV (CUSTOMER CONNECTED				JEN is unaware of a superior estimation

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
AT LV, MINOR HV WORKS) (0'S)	commercial/industrial subcategories.			methodology.
COMMERCIAL/INDUSTRIAL COMPLEX CONNECTION HV (CUSTOMER CONNECTED AT LV, UPSTREAM ASSET WORKS) (0'S)				
COMMERCIAL/INDUSTRIAL COMPLEX CONNECTION HV (CUSTOMER CONNECTED AT HV) (0'S)				
COMMERCIAL/INDUSTRIAL COMPLEX CONNECTION SUB-TRANSMISSION (000'S)				
SUBDIVISION COMPLEX CONNECTION LV (0'S)	Although the number of pits installed are actual data extracted from GIS, these two variables are considered an estimate because the number of connections are assumed to be 1.7 times the number of pits installed.	The number of connections is estimated based on the actual number of pits installed (using GIS and JSAP service codes CHH and CHL) multiplied by a factor of 1.7. On average, each pit services 1.7 connections. Refer to variable "SUBDIVISION COST PER LOT (\$)" in Table 2.5.1 for how this factor is calculated. JSAP service code CHL represents "Subdivision Complex Connection LV", and CHH represents "Subdivision Complex Connection HV (No Upstream Asset Works)".	The assumption is each pit will service 1.7 connections. This assumption is determined from the average connections per pit for the period 2009 to 2013.	It is considered to be the best estimate as this represents an average number of connections serviced by each pit over the longer term, which is more useful for the benchmark unit price. JEN is unaware of a superior estimation methodology.
SUBDIVISION COMPLEX CONNECTION HV (NO UPSTREAM ASSET WORKS) (0'S)				
SUBDIVISION COMPLEX CONNECTION HV (WITH UPSTREAM ASSET				

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
WORKS) (0'S)				

2.6 NON-NETWORK EXPENDITURE

2.6.1 NON-NETWORK EXPENDITURE

Actual information

Variable	Source and why actual	Methodology	Assumptions
2.6.1 Buildings and Property Capex	<p>This information is considered actual information as it is sourced directly from SAP, the internal Enterprise Resource Planning (ERP) system that JEN uses to capture its financial and other information.</p> <p>JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>Project Maintenance Orders (PM orders) or activities that aggregate into Work Breakdown Structures (WBS Elements) (cost collectors) are set up to collect costs at project level. These activities/ PM orders are designed to collect costs based on the activity on which an employee works and to accept any external costs associated with that activity. Note that the SAP WBS element codes are also designed to identify most of the regulatory categories.</p> <p>JEN uses time writing to capture internal labour costs. JEN continues to improve its process to capture time writing data. Where practical and</p>	<p>The cost of Buildings and Property capex are derived from extracting financial transactions from SAP. A standard project cost report for the calendar year; discloses the building and property costs. The activity codes and respective costs that align to property costs are listed on the report. The activity codes used in projects determine the classification of costs to this category.</p>	<p>No assumptions have been made in providing this information.</p>

Variable	Source and why actual	Methodology	Assumptions
<p>Motor Vehicles Capex</p>	<p>appropriate, all employees time write to an activity/ PM orders or to a client e.g. JEN. These form the direct costs incurred for a respective activity.</p> <p>The Motor vehicles cost disclosed in the RIN's template considered to be taken directly from SAP system, the Enterprise Resource Planning (ERP) system to capture costs associated with capital expenditure. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>JEN's cost collection process uses a combination of projects (WBS elements) and cost centres to collect costs at the macro level. PM orders and activities are set up to collect costs at a micro level. These PM orders and activities which roll up to a project code (WBS elements), to collect costs. All property capex related costs use the above functionality within SAP.</p>	<p>Motor Vehicle capital expenditure is generally external cost and is derived from cost of purchases processed directly to the asset using SAP purchase orders. These costs are allocated to a particular asset class type in SAP.</p> <p>An Asset Acquisitions report is run in SAP, filtered for the motor vehicle asset classes, and lists all the purchases made during the calendar year for that asset class. It gives details of the asset numbers, acquisition amounts, acquisition date and asset description.</p> <p>JEN's Fleet Management team allocates the costs by referring to the unique asset numbers listed on the report to determine the appropriate regulatory asset category.</p> <p>During this process, there could be transactions found to be more of equipment rather than motor vehicles in nature. These amounts are therefore, excluded from the Motor Vehicles category and reported separately in the "Other" category.</p>	<p>All assets are categorised by their physical and operational characteristics.</p>

Other Expenditure	<p>JEN's cost collection process is noted above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).</p> <p>Information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>These are trailers and small equipment items.</p>	The variable reflects miscellaneous equipment purchases.	n/a
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Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
2.6.1 IT and Communications Capex Client Devices	This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.	<p>Client device expenditure consists of desktop and laptop computers, desk and mobile phones as well as other hand held devices. This conforms to the AER definition which is as follows:</p> <p><i>“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.”</i></p>	There are no assumptions made.	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	<p>The client devices cost is considered an estimate because JEN does not directly capture costs in accordance with the categories set out in this template. Experienced IT personnel use their judgement to further categorise the data, therefore it is deemed to be an estimate.</p> <p>In addition, the information contains network overheads which need to be removed as the template requires the disclosure of only the direct costs.</p>	<p>JEN's cost collection process is noted above.</p> <p>The cost of client devices capex is derived by extracting financial transactions from SAP via a standard project cost report. Client Devices expenditure is identified from this report by experienced IT personnel who classify this cost into various categories as required by this template.</p>		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
<p>2.6.1 IT and Communications Capex</p> <p>Recurrent Expenditure</p>	<p>This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>The recurrent cost is considered an estimate because JEN does not directly capture costs in accordance with the categories set out in this template. Experienced IT personnel use their judgement to further categorise the data, therefore it is deemed to be an estimate.</p> <p>In addition, the information contains network overheads which need to be removed as the template requires the disclosure of only the direct costs.</p>	<p>Recurrent expenditure is any cost incurred for systems development that cater for -business growth, enhancements and change, systems upgrades, systems replacement and retirements. This conforms to the AER definition which is as follows:</p> <p><i>“Recurrent expenditure is expenditure that returns time after time with respect to the particular category of expenditure. Temporally, expenditure that would be expected to be reasonably consistent from regulatory period to regulatory period (taking into account volume and unit cost drivers) would be recurrent expenditure.</i></p> <p><i>Examples of recurrent IT & Communications expenditure may include cyclic replacement of assets and related costs (hardware, software, training etc.).”</i></p> <p>JEN’s cost collection process is noted above.</p> <p>The cost of recurrent capex is derived by extracting financial transactions from SAP through a standard project cost report. Recurrent expenditure was identified from this report by experienced IT personnel who</p>	<p>There are no assumptions made</p>	<p>JEN is not aware of a superior estimation technique.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		classify this information into various categories as required by this template.		
2.6.1 IT and Communications Capex <i>Non-Recurrent Expenditure</i>	<p>This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>The non-recurrent cost is considered an estimate because JEN does not directly capture costs in accordance with the categories set out in this template. Experienced IT personnel use their judgement to further categorise the data, therefore it is deemed to be an estimate.</p> <p>In addition to this, the information contains network overheads which need to be removed as the</p>	<p>Non-recurrent expenditure Consist of new IT systems being implemented for the first time or one-off type expenditures. This conforms to the AER definition which is as follows: <i>“Non-recurrent expenditure is likely to include projects, particularly major projects, that are one off and not ongoing in nature (e.g. major IT or Communications systems upgrades).”</i></p> <p>JEN’s cost collection process is described above.</p> <p>The cost of non-recurrent capex is derived by extracting financial transactions from SAP through a standard project cost report. Non-recurrent expenditure is identified from this report by experienced IT personnel who classify this information into various categories as required by this template.</p>	There are no assumptions made.	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	template requires the disclosure of only the direct costs.			
2.6.1 IT and Communications Opex <i>Client Devices</i>	<p>This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>Client devices expenditure is an estimate because JEN does not capture costs in accordance with this category.</p>	Jemena has an IT Services Cost Model which records all IT opex items. The model is used to allocate these costs over its business units based on various cost drivers.	JEN assumes that client device expenditure is consistent year on year as a percentage of overall IT expenditure. JEN also assumes that the cost incurred from the period Jul12-Jun13 is representative of split.	JEN is not aware of a superior estimation technique.
2.6.1 IT and Communications Opex <i>Recurrent Expenditure</i>	<p>This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not</p>	<p>Total IT opex is sourced from SAP, the ERP system that JEN uses to capture its financial information.</p> <p>To avoid double counting, the client devices expenditure has been removed as it has been reported above.</p>	The level of details necessary to distinguish between recurrent and non-recurrent expenditure have not been provided to JEN. Therefore, JEN's experienced IT personnel make the assumption that all the IT operating costs, excluding client devices are of a recurrent nature.	<p>JEN is not aware of a superior estimation technique.</p> <p>Generally, the IT operating costs are typically recurrent in nature and by service agreements with minimal one-off</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	<p>capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>Recurrent expenditure is an estimate because JEN does not capture costs in accordance with categories set out in this template.</p>			<p>abnormal expenditures from one year to the next.</p>
<p>2.6.1 IT and Communications Opex <i>Non - Recurrent Expenditure</i></p>	n/a	n/a	n/a	n/a

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
2.6.1 Motor Vehicles Opex	<p>The information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>Motor Vehicle operating expenditure is reported as an estimate because SAP does not categorise the costs in accordance with the categories set out in this template.</p> <p>Source of average kilometres for each vehicle category is a Monthly Fuel Usage Report maintained and provided by the Fleet Management Company contracted by Jemena (Toyota Fleet Management).</p>	<p>JEN's fleet expenditure includes costs such as vehicle registration fees, insurance, fuel, tolls, service and maintenance costs. The costs are derived from extracting financial transactions from SAP.</p> <p>Specific general ledger accounts are used to capture the fleet costs. Using these general ledger accounts as key parameters, costs are extracted from SAP using a standard report.</p> <p><i>Allocation of Operating Expenditure to the various Motor Vehicle categories:</i></p> <p>As SAP does not categorise fleet costs in accordance with the requirements of this template, they are allocated on a weighted average basis, calculated as follows:</p> <p>The kilometres travelled per vehicle type divided by the total kilometres travelled by all motor vehicles per year.</p> <p>The average for each vehicle type thus arrived at, is then applied to the total motor vehicle operating expenditure to provide the category</p>	<p>JEN has made the assumption that kilometres travelled by a vehicle, is a key cost driver of total motor vehicle expenditure.</p>	<p>JEN is not aware of a superior estimation technique.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		breakdown as required by this template.		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
2.6.1 Buildings and Property Opex	<p>Buildings and property expenditure include operational and maintenance costs of the following sites and its associated fittings and fixtures:</p> <ol style="list-style-type: none"> 321 Ferntree Gully Road, Mount Waverley (Axxess Park) until November 2015 567 Collins Street, Melbourne (Head office) 34 King William Street, Broadmeadows (Broadmeadows Depot) 351 Burwood Highway, Forest Hill (Forest Hill) Levels 9 & 10, 737 Bourke Street, Docklands (Docklands) 247-251 St Albans Road, Sunshine (Sunshine) 77 Keilor Road Drive, Tullamarine (Tullamarine) <p>This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN partially upgraded its SAP system in the current year to improve the</p>	<p>A specific project is created in SAP to collect all the building and property costs of the various Jemena properties. Using this project code, costs are extracted from SAP by running a standard report. The amount captured in this report is then annualised and JEN is being allocated appropriate percentages of the total costs. The allocations are as follows:</p> <ul style="list-style-type: none"> Axxess Park 40% (includes allocation to head office at 567 Collins St, after Nov 2015) Broadmeadows Depot 100% Forest Hill 40% Docklands 40% Sunshine 100% Tullamarine 100% <p>Due to the absence of direct allocation data, management decided to use these percentages (based on experience) until a better allocation method is derived.</p>	<p>No assumptions have been made in providing this information.</p>	<p>JEN is not aware of a superior estimation technique.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	<p>reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>JEN's cost collection process is noted above.</p>			

2.6.2 ANNUAL DESCRIPTOR METRICS – IT & COMMUNICATIONS EXPENDITURE

Actual information

Variable	Source and why actual	Methodology	Assumptions
2.6.2 Employee Numbers	The employee numbers reported under this template are sourced from the Template 2.11 Labour, and hence, inherits the status of 'actual'.	The employee numbers reported under this template are sourced from Template 2.11 Labour. Please refer to the basis of preparation of template 2.11.	Please refer to the basis of preparation for Template 2.11 Labour, for details.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
User Numbers	This variable is estimated because JEN does not currently capture user numbers. It is assumed to be the same as the employee numbers reported above and is sourced from Template 2.11 Labour.	Overall user numbers are estimated based on the number of employee numbers reported above. All employees are given access to the corporate network and communications systems. Field staff have a number of ways to remotely access corporate applications when they are away from Jemena offices. Please refer to the basis of preparation for Template 2.11 Labour.	JEN assumes that the user numbers are equal to the employee numbers reported above.	As every employee is allocated an account, JEN finds this to provide the best estimate and is unaware of a better estimation methodology.
Number of Devices	Number of devices reported in this template is the actual figures at a given point in time – in this case at the end of 2015. The figure reported is a composite	The number of devices reported in this template for desktops, laptops and tablet machines are derived from the asset management auditing tool which is used to track devices attached to the network.	None.	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	of all of the following: <ul style="list-style-type: none"> • Personal computers (laptop and desktop) • Tablets • Smartphones 	Smartphone figures are tracked through our contracts with mobile communications service providers.		

2.6.3 ANNUAL DESCRIPTOR METRICS – MOTOR VEHICLES

Actual information

Variable	Source and why actual	Methodology	Assumptions
2.6.3 CAR Average Kilometres Travelled	A Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena (Inter-leasing).	Data is sourced from the Fleet Management company fuel data reports - based on the fuel card usage. This report identifies each vehicle by registration number and records the kilometre readings at the time of fuel refill. The report includes the Vehicle Reference (which is used to allocate the readings to the various motor vehicle categories of this RIN) the business unit and location. The report is in a rolling data format and retains kilometre readings for the previous 12 months. The annual kilometres are derived by subtracting the beginning of January reading from the end December reading for each vehicle, and then dividing the total kilometres by the number of vehicles for the car category. Therefore, the average kilometres for this category are derived directly from this report.	No assumptions have been made in providing this information.
2.6.3	The information is sourced from SAP, the	The number of cars purchased is sourced from SAP.	

Variable	Source and why actual	Methodology	Assumptions
CAR Number Purchased	ERP system that JEN uses to capture its financial and some operational information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.	An Asset Acquisitions report was run to extract the data and lists all the purchases made for the Motor Vehicles asset class within the calendar year. This report details the asset numbers, acquisition amounts, acquisition dates and asset descriptions and therefore is used to calculate the number of cars purchased.	
2.6.3 CAR Number Leased	n/a Jemena fleet is owned, not leased.	n/a	n/a
2.6.3 CAR Number in Fleet	A Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena (Inter-leasing).	The number in fleet was calculated by referring to the "Summary of vehicles" identified as 'Active' on the monthly fuel card usage report.	'Active' vehicles are assumed to be in the service.
2.6.3 CAR Proportion of Total Fleet Expenditure	All fleet expenditure is allocated as regulatory expenditure, and therefore the proportion of total fleet expenditure is 100%	n/a	None
2.6.3 LIGHT COMMERCIAL VEHICLE Average	A Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena (Inter-leasing).	Data is sourced from the Fleet Management company fuel data reports and, based on fuel card usage. This report identifies each vehicle by registration number and records the kilometre readings at the time of fuel fill. The report includes the Vehicle Reference (which	No assumptions have been made in providing this information.

Variable	Source and why actual	Methodology	Assumptions
Kilometres Travelled		is used to allocate the readings to the various motor vehicle categories of this RIN), the business unit and location. The report is in a rolling data format and retains kilometre readings for the previous 12 months. The annual kilometres were derived by subtracting the beginning of January reading from the end December reading for each vehicle, and then dividing the total kilometres by the number of vehicles for the Light Commercial Vehicle category. Therefore, the average kilometres for this category were derived directly from this report.	
2.6.3 LIGHT COMMERCIAL VEHICLE Number Purchased	The information is sourced from SAP, the ERP system that JEN uses to capture its financial and some operational information.	The number of Light Commercial Vehicles purchased is sourced from SAP. An Asset Acquisitions report is run to extract the data and lists all the purchases made under the Motor Vehicles asset class within the calendar year. This report details the asset numbers, acquisition amounts, and acquisition dates and asset descriptions and therefore is used to calculate the number of Light Commercial Vehicles purchased.	All assets area categorised by their physical and operational characteristics.
2.6.3 LIGHT COMMERCIAL VEHICLE Number Leased	n/a Jemena fleet is owned, not leased.	n/a	n/a
2.6.3 LIGHT COMMERCIAL VEHICLE Number in Fleet	A Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena (Inter-leasing).	The number in fleet was calculated by referring to the "Summary of vehicles" identified as 'Active' on the monthly fuel card usage report.	'Active' vehicles are assumed to be in the service.

Variable	Source and why actual	Methodology	Assumptions
2.6.3 LIGHT COMMERCIAL VEHICLE Proportion of Total Fleet Expenditure	All fleet expenditure is allocated as regulatory expenditure, and therefore the proportion of total fleet expenditure is 100%	n/a	None
2.6.3 ELEVATED WORK PLATFORM (LCV) Average Kilometres Travelled	This is not a type of equipment used by JEN.	n/a	n/a
2.6.3 ELEVATED WORK PLATFORM (LCV) Number Purchased	This is not a type of equipment used by JEN.	n/a	n/a
2.6.3 ELEVATED WORK PLATFORM (LCV) Number Leased	This is not a type of equipment used by JEN.	n/a	n/a

Variable	Source and why actual	Methodology	Assumptions
2.6.3 ELEVATED WORK PLATFORM (LCV) Number in Fleet	This is not a type of equipment used by JEN.	n/a	n/a
2.6.3 ELEVATED WORK PLATFORM (LCV) Proportion of Total Fleet Expenditure	This is not a type of equipment used by JEN.	n/a	n/a
2.6.3 ELEVATED WORK PLATFORM (HCV) Average Kilometres Travelled	<p>The information is sourced from a Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena (Inter-leasing).</p> <p>JEN considers the information to be actual information given that the data is maintained within JEN's internal reporting systems.</p>	<p>Data is sourced from the Fleet Management company fuel data reports based on the fuel card usage. This report identifies each vehicle by registration number and records the kilometre readings at the time of fuel fill. The report includes the Vehicle Reference (which is used to allocate the readings to the various motor vehicle categories of this RIN), the business unit and location. The report is in a rolling data format and retains kilometre readings for the previous 12 months. The annual kilometres were derived by subtracting the beginning of January reading from the end December reading for each vehicle, and then dividing the total kilometres by the number of vehicles for the Elevated Work Platform (HCV) category. Therefore, the average kilometres for this category are derived directly from this report.</p>	<p>No assumptions have been made in providing this information.</p>

Variable	Source and why actual	Methodology	Assumptions
2.6.3 ELEVATED WORK PLATFORM (HCV) Number Purchased	<p>The information is sourced from SAP, the ERP system that JEN uses to capture its financial and some operational information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>JEN considers the information to be actual information given that the data is maintained within JEN's internal reporting systems.</p>	<p>The number of Elevated Work Platforms (HCV) purchased is sourced from SAP. An Asset Acquisitions report is run to extract the data and lists all the purchases made for the Motor Vehicle asset classes within the calendar year. This report details the asset numbers, acquisition amounts, acquisition dates and asset descriptions, and therefore is used to calculate the number of HCV's purchased.</p>	<p>All assets area categorised by their physical and operational characteristics, in accordance with the Fleet Management Strategy JEM ST0051.</p>
2.6.3 ELEVATED WORK PLATFORM (HCV) Number Leased	None	n/a	n/a
2.6.3 ELEVATED WORK PLATFORM (HCV) Number in Fleet	<p>The information is sourced from a Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena (Inter-leasing).</p> <p>JEN considers the information to be actual information given that the data is maintained within JEN's internal reporting systems.</p>	<p>The number in fleet is calculated by referring to the "Summary of vehicles" identified as 'Active' on the monthly fuel card usage report.</p>	<p>'Active' vehicles are assumed to be in service.</p>
2.6.3	All fleet expenditure is allocated as regulatory expenditure, and therefore the proportion of	n/a	None

Variable	Source and why actual	Methodology	Assumptions
ELEVATED WORK PLATFORM (HCV) Proportion of Total Fleet Expenditure	total fleet expenditure is 100%.		
2.6.3 HEAVY COMMERCIAL VEHICLE Average Kilometres Travelled	<p>The information is sourced from a Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena (Inter-leasing).</p> <p>JEN considers the information to be actual information given that the data is maintained within JEN's internal reporting systems.</p>	Data is sourced from the Fleet Management company fuel data reports based on fuel card usage. This report identifies each vehicle by registration number and records the kilometre readings at the time of fuel fill. The report includes the Vehicle Reference (which is used to allocate the readings to the various motor vehicle categories of this RIN), the business unit and location. The report is in a rolling data format and retains kilometre readings for the previous 12 months. The annual kilometres are derived by subtracting the beginning of January reading from the end December reading for each vehicle, and then dividing the total kilometres by the number of vehicles for the Heavy Commercial Vehicle category. Therefore, the average kilometres for this category are derived directly from this report.	No assumptions have been made in providing this information.
2.6.3 HEAVY COMMERCIAL VEHICLE Average Kilometres Travelled	<p>The information is sourced from a Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena (Inter-leasing).</p> <p>JEN considers the information to be actual information given that the data is maintained within JEN's internal reporting systems.</p>	Data is sourced from the Fleet Management company fuel data reports based on fuel card usage. This report identifies each vehicle by registration number and records the kilometre readings at the time of fuel fill. The report includes the Vehicle Reference (which is used to allocate the readings to the various motor vehicle categories of this RIN), the business unit and location. The report is in a rolling data format and retains kilometre readings for the previous 12 months. The annual kilometres are derived by subtracting the beginning of January reading from the end December	No assumptions have been made in providing this information.

Variable	Source and why actual	Methodology	Assumptions
		reading for each vehicle, and then dividing the total kilometres by the number of vehicles for the Heavy Commercial Vehicle category. Therefore, the average kilometres for this category are derived directly from this report.	
2.6.3 HEAVY COMMERCIAL VEHICLE Number Leased	None	n/a	n/a
2.6.3 HEAVY COMMERCIAL VEHICLE Number in Fleet	A Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena (Inter-leasing). JEN considers the information to be actual information given that the data is maintained within JEN's internal reporting systems.	The number in fleet is calculated by referring to the "Summary of vehicles" identified as 'Active' on the monthly fuel card usage report.	'Active' vehicles are assumed to be in the service.
2.6.3 HEAVY COMMERCIAL VEHICLE Proportion of Total Fleet Expenditure	All fleet expenditure is allocated as regulatory expenditure, and therefore the proportion of total fleet expenditure is 100%.	n/a	None

2.7 VEGETATION MANAGEMENT

2.7.1 DESCRIPTOR METRICS BY ZONE

Actual information

Variable	Source and why actual	Methodology	Assumptions
Low Bushfire Risk Area (LBRA) and Hazardous Bushfire Risk Area (HBRA), Route line length within zone (km) for “Urban and CBD” and “Rural” feeders	<p>Jemena’s Geographical Information (GIS) is the single source of actual data for route line length. The data is extracted directly from the GIS at the end of 2015.</p> <p>The data extracted from GIS was provided with identifiers for 2 zone and 2 feeder categories.</p>	<p>A program has been developed within the GIS to determine the route length of the network.</p> <p>The methodology used was to determine where there were single circuits between poles and where there were multiple circuits between poles. Where there are multiple circuits the span length between poles has only been included once. The span length of the single circuits has then been added to determine the total route length.</p> <p>Computer code is written to extract six files, they are:</p> <ol style="list-style-type: none"> 1) List of all LV overhead mains spans (From poles and To pole) by feeder and in the LBRA, 2) list of all HV overhead mains spans in the LBRA, 3) list of all overhead ST spans in the LBRA, and files 4, 5 and 6 are the same but for spans in the HBRA. <p>These six files are then combined and duplicate spans (From poles and To pole) are eliminated from the list. The resultant list contains only unique spans which are allocated to a feeder giving the ability to split the data between Urban and Rural</p>	<p>Only overhead conductor route length was to be considered, that is underground cable route length was excluded.</p> <p>Length of overhead services from poles to premises was excluded from the route length calculation.</p> <p>All conductor recorded as Usage “service” is not included in this variable.</p>

Variable	Source and why actual	Methodology	Assumptions
		<p>feeders. The GIS records information against every pole enabling the split between LBRA and HBRA.</p> <p>As specified in the RIN, service lines are not included in this variable. The length of any underground cable is also not included here.</p>	
LBRA and HBRA, Number of maintenance spans (0's) for "Urban and CBD" and "Rural" feeders	<p>This variable is reported as actual information for 2015 as the data is directly sourced from the Vegetation Management System (VMS). The data is collected in the field and entered into data collection devices and is then loaded into the VMS.</p> <p>Reports are run directly from the VMS.</p>	<p>The data collected in the field and loaded into the vegetation management company's VMS includes the feeder that the span is connected to (thus allowing it to be determined whether the feeder is rural or urban), and whether the span is in a HBRA or LBRA.</p>	<p>It is assumed that 'active vegetation management practices' defined in the RIN for "Vegetation Maintenance Span" means: a span to which a crew was dispatched to cut or remove a tree for electric line clearance purposes during the calendar year.</p>
LBRA and HBRA, Length of vegetation corridors (km) for "Urban and CBD" and "Rural" feeders	<p>JEN has no recorded vegetation corridors.</p>	<p>If JEN had any vegetation corridors they would be recorded in the VMS.</p>	<p>No assumptions have been made in providing this information.</p>
LBRA and HBRA, Average frequency of cutting cycle (years) for "Urban and CBD" and "Rural" feeders	<p>This variable is reported as actual information for 2015 because the data can be directly sourced from the 2015 annual Jemena Electric Line Clearance Management Plan (ELCMP).</p>	<p>There is no methodology to be applied to this response. The information is simply maintained within the ELCMP for 2015.</p>	<p>No assumptions have been made in providing this information.</p>

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
LBRA and HBRA, Total length of	<p>The VMS does not record the length of spans. The VMS records</p>	<p>Using the Route Line length data the average span lengths were calculated for</p>	<p>In most cases, all voltages are cleared in the same single visit.</p>	<p>This is the best estimate because it has been calculated</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
maintenance spans (km) for “Urban and CBD” and “Rural” feeders	<p>the pole number which represents the span closer to the zone substation from that pole.</p> <p>This variable is also not recorded in the GIS as a characteristic against each span and therefore required to be estimated.</p>	<p>each of the categories (HBRA/LBRA Rural/Urban). The average span length for that category was multiplied by the number of Maintenance Spans reported from the VMS. For comparison to the methodology used for the 2014 RIN submission refer to the note below.</p> <p>ie. Length of maintenance spans (HBRA Rural) = Average HBRA Rural span length (Route line length HBRA Rural / count of HBRA Rural spans total) x maintenance spans for this category.</p>		<p>using a programmed methodology that is able to be repeated and is considered to provide an accurate result.</p> <p>JEN is unaware of a better estimation methodology.</p>
Zone 1 and Zone 2, Average number of trees per maintenance span (0's) for “Urban and CBD” and “Rural” feeders	<p>This variable was estimated for all years.</p> <p>The Vegetation Management System (VMS) does not record the number of trees actually requiring maintenance. The VMS records the number of maintenance spans but not the number of trees per maintenance span.</p>	<p>Average number of trees obtained from a physical survey of 400 spans. The 400 spans were divided in to four (4) categories and each had 100 spans surveyed, the categories are:</p> <ul style="list-style-type: none"> – LBRA, urban feeder, – LBRA, rural feeder, – HBRA, urban feeder and, – HBRA, rural feeder. <p>The survey scope was as follows:</p> <ul style="list-style-type: none"> – Only trees which are the responsibility of JEN (based on the current version of Electric Line Clearance Act 1998) were counted. – Trees/shrubs which would never impinge on the clearance space were not counted. – Trees that would impinge on the clearance space in the next 5 years were counted. – Spans with trees that didn't need cutting or no trees were not included in the survey. 	<p>Based on local knowledge the spans selected for survey are considered to be representative in each of the four (4) categories.</p>	<p>The estimate is JEN's best estimate because the methodology is representative and provides reasonable accuracy.</p> <p>Other photographic data sources such as NDVI and NVIS do not lend themselves to accurate estimates of the number of trees per maintenance span. Also these systems require significant resource and time allocation to apply.</p>

Note (for variable LBRA and HBRA, Total length of maintenance spans (km) for “Urban and CBD” and “Rural” feeders):

1. This is different from the 2014 calculations which used the same JEN average span length for all maintenance span length categories (HBRA/LBRA Rural/Urban).
i.e. Average span length (Route line length total / JEN poles total) x maintenance spans for that category
2. Average span length used in 2014 was 30.64m for all categories whereas the specifically calculated HBRA Rural Average span length for 2015 is 121.17m.)

2.7.2 COST METRICS BY ZONE

Response to additional requirements in the RIN under section 12 VEGETATION MANAGEMENT EXPENDITURE

Specifically for item; “12.7 For each vegetation management zone identified in 12.1 above, provide in the basis of preparation:”

Requirement	Response
(a) a list of regulations that impose a material cost on performing vegetation management works (including, but is not limited to, bushfire mitigation regulations);	<p>Electricity Safety Act 1998 Electricity Safety (Bushfire Mitigation) Regulations 2013 Electricity Safety (Electric Line Clearance) Regulations 2010 Electricity Safety Management Scheme Electricity Safety (Installations) Regulations 2009 AS4373 (Pruning of Amenity Trees) Environment Protection and Biodiversity Conservation Act 1999 Flora and Fauna Guarantee Act 1988 Occupational Health and Safety Act Occupational Health & Safety (Plant) Regulations 1995 Green Book - Code of Practice on electrical safety for distribution businesses in the Victorian Electrical Supply Industry AS 1418.10 (Cranes, Hoists and Winches)</p>
(b) a list of self-imposed standards from JEN's vegetation management program which apply to that zone; and	<p>JEN Electric Line Clearance Management Plan JEN Bushfire Mitigation Plan JEN Customer Complaints Procedure VEM 20-50 Assessment Procedure (Jemena) VEM 10-05 Safety Observer/Offsider, Emergency Response & Single Person Work Procedure</p>

Requirement	Response
	<p>VEM 10-09 Guidelines for Conforming to Electrical Safety Requirements</p> <p>VEM 10-08 EWP Procedure</p> <p>VEM 10-06 Tree Climbing Procedure</p> <p>HSP 05-13 Working at Heights</p> <p>VEM 21-03 Management of Threatened Flora and Fauna</p> <p>VEM 20-02 Hazardous Tree and 56M Management Procedure</p>
<p>(c) an explanation of the cost impact of regulations and self-imposed standards on performing vegetation management work.</p>	<p>The cost of managing vegetation in accordance with regulations and self-imposed standards is increasing year to year due but not limited to the following factors;</p> <p><u>Literal compliance</u></p> <p>The 2010 Regulations saw a significant change from the requirement to have vegetation compliant in the HBRA during the period of 1 November each year to the end of the declared fire period (Typically 31 March the following year). This required a change to our program from annual vegetation management work in the HBRA and 3 yearly in the LBRA to potentially a biannual cut in the HBRA and an annual cut in the LBRA. This has resulted in an approximate increase of 300% in resources to both assess and cut vegetation around power lines to meet these requirements.</p> <p><u>Habitat Trees</u></p> <p>The 2010 Regulations also added the requirement for DNSPs to ensure that Fauna with a conservation status in Victoria of "vulnerable", "endangered" or "critically endangered" is identified. Once a tree that contains threatened fauna has been identified then cutting or removal of that tree must be undertaken outside of the breeding season for that species wherever practicable. JEN has engaged the services of a qualified environmental officer to undertake a review of the network and constantly monitor cutting programs to ensure that threatened fauna is protected.</p> <p><u>Consultation</u></p> <p>In the 2005 Regulations, a minimum notice period was specified (14 days) before cutting, with no expiration date of the period. In the 2010 Regulations this was changed and a 60 day window for trees to be actioned in. When that window is exceeded the customers must be re-notified. This has the effect of increased time spent notifying customers, increased time reapplying for suppression and it alters the annual program.</p> <p>Vegetation program management costs are also increasing due to increasing customer expectations. This has resulted in</p>

Requirement	Response
	<p>additional consultation with customers, community groups and councils.</p> <p><u>Service Lines</u></p> <p>There is an increased focus on the management and clearing of service lines (section 84(2)(a) of the Electricity Safety Act). JEN was required to increase the number of personnel assessing service lines due to the more stringent requirement to notify all customers with vegetation infringing the regulated space around a service line. In contrast, the previous regulations only required customers that had solid contact between their tree and the service line to be notified. JEN has also engaged a vegetation expert to manage this program and to follow up customers that have service lines with solid contact to ensure they clear trees for which they are responsible under the Electricity Safety Act.</p> <p>JEN's administration costs have also risen with the requirement to send out multiple letters to customers with offending vegetation if they fail to clear it within the predefined period.</p> <p><u>Other Responsible Person (ORP) Follow Up</u></p> <p>As with Service Lines, Energy Safe Victoria have increased their focus on JEN to have a program in place to ensure that ORPs such as councils (prior to 1 April 2014 also included Vic Roads, Metro Rail, Melbourne Water, etc.) maintain their trees in accordance with the Electricity Safety Act and subordinate Regulations.</p> <p>JEN has also engaged a vegetation company (Dual role including Other Responsible Person (ORP), private electric lines and service lines management) to manage this program and to follow up ORPs with non-compliances to ensure they clear their trees from overhead electric lines.</p> <p>JEN also absorbs costs for provision of network management (e.g. reclose suppression and processing of Permit to Work applications) to ORPs for cutting offending trees which were not cleared in a timely manner. This renders these trees unsafe to be cut by normal crews. In general terms, the closer the tree is to electric lines when it needs to be cut, the more expensive safety requirements make the work. Normal crews generally work well outside the clearance space and therefore are the least cost option. Although shut-downs are generally the most expensive, Live Line crews are more expensive than normal crews. Not all councils are alike and most cite inadequate budgets as the reason for non-compliance, which in turn makes the program more expensive for the council and for JEN.</p> <p><u>HSE</u></p> <p>In order to comply with the Occupational Health and Safety Act JEN is constantly reviewing all components of their operations and investing time and resources into equipment, training, auditing and monitoring all crews to ensure that we have a safe workforce</p>

Requirement	Response
	<p>and community.</p> <p><u>Victorian Bushfires Royal Commission (VBRC) Recommendations</u></p> <p>These recommendations were enforced using “directions”. Directions were made using mechanisms existing in the Electricity Safety Act 1998, specifically Section 141(2)(d) of the Electricity Safety Act 1998 requiring Jemena to amend our Electricity Safety Management Scheme.</p> <p><i>RECOMMENDATION 30</i></p> <p><i>The State amend the regulatory framework for electricity safety to require that distribution businesses adopt, as part of their management plans, measures to reduce the risks posed by hazard trees—that is, trees that are outside the clearance zone but that could come into contact with an electric power line having regard to foreseeable local conditions.</i></p> <p>The implementation of Recommendation 30 required JEN to develop a Hazard Tree assessment and cutting program for the Hazardous Bushfire Risk Area. This program is additional to JEN’s existing electric line clearance programs, and adding significant cost.</p> <p><i>RECOMMENDATION 31</i></p> <p><i>Municipal councils include in their municipal fire prevention plans for areas of high bushfire risk provision for the identification of hazard trees and for notifying the responsible entities with a view to having the situation redressed.</i></p> <p>ESV are also requiring JEN to “assist” municipal councils (per Recommendation 31) to meet their Hazard Tree management obligation and electric line clearance generally. This is adding significant cost to JEN’s vegetation management program.</p> <p><i>RECOMMENDATION 34</i></p> <p><i>The State amend the regulatory framework for electricity safety to strengthen Energy Safe Victoria’s mandate in relation to the prevention and mitigation of electricity-caused bushfires and to require it to fulfil that mandate.</i></p> <p>There were eight (8) recommendations made directly targeting the major electricity companies in Victoria. Of these three (3) were vegetation related, listed below as Recommendations 30, 31 and 34. Energy Safe Victoria (ESV) used the mandate of Recommendation 34 to strengthen Acts and Regulations in their jurisdiction, resulting in additional cost to JEN.</p>

The response provided in the table above applies to both the LBRA zone and the HBRA zone.

Actual information

Variable	Source and why actual	Methodology	Assumptions
LBRA and HBRA, Tree trimming (excluding hazard trees) (\$000's)	The source of the information is the SAP and VMS. The data is collected in the field and entered into data collection devices and is then loaded into the VMS.	JEN outsources its vegetation maintenance to an expert service provider in this field.	No assumptions have been made in providing this information.
LBRA and HBRA, Inspection (\$000's)	Reports are run directly from SAP and validated by VMS.	This information was recorded in SAP and validated by data provided by the vegetation management company using reports from the VMS.	
HBRA, Hazard tree cutting (\$000's)	(Please also refer to General Comments; Table 2.7.2 Expenditure Metrics by Zone below)		
LBRA Hazard tree cutting (\$000's)	JEN has not initiated any hazard tree cutting programs in this zone (LBRA). This data is captured by the vegetation management company.	This information was recorded in SAP and validated by data provided by the vegetation management company using reports from the VMS.	No assumptions have been made in providing this information.
LBRA and HBRA, Ground clearance (\$000's)	JEN has not initiated any ground clearance programs. This data is captured by the vegetation management company.	This information was recorded in SAP and validated by data provided by the vegetation management company using reports from the VMS.	No assumptions have been made in providing this information.
LBRA and HBRA, Vegetation corridor clearance (\$000's)	JEN has not initiated any vegetation corridor clearance programs. This data is captured by the vegetation management company.	This information was recorded in SAP and validated by data provided by the vegetation management company using reports from the VMS.	No assumptions have been made in providing this information.
LBRA and HBRA, Tree replacement program costs (\$000's)	JEN has not initiated any tree replacement programs. Any trees replaced are on a case by case basis negotiated with the customer.	This information was recorded in SAP and validated by data provided by the vegetation management company using reports from the VMS.	No assumptions have been made in providing this information.

General Comments Applicable to Table 2.7.2 Expenditure Metrics by Zone

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
<p>General Comments;</p> <p>Table 2.7.2 Expenditure Metrics by Zone.</p>	<p>Information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>As, expenditure is incurred, it is captured by activity (cost collectors). Activity codes can be used to identify various maintenance activities.</p> <p>Some overheads applied to the direct costs have been removed for this template, as the requirement is to disclose direct costs only.</p> <p>As the activities in SAP are not setup to aggregate into the regulatory categories, estimates have been made to meet the requirements of the templates.</p> <p>The activities are allocated (%)</p>	<p>Vegetation management items disclosed in the RIN's template are sourced from SAP system, SAP to capture costs associated with operating expenditure. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>JEN's cost collection process uses a combination of projects (WBS elements) and cost and centres to collect costs at the macro level. PM orders and activities are set up to collect costs at a micro level.</p> <p>These PM orders /activities are designed to collect costs based on the activity, on which an employee works and to accept any external costs associated with that activity.</p> <p>e.g. Faults, Emergencies, and Standards and Procedures. Note that the SAP WBS elements are also designed to identify the Regulatory category i.e. SCS, Public Lighting, ACS, etc.</p> <p>JEN uses time writing to capture internal labour costs. Jemena has been improving its capturing of time writing data over the past few years. Where practical and appropriate</p>	<p>The primary purpose of these activities is for Vegetation Management works.</p>	<p>This is deemed to be the best method of estimation for the basis for the cost as activities directly assigned to Vegetation works because the cost of the Asset Planning, Standards and Asset Recording activities has been allocated in proportion to the actual costs charged to Vegetation Management.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	<p>based) into categories e.g. routine, condition based and emergency.</p>	<p>all employees time write to an activity/PM Order or a client e.g. JEN. These form the direct costs incurred for a respective activity. JEN allocates overheads to these activities based on its internal policies and in accordance with the AER approved Cost Allocation Method (CAM)</p> <p>The direct spend in Routine, Condition Based Maintenance and Emergency uses activity costing methodologies to capture of cost.</p> <p>Overhead percentages calculated for</p> <ul style="list-style-type: none"> • Materials overheads (Store) • Non Labour (Tools, Training) • Regional and Property • Contract administration. <p>and is deducted from the activity cost collectors.</p> <p>Direct Labour, Materials, Contracts & Other are derived from General Ledger account groupings, with network Overheads adjusted from respective account grouping.</p> <p>Itemised costing of vegetation management activities was provided by our vegetation management company. These itemised costs were then used to allocate the total</p>		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		annual expenditure across the variables in table 2.7.2.		

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
LBRA and HBRA, Audit (\$000's)	As per general comments above.	<p>JEN's audit contract coordinator prepared an estimate of the time spent auditing vegetation management services for the 2015 year. The vegetation management company advised that the "other vegetation management costs..." they provided includes a 20% proportion for "audits".</p> <p>The combined Jemena and vegetation management company estimated audit costs form the response to this variable.</p>	<p>There was no requirement to make an assumption to split the auditing cost between LBRA and HBRA because the "other vegetation management costs" were provided as actuals, split by LBRA and HBRA.</p> <p>The assumption was made that the "other vegetation management costs for the LBRA and HBRA respectively include a 20% proportion for auditing.</p>	<p>JEN and its vegetation management service provider have always conducted vegetation management audits. The estimates provided by Jemena (contract coordinator) and the vegetation management service provider are based on current audit programs.</p> <p>JEN is unaware of a better estimation methodology.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
LBRA and HBRA, Contractor Liaison expenditure (\$000's)	An individual cost collector in SAP was not available for 2015.	The Team Leader Infrastructure Protection who manages the contract coordination team provided an estimate for 2015. The estimate is based on the amount of time spent in 2015 by the contract coordinator to managing the vegetation management contractor.	The contract coordinator only worked on "Contractor Liaison" for the entire estimated time allocated to this variable.	The equivalent of one full time employee is a reasonable estimate of the actual resources allocated to this activity. JEN is unaware of a better estimation methodology.
LBRA and HBRA, Other Vegetation Management Costs not specified in sheet (\$000's)	As per general comments above.	For 2015, JEN's vegetation management contractor provided the cost for this variable combined with the cost of Audits conducted. The contractor advised that an appropriate ratio between "other vegetation management costs..." and "audits" is 80:20. This ratio was calculated, by JEN's vegetation management contractor, based on resource requirements for the 2015 Audit schedule. The total audit requirement was estimated to be the dollar equivalent of 20% of the total cost provided by JEN's vegetation management contractor for this variable. This ratio was applied to calculate this variable.	Based on the 2015 audit schedule it is assumed that the equivalent of 20% of the cost provided by JEN's vegetation management contractor is spent on auditing and 80% is spent on items not specified anywhere else on this sheet.	The ratio 80:20 is considered realistic for "other vegetation management costs..." to "audits" when considering the resource requirement for the 2015 audit program. JEN is unaware of a better estimation methodology.

2.7.3 DESCRIPTOR METRICS ACROSS ALL ZONES – UNPLANNED VEGETATION EVENTS

Actual information

Variable	Source and why actual	Methodology	Assumptions
Number of fire starts caused by vegetation grow-ins (NSP responsibility) (0's)	<p>This data was sourced prepared for the AER and audited as part of the Regulatory Information Notice for f-factor scheme requirements.</p> <p>This data is considered actual because it was prepared in compliance with the requirements of the F-factor scheme.</p>	In the RIN table submitted to the AER for the F-factor scheme all fire starts which did not result in burnt vegetation were filtered out. The "Fault description" field was read and sorted in to these three (3) fire start variables.	<p>All vegetation related fire start events are reported (e.g. by the public, fire control authority, or Jemena personnel) and when reported are recorded accurately in the JEN reporting systems.</p> <p>If the data is unclear who the Responsible Person is for electric line clearance then JEN is assumed to be the Responsible Person.</p>
Number of fire starts caused by vegetation blow-ins and fall-ins (NSP responsibility) (0's)	<p>This data was sourced prepared for the AER and audited as part of the Regulatory Information Notice for f-factor scheme requirements.</p> <p>This data is considered actual because it was prepared in compliance with the requirements of the F-factor scheme.</p>	In the RIN table submitted to the AER for the F-factor scheme all fire starts which did not result in burnt vegetation were filtered out. The "Fault description" field was read and sorted in to these four (4) fire start variables.	<p>All vegetation related fire start events are reported (e.g. by the public, fire control authority, or Jemena personnel) and when reported are recorded accurately in the JEN reporting systems.</p> <p>If the data is unclear who the Responsible Person is for electric line clearance then JEN is assumed to be the Responsible Person.</p>
Number of fire starts caused by vegetation grow-ins (Other Party Responsibility) (0's)	<p>This data was sourced prepared for the AER and audited as part of the Regulatory Information Notice for f-factor scheme requirements.</p> <p>This data is considered actual because it was prepared in compliance with the requirements of the F-factor scheme.</p>	In the RIN table submitted to the AER for the F-factor scheme all fire starts which did not result in burnt vegetation were filtered out. The "Fault description" field was read and sorted in to these three(3) fire start variables.	<p>All vegetation related fire start events are reported (e.g. by the public, fire control authority, or Jemena personnel) and when reported are recorded accurately in the JEN reporting systems.</p> <p>If the data is unclear who the Responsible Person is for electric line clearance then JEN is assumed to be the Responsible Person.</p>
Number of fire starts caused by vegetation blow-ins and fall-ins (Other Party Responsibility)	<p>This data was sourced prepared for the AER and audited as part of the Regulatory Information Notice for f-factor scheme requirements.</p> <p>This data is considered actual because it was</p>	In the RIN table submitted to the AER for the F-factor scheme all fire starts which did not result in burnt vegetation were filtered out. The "Fault description" field was read and sorted in to these three (3) fire start variables.	<p>All vegetation related fire start events are reported (e.g. by the public, fire control authority, or Jemena personnel) and when reported are recorded accurately in the JEN reporting systems.</p> <p>If the data is unclear who the Responsible Person is</p>

Variable	Source and why actual	Methodology	Assumptions
(0's)	prepared in compliance with the requirements of the F-factor scheme.		for electric line clearance then JEN is assumed to be the Responsible Person.

2.8 MAINTENANCE

2.8.1 DESCRIPTOR METRICS FOR ROUTINE AND NON-ROUTINE MAINTENANCE

Actual information

Variable	Source and why actual	Methodology	Assumptions
ASSET QUANTITY - AT YEAR END	Information is sourced from SAP and GIS. This data was able to be provided without estimation due to the completeness of JEN's age profile data.	For All Assets: Sum of all assets as per asset category at the respective year end - 2015.	No assumptions have been made
ASSET QUANTITY - INSPECTED/ MAINTAINED	Information is sourced from SAP. Reference was made to the appropriate SAP Plant Maintenance (PM) Orders that were assigned to the maintenance activity. This information is actual with the exception of inspections / maintenance on pole tops, overhead line and service line maintenance and underground cables, which were estimated and are discussed in the estimated section.	The methodology included analysing all of the SAP Plant Maintenance (PM) Orders that were assigned to the relevant maintenance activity codes. All PM orders were extracted as were the associated tasks from SAP. The tasks were classified as per the AER's Maintenance Asset Category where appropriate. The total in this category comprises the number of assets being maintained and also inspected in 2015.	No assumptions have been made.
INSPECTION CYCLE /	Information is sourced from SAP.	All planned maintenance and inspection tasks are documented and managed using the SAP Plant Maintenance (PM) module functionality.	Not all asset categories have a maintenance cycle. This is because some

Variable	Source and why actual	Methodology	Assumptions
MAINTENANCE CYCLE		<p>The functionality has enabled Jemena to establish maintenance plans in SAP. A maintenance cycle or inspection cycle is associated with each maintenance plan. By directly interrogating SAP, the inspection / maintenance cycle is determined.</p> <p>Where there are multiple cycles applicable for the same maintenance asset category, the cycle is to reflect the highest cost activity.</p>	<p>asset categories are solely inspection driven and do not have maintenance performed. This is the reason for the 'nil' figures for the maintenance cycle for some asset categories.</p>

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
ASSET QUANTITY - INSPECTED/ MAINTAINED	<p>Information is sourced from SAP.</p> <p>The pole and asset inspection activity involves pole, pole top, overhead conductor, underground cable termination, substation, switchgear and overhead service conductor inspection.</p> <p>The volume of pole top, overhead line and service line maintenance are broken down by pole tops and overhead lines; and service lines was estimated because JEN does not record the volume of inspections in these maintenance asset categories separately.</p>	<p>Pole top, overhead line and service line maintenance – pole tops and overhead lines.</p> <p>For each pole, the inspection record, (including the inspection date) is recorded in SAP. The methodology for determining the number of poles that were inspected each year involved extracting these pole inspection records from SAP.</p> <p>The number of pole tops inspected was determined by interrogating GIS for the total number of crossarms connected to the poles inspected in 2015.</p> <p>Pole top, overhead line and service line maintenance – service lines.</p> <p>The number of inspected service lines was estimated based on the pole inspection zones that were inspected in each year and the number of overhead services in that zone.. Only services attached to poles which were inspected are counted for this variable.</p> <p>Overhead asset inspection – line patrolled.</p> <p>The number of route km of line patrolled was determined from the total number of poles inspected in 2015 multiplied by the average span length. The average span length, for this variable, is the route line length</p>	<p>For pole tops, overhead lines and service lines, the volume of assets inspected has been allocated to the 'predominant' year that the inspection zone was inspected.</p> <p>For pole tops, the assumption has been made that the average number of crossarms per pole is representative of the number of pole tops inspected per year.</p> <p>For overhead line length the assumption has been made that the ratio of circuit km to route km can be applied consistently across all inspection zones to determine the route km of line patrolled.</p>	<p>This is the best estimate because it uses the most relevant actual data as the basis of the estimate.</p> <p>The actual number of poles inspected per year and the actual number of pole tops connected to those poles was used to determine the number of pole tops inspected.</p> <p>The actual route line length was used to determine the route km patrolled per year. The length of overhead services was not used in this calculation</p> <p>JEN is unaware of a better estimation methodology.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		(overhead and underground) divided by the total number of poles.		
AVERAGE AGE OF ASSET GROUP	<p>Information is sourced from SAP and GIS.</p> <p>This data was able to be provided with some estimation of the date of installation.</p>	<p>Estimated installation dates were taken from the methodology used for template 5.2.</p> <p>The average age is calculated by obtaining the average age of all in-service assets at year end.</p>	Assumptions have been outlined in the basis of preparation for template 5.2	<p>This method makes use of all the available actual installation dates plus estimated dates which have been rigorously scrutinised for accuracy.</p> <p>JEN is unaware of a better estimation methodology.</p>

2.8.2 COST METRICS FOR ROUTINE AND NON-ROUTINE MAINTENANCE

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
<p>General Comment:</p> <p>Table 2.8.2 Cost Metrics for Routine and Non-Routine Maintenance</p>	<p>Information is sourced from SAP, the ERP system that JEN uses to capture its financial information.</p> <p>As expenditure is incurred, it is captured in PM Orders (cost collectors). PM Order codes can be used to identify various maintenance activities.</p> <p>Some overheads applied to the direct costs have been removed for this template, as the requirement is to disclose direct costs only.</p> <p>As the PM Orders in SAP are not setup to aggregate into the</p>	<p>JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. Maintenance costs disclosed in the RIN's template are sourced from the SAP system.</p> <p>JEN's cost collection process uses a combination of projects (WBS elements) and cost centres to collect costs at the macro level. PM orders and activities are set up to collect costs at a micro</p>	<p>JEN has a comprehensive model which underpins the maintenance costs disclosed in the RIN responses and previous Regulatory Accounting Statements.</p> <p>This model identifies the Direct Labour, Direct Materials, Contractor and Other Costs based on allocations from SAP</p>	<p>This is deemed to be the best method of estimation for the basis for the cost as activities directly assigned to Maintenance works because the cost of the Asset Planning, Standards and Asset Recording activities have been allocated in proportion to the actual costs charged to Maintenance works.</p> <p>JEN is unaware of a better</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	<p>category analysis maintenance categories, estimates have been made to meet the requirements of the templates.</p>	<p>level.</p> <p>These PM orders /activities are designed to collect costs based on the activity, on which an employee works and to accept any external costs associated with that activity e.g. Faults, Emergencies, and Standards and procedures.</p> <p>JEN uses time writing to capture internal labour costs. Where practical and appropriate all employees time write to a PM Order / activity or a client e.g. JEN. These form the direct costs incurred for a respective activity. JEN allocates overheads to these activities based on its internal policies and in accordance with the AER approved Cost Allocation Method (CAM) Direct Labour, Materials, Contracts & Other are derived from General Ledger account groupings, with network overheads adjusted from respective account grouping.</p> <p>Included in Maintenance costs, is an estimated component of reserve feeder maintenance costs. As this is a subset of costs collected by larger maintenance activities. It is impractical to collect this cost separately because the cost of the maintenance activities, (e.g. asset inspection, vegetation management, thermo-graphic surveys etc.) is collected across all network assets and it is not feasible to allocate costs to the individual feeders (there are more than 200 individual feeders) on the network.</p>		<p>estimation methodology.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<p>Reserve feeder costs are calculated based on related activities and is validated by experienced engineers. The other component of calculation is billed demand for reserve feeder customers which is the kilo watt volumes agreed value in between Jemena and its customers. Jemena fully contractually obliged to supply power.</p>		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
POLE TOP, OVERHEAD LINE & SERVICE LINE MAINTENANCE Non-Routine Maintenance	As per general comment above	The list of SAP activities include; <ul style="list-style-type: none"> • MOL Straightening Leaning Poles • MOM O/H Line Maintenance. - Pole Top Structures • MOS Overhead Service Adjustment • MOT Pole Top And O/H Repair Thermal Survey • NOE Earth Testing 	As per general comment above	As per general comment above
POLE INSPECTION AND TREATMENT Routine Maintenance	As per general comment above	The list of SAP activities include; <ul style="list-style-type: none"> • NOA Overhead Asset Inspection • NPA Pole Inspection • NPD Termite Treatment <p>The activity code NOA-Overhead Asset Inspection has been assigned to the Pole Inspection and Treatment category as the nature of the work assigned is Pole inspection.</p>	As per general comment above	As per general comment above
OVERHEAD ASSET INSPECTION Routine Maintenance	As per general comment above	The list of SAP activities include; <ul style="list-style-type: none"> • MHT Distribution Substation Thermal Survey • NOC Line Switch Minor Adjustment • NOF Subtransmission/Feeder Thermal Surveys 	As per general comment above	As per general comment above
NETWORK UNDERGROUND CABLE	As per general comment above	The list of SAP activities include; <ul style="list-style-type: none"> • MUB Pits Maintained 	As per general comment above	As per general comment above

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
MAINTENANCE: BY VOLTAGE and BY LOCATION LV - 11 to 22 kV, Non-Routine Maintenance; 33 kV and above, Routine and Non- Routine Maintenance; Location, Routine and Non-Routine Maintenance		<ul style="list-style-type: none"> • MUG Pillar Maintenance • MUH Pillar Defects • MUI LV Cable And Joint Repairs • MUJ HV Cable And Joint Repairs <p>Note the above activities readily identify the voltage of the maintenance activity enabling appropriate category allocation.</p> <p>The RIN categories for Location are CBD or Non-CBD. Since JEN have no feeders defined as CBD all “Network Underground Cable Maintenance” is allocated to the Non-CBD location.</p>		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
DISTRIBUTION SUBSTATION EQUIPMENT & PROPERTY MAINTENANCE Routine and Non- Routine Maintenance	As per general comment above	The list of SAP activities include; <ul style="list-style-type: none"> • MHA Distribution HV Installation Maintenance • MHD Distribution Substation Defects Maintenance • MHG Distribution Substation Grounds Maintenance • MHO Distribution Substation Oil Sample & Testing • MHP Distribution Substation Inspection • MHR Distribution Substation Maintenance • MSA Distribution Switchgear Maintenance • NVI Investigation Of Voltage Complaints • NXS Transformer Load Testing 	As per general comment above	As per general comment above

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
ZONE SUBSTATION EQUIPMENT MAINTENANCE Routine and Non-Routine Maintenance	As per general comment above	The list of SAP activities include; <ul style="list-style-type: none"> • MZA Zone Substation Equipment Maintenance Primary • MZB Zone Substation Equipment Maintenance Secondary • MZC Zone Substation Defect Maintenance Primary • MZD Zone Substation Defect Maintenance Secondary • MZE Zone Substation Communications Routine • MZF Zone Substation Defect Communication Defect • MZI Zone Substation Inspection & Audits 	As per general comment above	As per general comment above
ZONE SUBSTATION PROPERTY MAINTENANCE Routine and Non-Routine Maintenance	As per general comment above	The list of SAP activities include; <ul style="list-style-type: none"> • MPA Zone Substation Property Maintenance • MPB Zone Substation Property Maintenance Defects • MPC Zone Substation Property Maintenance Monthly Minor 	As per general comment above	As per general comment above
SCADA & NETWORK CONTROL MAINTENANCE Non-Routine	As per general comment above	The list of SAP activities include; <ul style="list-style-type: none"> • ADC Planned Maintenance-SCADA 	As per general comment above	As per general comment above

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Maintenance				
PROTECTION SYSTEMS MAINTENANCE Routine and Non-Routine Maintenance	As per general comment above	The list of SAP activities include; <ul style="list-style-type: none"> MHC ACR Inspection And Maintenance 	As per general comment above	As per general comment above

2.9 EMERGENCY RESPONSE

2.9.1 EMERGENCY RESPONSE EXPENDITURE

Actual information

Variable	Source and why actual	Methodology	Assumptions
(B) MAJOR EVENTS O&M EXPENDITURE (\$000'S)	There were no major storms (Tropical cyclone of Category 1 or above as classified by the Australian Bureau of Meteorology) in 2015 and therefore these variables are not applicable to Jemena for the 2015 regulatory year.	Not applicable.	Not applicable.
(C) MAJOR EVENT DAYS O&M EXPENDITURE (\$000'S)	There were no major event days in 2015 and so these variables are not applicable for the 2015 regulatory year.	There were no major event days in 2015 and so these variables are not applicable for the 2015 regulatory year.	There were no major event days in 2015 and so these variables are not applicable for the 2015 regulatory year.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
(A) TOTAL EMERGENCY RESPONSE EXPENDITURE (\$0'S)	<p>Information is sourced from SAP, the ERP system that JEN uses to capture its financial information.</p> <p>As, expenditure is incurred, it is captured in PM Orders(cost collectors). PM Orders codes can be used to identify various maintenance activities.</p> <p>Some overheads applied to the direct costs have been removed for this template, as the requirement is to disclose direct costs only.</p> <p>As the activities in SAP are not setup to aggregate into the regulatory categories, estimates have been made to meet the requirements of the templates.</p>	<p>JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>Emergency response costs disclosed in the RIN are sourced from the SAP system.</p> <p>JEN's cost collection process uses a combination of projects (WBS elements) and cost centres to collect costs at the macro level. PM orders and activities are set up to collect costs at a micro level.</p> <p>These PM orders/activities are designed to collect costs based on the activity on which an employee works and to accept any external costs associated with that activity e.g. Faults, Emergencies, and Standards and Procedures.</p> <p>JEN uses time writing to capture internal labour costs. Where practical and appropriate all employees time write to a PM order/ activity or a client e.g. JEN. These form the direct costs incurred for a respective activity. JEN allocates overheads to these activities based on its internal policies and in accordance with the AER approved Cost Allocation Method (CAM)</p>	<p>The primary purpose of these activities is for maintenance and emergency works.</p>	<p>This is deemed to be the best method of estimation for the basis for the cost as activities directly assigned to Emergency works because the cost of the Asset Planning, Standards and Asset Recording activities has been allocated in proportion to the actual costs charged to Emergency Response.</p> <p>JEN is unaware of a better estimation methodology.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<p>Direct Labour, Materials, Contracts & Other are derived from General Ledger account groupings, with network Overheads adjusted from respective account grouping.</p> <p>Included in Emergency costs, is an estimated component of reserve feeder maintenance costs as this is a subset of costs collected by larger maintenance activities. It is impractical to collect this cost separately because the cost of the maintenance activities (e.g. asset inspection, vegetation management, thermo-graphic surveys etc.) is collected across all network assets and it is not feasible to allocate costs to the individual feeders (there are more than 200 individual feeders) on the network.</p> <p>Reserve feeder costs are calculated based on related activities and is validated by experienced engineers. The other component of calculation is billed demand for reserve feeder customers which is the kilo watt volumes agreed value in between Jemena and its customers. Jemena contractually obliged to supply power.</p>		

2.10 OVERHEADS

2.10.1 NETWORK OVERHEADS EXPENDITURE

Actual information

Variable	Source and why actual	Methodology	Assumptions
2.10.1 Network Overheads Actual	<p>The following items are disclosed as actual information as they are sourced from JEN's response to the Economic Benchmarking RIN (see AER defined variable codes in the Economic Benchmarking RIN template for variables DOPEX0115A DOPEX0120A and DOPEX0121A) or a GL account.</p> <ul style="list-style-type: none"> • Advertising /Marketing, • GSL payments, and • Levies. 	<p>Activity costs are sourced from SAP, the Enterprise Resource Planning (ERP) system that JEN uses to capture its financial and some operational information.</p> <p>JEN's cost collection process uses a combination of projects (WBS elements) and cost centres to collect costs at the macro level. PM orders and activities are set up to collect costs at a micro level. These PM orders /activities are designed to collect costs based on the activity on which an individual works and to accept any external costs associated with that activity e.g. Faults, Emergencies, and Standards and Procedures. Note that the SAP WBS element codes are also designed to identify the Regulatory service classification i.e. SCS, Regulatory, ACS, etc.</p> <p>Jemena uses time writing to capture internal labour costs. Jemena has been improving its capturing of time writing data over the past few years. Where practical and appropriate, all employees time write to a PM order/activity or to a client e.g. JEN. These form the direct costs incurred for a respective activity. JEN allocates overheads to these activities based on its internal policies and in accordance with the AER-approved CAM.</p>	<p>As JEN uses a high degree of time writing data into various activity codes, JEN assumes that the data collected is accurate.</p>

Variable	Source and why actual	Methodology	Assumptions
<p>Metering (CMS Network Overheads)</p>	<p>Information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>There are cases where metering incurs indirect costs, including Customer Contact & Back Office, Management, Finance & HR, Service Delivery & Contract Management and a Corporate Cost Allocation from the Jemena group cost allocation methodology.</p> <p>As these costs are maintained within JEN's internal SAP reporting systems, it is considered actual information.</p>	<p>JEN's cost collection process uses a combination of projects (WBS elements) and cost centres to collect costs at the macro level. Plant Maintenance (PM) orders or activities are set up to collect costs at a micro level. The WBS element codes and the general ledger account is used to identify the various cost categories.</p> <p>The methodology includes analysing all of the SAP cost codes that were assigned to the Metering indirect costs. This is completed by our finance and operational staff.</p> <p>These metering indirect costs are sourced from the Financial Model. This model derives the costs from SAP with an extract of all the financial transactions that are assigned to these activity codes.</p>	<p>None</p>

Estimated Information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
2.10.1 Network Overheads Estimated	Although JEN was able to source some data as required in the template from its ERP systems, JEN does not collect costs at all of the six mandatory levels for network overheads as required by the RIN and therefore JEN provided its best estimate to categorise these costs.	<p>JEN uses its Enterprise Resource Planning (ERP) system, SAP to collect costs. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. These can be in the form of GL accounts, projects (WBS element) and PM order/activities. Pm orders and activities are used to collect to costs at a lower level. Essentially JEN uses various functions within its ERP system to collect costs.</p> <p>External supplier costs are captured into its ERP system by receipting costs against JEN issued purchase orders that identify the appropriate cost collectors.</p> <p><u>Overhead Expenditure Before Allocation – Standard Control Services (Gross including capitalised overheads)</u></p> <p><u>Network Overheads (Operating Expenditure):</u></p> <p>The network overheads operating</p>	The use of the underlying data in JEN's costs collectors is reasonably correct.	<p>JEN considers that its approach to use the underlying cost collection data from SAP is the best approach and will likely produce the most reasonably accurate outcomes.</p> <p>JEN is not aware of a superior estimate technique to disclose the costs into these categories.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<p>expenditure is derived by extracting JEN's financial transactions from SAP. Each of these transactions is then appropriately classified into the regulatory categories of this template by referring to either the project code or the general ledger account it is charged to. JEN maintains a schedule that maps all project codes to the appropriate regulatory category.</p> <p><u>Capitalised Overheads:</u></p> <p>JEN capitalises some of its overheads, sourced from the network type activities (generally Operational and Asset Management in nature) and corporate type activities (generally IT and Health and Safety activities). Over the years JEN always looks to improve its methodology of overhead allocation. These improvements are generated from enhancements to its time writing systems and surveys.</p> <p>JEN's ERP system is designed to apply a level of overheads to its capex activities (PM order/ activity). JEN applies this by calculating a percentage of overhead to be applied over the capex spend for the year. The calculation used is:</p> $\text{Direct Budget Overheads} \div \text{Total Budget Capex Program} = \text{Percentage of Applied Overhead}$ <p>Examples of these are:</p>		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<ul style="list-style-type: none"> • Direct Support Activities (DSA) that is capital (i.e. [Capex Program - Planning] in nature .It is not practical for Program Managers and Senior Management to record time against a multitude of specific cost collectors. They time write to broader cost collectors, which are then distributed over the specific cost collectors usually based on the underlying direct costs of the respective cost collectors. • Asset Management – Residual costs are similarly allocated to regulatory defined categories, using time surveys or underlying allocators. <p>As defined by the RIN, JEN must allocate its network overheads into six mandatory categories.</p> <p>The compilation of the network overheads operating expenditure data (described above) generates a percentage which is used to allocate the capitalised network overheads into the six mandatory categories.</p> <p><u>Overhead before allocation – alternative control services (Gross including capitalised overheads)</u></p> <p>ACS network overheads operating expenditure is derived by extracting JEN's financial transactions from SAP. Each of these transactions is then appropriately classified into the regulatory categories of this template by referring to either the project</p>		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<p>code or the general ledger account it is charged to. JEN maintains a schedule that maps all project codes to the appropriate regulatory category.</p> <p><u>Capitalised overheads</u></p> <p>This is discussed above.</p>		

2.10.2 CORPORATE OVERHEADS EXPENDITURE

Actual information

Variable	Source and why actual	Methodology	Assumptions
2.10.2 Corporate Overheads Office of the CEO	<p>Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation which forms part of the audited annual RIN.</p>	<p>Corporate overheads are recorded at a cost centre level or in a specific project at the source of origination (Jemena Asset Management Ltd ('JAM')). Corporate overheads charged to JEN from JAM are recorded in designated projects within JEN. Projects that capture the costs of functions of the Office of the CEO, such as executive oversight and board liaison on asset and financial management and stakeholder relations, have been recorded under this variable.</p> <p>The total of Office of the CEO expenditure has an ACS and SCS allocation in accordance with JEN's AER approved CAM</p>	

Variable	Source and why actual	Methodology	Assumptions
Finance	Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation which forms part of the audited annual RIN.	<p>Corporate overheads are recorded at a cost centre level or in a specific project at the source of origination, JAM. Corporate overheads charged to JEN from JAM are recorded in designated projects within JEN.</p> <p>Projects that capture the costs of functions of Finance given below have been recorded under this variable:</p> <ul style="list-style-type: none"> • Executive oversight of overall financial management; • Management of financial and management reporting (internal and external) and regulatory reporting; • Management of Jemena's fund raising, debt and equity holder relations and treasury functions; • Management of planning functions, including finance strategy, budgeting, forecasting and asset valuation; • Management of indirect and direct tax compliance and planning; • Management of finance systems, financial accounting, accounts payable, accounts receivable and payroll; • Business partnering for business planning, support for regulatory and information services, and enterprise support function cost centre management; • Management of internal audits; • Management of continuous finance improvements; and • Management of business planning and continuous improvements. <p>The total Finance expenditure has an ACS and SCS allocation in accordance with JEN's AER approved CAM</p>	
Legal and Secretariat	Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation which	Corporate overheads are recorded at a cost centre level or in a specific project at the source of origination, JAM. Corporate overheads charged to JEN from JAM are recorded in designated projects within JEN.	

Variable	Source and why actual	Methodology	Assumptions
	forms part of the audited annual RIN.	<p>Projects that capture the costs of functions of Legal and Secretariat activities given below have been recorded under this variable:</p> <p>Management and advice on economic regulation, environmental law, employment law, property law, and company law; and the role of company secretary.</p> <p>The total Legal and Secretariat expenditures have an ACS and SCS allocation in accordance with JEN's AER approved CAM</p>	
Human Resources	Corporate overheads are actuals that reconcile with the Enterprise Support Function allocation which forms part of the audited annual RIN.	<p>Corporate overheads are recorded at a cost centre level or in a specific project at the source of origination, JAM. Corporate overheads charged to JEN from JAM are recorded in designated projects within JEN.</p> <p>Projects that capture the costs of the functions of Human Resources given below have been recorded under this variable:</p> <ul style="list-style-type: none"> • Management of recruitment and remuneration benefit services; • Management of employee HSE training, performance, quality and adverse impact on the environment; and • Management of corporate communications to all stakeholders, including customers, employees, neighbours, state and federal governments and regulators. <p>The total Human Resources expenditures have an ACS and SCS allocation in accordance with JEN's AER approved CAM</p>	
Regulatory	Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation which forms part of the audited annual RIN.	<p>Corporate overheads are recorded at a cost centre level or in a specific project at the source of origination, JAM. Corporate overheads charged to JEN from JAM are recorded in designated projects within JEN.</p> <p>Projects that capture the costs of following regulatory activities have been recorded under this variable:</p> <ul style="list-style-type: none"> • Managing regulatory obligations and price reviews; and • Consultations and regulatory relationships with governments, regulators and 	

Variable	Source and why actual	Methodology	Assumptions
		<p>market operators</p> <p>The total Regulatory expenditure has an ACS and SCS allocation in accordance with JEN's AER approved CAM.</p>	
Insurance	Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation which forms part of the audited annual RIN.	<p>Corporate overheads are recorded at a cost centre level or in a specific project at the source of origination, JAM. Corporate overheads charged to JEN from JAM are recorded in designated projects within JEN.</p> <p>Projects that capture the costs of insurance activities given below have been recorded under this variable:</p> <ul style="list-style-type: none"> • Procurement of insurance; and • Management of risk, including for bushfire and other natural disasters <p>The total Insurance expenditure has an ACS and SCS allocation in accordance with JEN's AER approved CAM</p>	
IT support	Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation which forms part of the audited annual RIN.	<p>Corporate overheads are recorded at a cost centre level or in a specific project at the source of origination, JAM. Corporate overheads charged to JEN from JAM are recorded in designated projects within JEN.</p> <p>Projects that capture the costs of providing and managing IT infrastructure and services have been recorded under this variable.</p> <p>The total Information Technology expenditure has an ACS and SCS allocation in accordance with JEN's AER approved CAM</p>	
Commercial	Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation which forms part of the audited annual RIN.	<p>Corporate overheads are recorded at a cost centre level or in a specific project at the source of origination, JAM. Corporate overheads charged to JEN from JAM are recorded in designated projects within JEN.</p> <p>Projects that capture the costs of providing and managing commercial costs have been recorded under this variable.</p> <p>The total commercial expenditure has an ACS and SCS allocation in accordance with JEN's AER approved CAM</p>	

2.11 LABOUR

2.11.1 COST METRICS PER ANNUM

Actual information

None

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
All information within 2.11.1 Cost metrics per annum	<p>Jemena (JEM) uses its Enterprise Resource Planning (ERP) system, SAP to process its payroll transactions. These transactions capture employee information relating to hours worked, rate per hour, various types of leave, overtime, bonus and termination/redundancy payments, payroll tax, etc. JEM uses a payroll reporting tool, “Spinifex” to extract payroll data required in the RIN template.</p> <p>Within JEM’s SAP system, each employee is assigned a distribution cost centre. For direct employees engaged to work exclusively on the JEN asset, payroll data is allocated directly to JEN. For employees who work across the Jemena portfolio of assets (i.e. finance,</p>	<p>JEN used an extract of all Jemena employee data by distribution cost centre to identify staff aligned to the JEN business unit. The report captures all employee ID’s that have charged time to JEN cost centres.</p> <p>The RIN requires labour expenditure be categorised into AER defined categories. JEN categorised it’s labour expenditure by mapping employees by cost centre that are associated with Corporate, Network and Direct Network categories for JEN.</p> <p>JEN is required to further classify the employees into “Labour Classification Levels” i.e. Exec Management, Senior Manager, etc. JEN further categorised it’s labour expenditure by providing the employee prior year data to the appropriate Managers and HR reporting analysts who reviewed and amended it to reflect CY2015 employee categories as required by the template.</p>	<p>The allocation to JEN is based on time writing / Assessment cycles allocation.</p> <p>Stand down hours were used instead of occurrence (see Appendix F: definition) as information is not available in the system.</p> <p>To calculate the stand down hours per Average Staffing Levels (ASL), JEN used the total stand down hours from Spinifex and divided by the total ASL for JEN in the corresponding employee category.</p> <p>JEN does not expect that employee unit rates e.g. rate per hour or hours per ASL will materially change by the percentage allocator.</p>	<p>This approach is considered reasonable given the availability of data.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	<p>HR, regulation, legal etc.), it attributes the time reported against the JEN asset and only that allocation of time is incurred in JEN's accounts.</p> <p>From here, percentage allocators are applied to categorise the payroll data into the RIN defined categories—therefore the information must be claimed as estimates.</p>	<p>To determine the employees associated with JEN, a Spinifex report was run for all employees for CY2015. To calculate the total labour expenditure amount, the Spinifex report was filtered with the parameters: JEN cost centres provided by Business Unit (BU). This report shows total actual payment, hours and rate per hour for CY2015 (ordinary and overtime).</p> <p>JEN used the Jemena group cost allocation methodology to allocate Corporate data to JEN.</p> <p>JEN has applied a percentage of their time allocated to JEN plus a percentage of their time allocated to the corporate level relevant to JEN.</p> <p>In table 2.11.1 Calculations are applied to determine:</p> <p>Average productive work hours per ASL (0's):</p> <p>(Total Cost Remuneration (TCR) hours + base hours-leave hours + overtime hours)/ASL,</p> <ul style="list-style-type: none"> • <i>TCR = base salary</i> • <i>ASL = Average Staffing Level. One ASL is one full-time equivalent employees undertaking standard control services work receiving salary or wages (Paid FTE) over the entire year.</i> 		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<ul style="list-style-type: none"> For Non-Corporate staff the ASL is the time charged against the JEN Asset during the year converted to full time equivalent. <p>For Corporate staff the ASL is the employees in corporate cost centre during the year converted to full time equivalent then multiplied by the time writing percentage.</p>		

2.11.2 EXTRA DESCRIPTOR METRICS FOR CURRENT YEAR

Actual information

None.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
All information in 2.11.2 Extra descriptor metrics for current year	<p>This table requires JEN to provide various metrics for C2015 labour costs. The source of the information is described above.</p> <p>Similar to above, percentage allocators are applied to categorise the payroll data into the RIN defined categories—therefore the information must be</p>	<p>The basis for estimate is described above.</p> <p>JEN provides below, the formula to calculate the metrics as required by this template.</p> <p>The following are for JEN cost and JEN ASL only.</p> <p>Average productive work hours per ASL -</p>	<p>The allocation to JEN is based on time writing / Assessment cycles allocation.</p> <p>As the information/allocation is not available in the system, the Average productive work hours ordinary time hourly rate per ASL excludes</p> <ul style="list-style-type: none"> All direct costs associated with non-productive work hours related to ordinary time hours spent on standard 	<p>This approach is considered reasonable given the availability of data.</p> <p>Employee unit rates e.g. rate per hour or hours per ASL will not materially changed by the percentage allocator.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	claimed as estimates.	ordinary time (0's): (TCR hour + base hour-leave hour)/ ASL	control services (e.g. costs associated with annual leave accrued from working ordinary hours).	
		Average productive work hours hourly rate per ASL - ordinary time (0's): (TCR rate + base rate-leave rate)/ ASL	<ul style="list-style-type: none"> Other earnings, on costs and taxes. It includes <ul style="list-style-type: none"> Ordinary time salaries and wages in the year. 	
		Average productive work hours per ASL - overtime (0's): Overtime hours,(from Spinifex)/ASL	The Average productive work hours overtime hourly rate per ASL excludes	
		Average productive work hours hourly rate per ASL - overtime (0's): Overtime rate/ASL.	<ul style="list-style-type: none"> All direct costs associated with non-productive hours related to overtime hours spent on standard control services. Other earnings, on costs and taxes. It includes overtime salaries and wages in the year.	

2.12 INPUT TABLES

General Approach

Although some of the data that flows into the input tables template is a mix of actual and estimate data, JEN considers all of the data to be estimated.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
<p>Template 2.12 – Input Tables</p> <p>EXPENDITURE (OPEX & CAPEX)</p> <p>Global description for Estimate with details contained below</p>	<p>Information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation. As, expenditure is incurred, it is captured by general ledger and activity (cost collectors). Both general ledger and activity codes can be used to identify various cost activities.</p> <p>Some overheads are applied to the direct costs that need to be removed for this template, as the</p>	<p>JEN's CAPEX and OPEX cost collection process uses a combination of project codes, cost centres and profit centres to collect costs at the macro level.</p> <p>By extracting the SAP costs the general ledger account and the activity codes can be used to determine the following cost categories:</p> <ul style="list-style-type: none"> • Direct Materials • Direct labour • Direct Contractor • Direct Other • Related Party Contract • Related Party Contract Margin <p>No items exist for Related Party Contract. JEN takes the interpretation of substance over form. Although most of its costs are from related party companies, JEN split its costs into the categories as listed above rather than disclose them under the related party contract category.</p>	<p>Where applicable embedded overheads have been removed from these costs using an allocation methodology.</p>	<p>JEN is not aware of a superior estimation technique.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	<p>requirement is to disclose direct costs only.</p> <p>As activity's in SAP are not setup to aggregate into the regulatory categories, experienced Engineers further categorise the data to meet the requirements of the templates.</p> <p>As the Engineers use their judgement in the categorisation, of these costs, they then become an estimate.</p>	<p>The percentage of overhead for each category of cost in each year is calculated. This is then applied to the cost extracted from the system and is used to arrive at the total cost stack.</p> <p>This basis of estimation is applicable to Vegetation Management, Routine Maintenance, Non-Routine Maintenance, Augmentation, Connections, Emergency Response, Public Lighting and Replacement Expenditure.</p>		
AUGMENTATION	<p>JEN's cost collection process is noted above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).</p> <p>Information is sourced from SAP, the ERP system that JEN uses to capture its financial information.</p>	<p>Both CAPEX and OPEX costs are derived from extracting financial transactions from SAP. The extracts have various activities and general ledger codes that produce the cost stack.</p> <p>The methodology adopted for classifying the costs into Direct Materials, Direct Labour, Direct Contractors and Direct Other has been detailed above in the Global description section above.</p> <p>Refer also to Template 2.3 BOP for further details.</p>	n/a	JEN is not aware of a superior estimation technique.
PUBLIC LIGHTING	<p>JEN's cost collection process is noted above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).</p> <p>Information is sourced from SAP, the ERP system that JEN uses to capture its financial information.</p>	<p>Both CAPEX and OPEX costs are derived from extracting financial transactions from SAP. The extracts have various activities and general ledger codes that produce the cost stack.</p> <p>The methodology adopted for classifying the costs into Direct Materials, Direct Labour, Direct Contractors and Direct Other has been detailed above in the Global</p>	n/a	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		description section above. Refer also to Template 4.1 BOP for further details.		
METERING	<p>Metering costs are allocated to the following cost categories in the Actual Template:</p> <p>Direct Material Cost: The Direct Material Cost is considered an actual as it is sourced directly from SAP, the Enterprise Resource Planning (ERP) system that JEN uses to capture its financial and other information. Direct Material costs reported are meter purchase costs which are external costs sourced from receipting against purchase orders. Project codes are used in this process that enables capex expenditure to be recognised.</p> <p>Direct Labour Costs: The Direct Labour costs are captured in SAP payroll. On a monthly basis payroll provided the amounts paid to relevant employees, from SAP, which are allocated based on the type of services performed. The salary payment allocations to services have slightly varied across</p>	<p>The methodology includes analysing all of the SAP cost codes that are assigned to the meter purchases by our finance and operational staff.</p> <p>The costs of meter purchase are sourced from the monthly Financial Model for Type 4 meters. This model derives the cost of meters from an SAP extract of all the financial transactions that are assigned to specific project codes. Meter purchasing costs for Type 5 and Type 6 meters are obtained directly from SAP.</p> <p>The type of metering services performed, to which payroll costs were allocated each month, were reviewed and categorised as either direct or indirect costs.</p> <p>Payroll costs allocated each month were then able to be categorised as direct or indirect.</p> <p>The methodology used treated the Contract cost as the balance of total yearly costs after excluding the Direct Material and Direct Labour costs.</p>	<p>An assumption has been made that only meter purchase costs are reported under this direct material cost category.</p> <p>An assumption has been made to allocate the Opex costs based on activity volumes and three work activity streams under Meter testing costs, Meter Investigation costs, Scheduled meter reading costs, Meter Maintenance costs, Remote meter reading costs and Other metering costs, as these activity costs are captured together within the same set of cost codes in the Jemena's financial systems.</p> <p>In categorising the payroll</p>	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	<p>reporting years, so direct labour costs have been estimated.</p> <p>Contract Cost: Contract costs are reported as an estimate as they represent the balance of the total yearly costs, after deducting the Direct Material and Labour costs. As Direct Labour costs are estimated, Contract costs inherently become an estimate too.</p> <p>Other Cost: Other Costs is sourced from the capex reports from JEN's SAP system.</p>	<p>As above under the variable Template 2.12 – Input Tables Expenditure (Opex & Capex).</p>	<p>charges as direct or indirect, each service was reviewed to determine whether it was a direct metering operation, or could be described as an overhead (or support service) related to the direct costs.</p> <p>Payroll costs were allocated throughout the year to services based on the feedback of the individual employees.</p> <p>All other Administration costs are treated as Direct Others.</p>	
VEGETATION MANAGEMENT	<p>As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).</p>	<p>As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX). JEN allocates the expenditure to direct material, direct labour, direct sub-contractors and direct other on a weighted average basis. These direct costs are sourced from JEN's general ledger.</p> <p>The methodology adopted for classifying the costs into Direct Materials, Direct Labour, Direct Contractors and Direct Other has been detailed above in the Global description section above.</p> <p>Refer also to Template 2.7 BOP for further details.</p> <p>This information was recorded in SAP and validated by data provided by the vegetation management company</p>	<p>JEN made assumption to split cost in between LBRA and HBRA by 78.6% and 21.4% respectively.</p>	<p>As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		using reports from the VMS. The Vegetation management cost sourced from SAP and information is agreed to the transaction listing.		
ROUTINE MAINTENANCE	As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).	As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX). The methodology adopted for classifying the costs into Direct Materials, Direct Labour, Direct Contractors and Direct Other has been detailed above in the Global description section above. JEN also allocated the total Reserve Feeder costs embedded within maintenance expenditure evenly across each of Direct Materials, Direct Labour and Direct Contractors. Refer also to Template 2.8 BOP for further details.	As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).	As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).
NON-ROUTINE MAINTENANCE	As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).	As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX). The methodology adopted for classifying the costs into Direct Materials, Direct Labour, Direct Contractors and Direct Other has been detailed above in the Global description section above. JEN also allocated the total Reserve Feeder costs embedded within maintenance expenditure evenly across each of Direct Materials, Direct Labour and Direct Contractors Refer also to Template 2.8 BOP for further details.	As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).	As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).
OVERHEADS	Although JEN is able to source some data as required in the template from its ERP system (as described above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX &	JEN records its overhead costs in cost centres, from these cost centres JEN can capitalise some of these costs or charge some to opex and maintenance activities, with the residual costs allocated over the regulatory categories. <i>Capitalised Overheads:</i>	The cost centre analysis of the DSA and corporate cost centres is used as the primary allocator to split data into the categories of this template.	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	<p>CAPEX), for items where JEN could not provide actual data it provides its best estimate for these items.</p>	<p>JEN applies overheads to capex activities that by calculating a % overhead to be applied over the capex spend for the year. The calculation used it:</p> $\text{Direct Budget Overheads} \div \text{Total Budget Capex Program} = \text{Applied Overhead \%}$ <p>The percentage split from network overheads and corporate overheads is applied to the respective capitalised overhead to obtain a split between each category.</p> <p><i>Corporate Overheads:</i> Corporate overheads are analysed in annual RINs as 'Labour' and 'Non-Labour'. The analysis involves categorising the general ledger accounts used. Accordingly Labour is classified as 'Direct labour' in this RIN. 'Direct Material' costs are either zero or insignificant in the reported periods. Therefore any insignificant costs are classified as 'Other'. Contract costs cannot be easily separated in the general ledger and hence classified as 'Other'.</p> <p>JEN's ERP system has the functionality to apply the percentage to applicable capex spend.</p> <p><i>Opex and Maintenance Overheads:</i> JEN allocates overheads to capex, opex and maintenance activities. A similar practice as described above applies to maintenance activities, where percentage overheads are calculated and applied to those activities. These are embedded as part of the total direct costs of the activity. As the RIN requires only direct costs to be disclosed in all</p>		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<p>maintenance type templates, overhead components are captured as part of the Network overhead section of this template.</p> <p>A requirement of this template is that JEN must disclose the overhead costs by 'Network Overheads' and 'Corporate Overheads' in to the following categories:</p> <ul style="list-style-type: none"> • Direct Materials • Direct labour • Direct Contractor • Direct Other • Related Party Contract Margin <p>JEN captures its network overheads by GL account which is used to map them into the categories above. However, for the capitalised overheads JEN works out the weighted average based on the network overheads split and applies this percentage to the capitalised overheads.</p>		
CONNECTIONS	As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).	<p>As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).</p> <p>The methodology adopted for classifying the costs into Direct Materials, Direct Labour, Direct Contractors and Direct Other has been detailed above in the Global description section above.</p> <p>Refer also to Template 2.5 BOP for further details.</p>	As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).	As above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).
EMERGENCY RESPONSE	As the activities in SAP are not setup to aggregate into the regulatory categories, estimates have been made to meet the	Direct Labour, Materials, Contracts & Other are derived from General Ledger account groupings, with network Overheads adjusted from respective account grouping.	The primary purpose of these activities is for maintenance and emergency works.	This is deemed to be the best method of estimation for the basis for the cost

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	requirements of the templates.	<p>Other expenditure is in negative due to mainly Reserve feeder adjustment which is explained below.</p> <p>Included in Emergency costs, is an estimated component of reserve feeder maintenance costs as this is a subset of costs collected by larger maintenance activities. It is impractical to collect this cost separately because the cost of the maintenance activities (e.g. asset inspection, vegetation management, thermo-graphic surveys etc.) is collected across all network assets and it is not feasible to allocate costs to the individual feeders (there are more than 200 individual feeders) on the network.</p> <p>Reserve feeder costs are calculated based on related activities and is validated by experienced engineers. The other component of calculation is billed demand for reserve feeder customers which is the kilo watt volumes agreed value in between Jemena and its customers. Jemena contractually obliged to supply power.</p>		<p>as activities directly assigned to Emergency works because the cost of the Asset Planning, Standards and Asset Recording activities has been allocated in proportion to the actual costs charged to Emergency Response.</p> <p>JEN is unaware of a better estimation methodology.</p>
FEE-BASED SERVICES	<p>CAPEX which is in line with the description above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).</p> <p>OPEX is calculated by using the percentage derived from direct materials, labour, costs and other as a percentage of the total cost stack in CY14.</p>	<p>Fee based CAPEX and OPEX cost collection process uses a combination of project codes, cost centres and profit centres to collect costs at the macro level.</p> <p>Direct Labour, Materials, Contracts & Other are derived from General Ledger account groupings, with network Overheads adjusted from respective account grouping.</p> <p>The methodology adopted for classifying the costs into Direct Materials, Direct Labour, Direct Contractors and</p>		<p>JEN is not aware of a superior estimation technique.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<p>Direct Other has been detailed above in the Global description section above.</p> <p>Refer also to Template 4.3 BOP for further details.</p>		
QUOTED SERVICES	As noted above under the variable Fee-based Services	As noted above under the variable Fee-based Services	As noted above under the variable Fee-based Services	As noted above under the variable Fee-based Services
REPLACEMENT EXPENDITURE	<p>Direct replacement expenditure data for is sourced from SAP, JEN's ERP system. Although JEN is able to source the data at the asset group level and to some degree at the asset category level from its ERP systems, JEN provides its best estimate for areas within the asset category that is not recorded in its ERP systems. Further work is performed by qualified JEN Engineers who analysed the data, assigning expenditure to line items to the required categories. The method for performing this task is described in the basis for estimate.</p>	<p>Please see above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX) for global description on the basis for estimate. The methodology adopted for classifying the costs into Direct Materials, Direct Labour, Direct Contractors and Direct Other has been detailed above in the Global description section above.</p> <p>The replacement expenditure categorisation is based upon activity and service category codes in SAP as well as information provided by JEN Engineers to ensure all expenditure line items are assigned the appropriate categorisations.</p> <p>A few SCADA projects had misallocation of labour costs. In order to correct such wrong postings in SAP, the total costs for SCADA for CY15 were split into Direct Material, Direct Labour, Direct Contractor and Direct Other in line with the ratio of split for SCADA in CY14 RIN Input Table 2.12.</p> <p>In order to populate the relevant sections of the template, categorisation choices for "Class", "Sub-class" and "Voltage" are derived from a project master-file data sheet developed by JEN Engineers, outside the ERP system. All expenditure line items are assigned to the appropriate</p>	JEN assumes data is accurately recorded against replacement expenditure line items in the SAP system.	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<p>classifications based upon project activity and project description.</p> <p>The first (and highest) level category used is “Class” These classes corresponded to the high level data input requirements of this template. The following classes are used:</p> <ul style="list-style-type: none"> • OH Conductors • Other • Poles • Poletop Structures • Public Lighting • Service Lines • Switchgear • Transformers • UG Cables <p>The second level category used is “Sub-class” These sub-classes corresponded to more detailed level data input requirements for this template. The following sub-classes are used:</p> <ul style="list-style-type: none"> • Bus • Capacitor Bank • Circuit Brakers • Connectors • Distribution Transformers 		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<ul style="list-style-type: none"> • Earths • HV Installation • OH Conductors • Other • Poles • Public Lighting • Public Light Poles • Relays • Service Lines • Staking • Structures • Switchgear • UG Cables • ZSS Property • ZSS Transformers <p>The third (and lowest) level category used is “Voltage” These voltages corresponded to the most detailed level data input requirements of the category analysis RIN Template The following three voltages are used:</p> <ul style="list-style-type: none"> • High Voltage • Low Voltage • Sub-transmission 		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<p>The information gathered (by the process described above) is analysed and sorted in excel (via v-lookup function and pivot tables) to provide an input sheet for entry of the data into the “Replacement” section of this template.</p> <p>Where JEN’s expenditure categories do not precisely match the template classifications, the JEN Engineers further analyse the detailed project data to allocated costs within high level asset categories across the detailed line items contained in this template.</p> <p>In accordance with the instructions for completion of this RIN, public lighting expenditures are included in both the “Replacement” expenditure section and the “Public Lighting” section of this template.</p>		
<p>NON-NETWORK</p> <p><i>IT and Communications Opex</i></p>	<p>CAPEX which is in line with the description above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).</p> <p>Information is sourced from SAP, the ERP system that JEN uses to capture its financial information. IT capex is considered an estimate because JEN does not directly capture costs in accordance with the cost categories of this template. The judgement of experienced IT personnel is required to further categorise the data,</p>	<p>IT costs are attributed using causal drivers, including ownership and use of applications, number of service requests and number of PCs used as a share of total Jemena PC’s.</p> <p>The costs have been categorised to the following : Direct Labour Actual labour by calendar year is available for total corporate costs. The IT labour costs as a percentage of the total labour corporate costs were applied to JEN’s total direct opex costs to derive the direct labour costs.</p>	None	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Capex		<p>Other Costs: This is the balancing item of IT costs from the general ledger, excluding direct labour noted above.</p> <p>Several methods are used to allocate the costs to the various categories:</p> <ul style="list-style-type: none"> • For all other projects, the business cases are used to allocate the cost to the various categories. The business case provides a split of costs between direct materials, labour and other costs. • To further breakdown the labour costs, if the business case did not specify directly, a standard allocation of 15% internal labour and 85% external (contract) is used and is determined by experienced IT personnel. <p>Motor vehicle operating expenditure was entirely allocated to the direct materials and other categories.</p>	<p>Jemena only maintains and uses a small number of internal staff members for capital projects, the 15% represents a typical project profile of internal labour costs and 85% external. The business case category percentage costs share of total projects costs are the same as the final actual costs when the project is completed.</p> <p>JEN has made the assumption that motor vehicle expenditure incurred by JEN is entirely direct materials.</p>	<p>JEN is not aware of a superior estimation technique.</p>
<u>Motor Vehicles</u> Opex	Information is sourced from SAP, the ERP system that JEN uses to capture its financial information. However, it is considered an estimate because JEN does not directly capture costs in accordance with the cost categories of this template.	The cost for motor vehicles is arrived at from purchases made directly to the asset using SAP purchase orders. As such, the costs are entirely allocated to the direct materials category.	JEN has made the assumption that motor vehicle capital expenditure incurred by JEN is entirely direct materials.	JEN is not aware of a superior estimation technique
Capex				JEN is not aware of a superior estimation

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
<u>Buildings and Property</u> Opex	Information is sourced from SAP, the ERP system that JEN uses to capture its financial information. However, it is considered an estimate because JEN does not directly capture costs in accordance with the cost categories of this template.	Building and Property operating expenditures are allocated between Direct Labour, Contract Cost and Other Costs. Where the costs of a site are derived from a general ledger extract, the costs are allocated to the cost categories of this template based on the general ledger account description. For all other sites, the entire costs were allocated to the "Other" cost category.	JEN has made the assumption that the majority of building and property expenditure should be classified to the 'Other' cost category.	technique JEN is not aware of a superior estimation technique
Capex	JEN's cost collection process is noted above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX). Information is sourced from SAP, the ERP system that JEN uses to capture its financial information.	Building and Property costs are sourced from SAP and information is agreed to the transaction listing	JEN has made the assumption that the building and property capex incurred is entirely direct materials.	JEN is not aware of a superior estimation technique
<u>Other</u> Capex		'Other' capex include items such as trailers, forklifts and tool boxes. These costs are arrived at from purchases made directly to the asset using SAP purchase orders. As	JEN has made the assumption that 'Other' capital expenditure incurred by JEN is entirely	JEN is not aware of a superior estimation technique

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Opex	<p>JEN's cost collection process is noted above under the variable Template 2.12 – Input Tables EXPENDITURE (OPEX & CAPEX).</p> <p>Information is sourced from SAP, the ERP system that JEN uses to capture its financial information.</p> <p>The variable reflects miscellaneous equipment purchases.</p>	such, the costs are entirely allocated to the direct materials category.	direct materials.	JEN is not aware of a superior estimation technique

4. ALTERNATIVE CONTROL SERVICES

4.1 PUBLIC LIGHTING

4.1.1 DESCRIPTOR METRICS OVER CURRENT YEAR

Actual information

Variable	Source and why actual	Methodology	Assumptions
Current population of lights	<p>Jemena's Geographical Information (GIS) is the single source of actual data for the public lighting inventory. The data is extracted directly from the GIS.</p> <p>The GIS represents the current state of the network and is therefore considered "actual".</p>	<p>The GIS is the single source of the public lighting physical inventory, therefore we are able to count the number and type of luminaires. The actual data was obtained by running a report directly from GIS.</p> <p>The data was exported to a text file and imported into Microsoft Excel where a pivot table was used to determine the current light types and their quantities.</p>	<p>No assumptions have been made in providing this information.</p>

4.1.2 DESCRIPTOR METRICS ANNUALLY

Actual information

Variable	Source and why actual	Methodology	Assumptions
Light Installation – Volume of Works and Expenditure – Major Road Light Installation & Minor Road Light Installation	Not applicable.	Not applicable.	In line with the AER – Explanatory Statement Final category Analysis, Clause: 17.6 it was deemed that the volumes associated with this variable is related to a negotiated public lighting service and is not required to be reported.
Light Installation – Volume of Works and Expenditure – Number of Poles Installed	Not applicable.	Not applicable.	In line with the AER – Explanatory Statement Final category Analysis, Clause: 17.6 it was deemed that the volumes associated with this variable is related to a negotiated public lighting service and is not required to be reported.

Variable	Source and why actual	Methodology	Assumptions
<p>Light Installation – Volume of Works and Expenditure – Total Cost</p>	<p>Not applicable.</p>	<p>Not applicable.</p>	<p>In line with the AER – Explanatory Statement Final category Analysis, Clause: 17.6 it was deemed that the expenditure associated with this variable is related to a negotiated public lighting service and is not required to be reported.</p>
<p>Light Replacement – Volume of Works and Expenditure – Major Road Light Replacement & Minor Road Light Replacement</p>	<p>Light replacement work is recorded using SAP Notifications. The notification is created against the specific light that requires replacement.</p> <p>The other source of data is the monthly reports from the public lighting prime contractor.</p> <p>This allows the attributes of the public light such as whether it is located on a Major Road or Minor Road to be analysed and reported.</p>	<p>By extracting the SAP notifications related to specific SAP Public Lighting Codes we can determine the quantity of light replacement activities and categorise them according to Major and Minor Roads.</p> <p>The SAP Public Lighting Codes (MAQ) were;</p> <p>RLJ (Replace Single Light on Main Road) – All notifications with activity code RLJ relate to “Major Road Light Replacement”.</p> <p>RLM (Replace Single Light Minor Road) – All notifications with activity code RLM relate to “Minor Road Light Replacement”.</p> <p>The public lighting notifications were extracted from SAP for 2015 and analysed.</p>	<p>Jemena uses a prime contractor for public lighting services and as such, the public lighting replacement work is recorded using SAP notifications and the above mentioned Public Lighting Codes (MAQ). It has been assumed that public lighting replacement work that is performed by resources other than the prime contractor have also been consistently recorded using SAP notifications.</p>

Variable	Source and why actual	Methodology	Assumptions
<p>Light Replacement Volume of Works and Expenditure –</p> <p>Number of Poles Installed</p>	<p>Jemena’s Geographical Information (GIS) is the single source of actual data for public lighting pole replacement. The data is extracted directly from the GIS.</p> <p>The GIS represents the current state of the network and is therefore considered “actual”.</p>	<p>The GIS is the single source of the public lighting historic inventory, therefore we are able to count the number of removed public lighting poles. The actual data was obtained by running a report directly from GIS to look at all removed public lighting poles on the network. The list of removed poles were then filtered further using GIS to determine the number of poles that were removed and replaced with new poles.</p>	

Variable	Source and why actual	Methodology	Assumptions
Light Replacement Volume of Works and Expenditure Total Cost	<p>This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>As, expenditure is incurred, it is captured in such a fashion that activity (cost collectors) codes can be used to identify public lighting replacement expenditure.</p>	<p>By extracting the SAP costs related to specific SAP Public Lighting Activities we can determine the total direct expenditure of light replacement activities.</p> <p>The public lighting costs were extracted from SAP for 2015 and analysed.</p> <p>Direct Expenditure consists of;</p> <ul style="list-style-type: none"> • Direct Material expenditure • Direct Labour expenditure • Direct Contractors expenditure • Direct Other expenditure <p>Costs do not include Direct Overheads and Corporate Overheads.</p>	<p>No assumptions have been made.</p>

Variable	Source and why actual	Methodology	Assumptions
<p>Light Maintenance Volume of Works and Expenditure –</p> <p>Major Road Light Maintenance</p> <p>&</p> <p>Minor Road Light Maintenance</p>	<p>Light maintenance works is recorded using SAP Notifications.</p> <p>The other source of data is the monthly reports from the public lighting prime contractor.</p> <p>The majority of the notifications are created by the 24x7 call centre which takes calls from the public regarding lights that require maintenance.</p> <p>The other significant contributor to the volume of light maintenance is as a result of lights that are identified as requiring maintenance through the routine patrols and through the bulk relamping program.</p> <p>The notification is created against the specific light that requires replacement. This allows the attributes of the public light such as whether it is located on a Major Road or Minor Road to be analysed and reported.</p>	<p>By extracting the SAP notifications related to specific SAP Public Lighting Codes we can determine the quantity of light maintenance activities and categorise them according to Major and Minor Roads.</p> <p>The SAP Public Lighting Codes (MAQ) were;</p> <p>MLF (Main Road Public Lighting Fault) – All notifications with activity code MLF relate to “Major Road Light Maintenance”.</p> <p>MRB (Bulk Lamp Replacement – Minor Roads) – All bulk lamp replacements are considered a maintenance activity performed on Minor Roads.</p> <p>MRF (Minor Road Public Lighting Fault) – All notifications with activity code MRF relate to “Minor Road Light Faults”.</p> <p>The public lighting notifications were extracted from SAP for 2015 and analysed.</p>	<p>Jemena uses a prime contractor for public lighting services and as such the public lighting maintenance work is recorded using SAP notifications and the above mentioned Public Lighting Codes (MAQ). It has been assumed that public lighting maintenance work that is performed by resources other than the prime contractor have also been consistently recorded using SAP notifications.</p>

Variable	Source and why actual	Methodology	Assumptions
<p>Light Maintenance Volume of Works and Expenditure –</p> <p>Number of Poles Installed</p>	<p>Light maintenance works is recorded using SAP Notifications.</p> <p>The other source of data is the monthly reports from the public lighting prime contractor.</p> <p>The majority of the notifications are created by the 24x7 call centre which takes calls from the public regarding lights that require maintenance.</p> <p>The notification is created against the specific light that requires maintenance. This allows the attributes of the public light such as whether it is located on a Major Road or Minor Road to be analysed and reported.</p>	<p>By extracting the SAP notifications related to specific SAP Public Lighting Codes we can determine the quantity of light maintenance activities and categorise them according to Major and Minor Roads.</p> <p>The SAP Public Lighting Codes (MAQ) were;</p> <p>MLR (Public Light Pole Repairs Main Road) - All notifications with activity code MLR relate to “Maintenance of a Public Light Pole” and are considered maintenance activities performed on Major Roads.</p> <p>MRR (Public Lighting Pole Repairs Minor Road) - All notifications with activity code MRR relate to “Maintenance of a Public Light Pole” and are considered maintenance activities performed on Minor Roads.</p> <p>The public lighting notifications were extracted from SAP for 2015 and analysed.</p>	<p>Jemena uses a prime contractor for public lighting services and as such the public lighting maintenance work is recorded using SAP notifications and the above mentioned Public Lighting Codes (MAQ). It has been assumed that public lighting maintenance work that is performed by resources other than the prime contractor have also been consistently recorded using SAP notifications.</p> <p>It has been assumed that the words “NUMBER OF POLES INSTALLED (000’S)” means “MAINTAINED” rather than “INSTALLED”. The template should be updated to read “Number of Poles Maintained”</p>

Variable	Source and why actual	Methodology	Assumptions
<p>Light Maintenance Volume of Works and Expenditure</p> <p>Total Cost</p>	<p>This information is sourced from SAP, the ERP system that JEN uses to capture its financial information.</p> <p>As, expenditure is incurred, it is captured in such a fashion that activity (cost collectors) codes can be used to identify public lighting maintenance expenditure.</p>	<p>By extracting the SAP costs related to specific SAP Public Lighting Activities we can determine the total direct expenditure of public light maintenance activities.</p> <p>The public lighting costs were extracted from SAP for 2015 and analysed.</p> <p>Direct Expenditure consists of;</p> <ul style="list-style-type: none"> • Direct Material expenditure • Direct Labour expenditure • Direct Contractors expenditure • Direct Other expenditure <p>Costs do not include Direct Overheads and Corporate Overheads.</p>	<p>No assumptions have been made.</p>

Variable	Source and why actual	Methodology	Assumptions
Quality of Supply – Mean Days to Rectify or Replace Public Lighting Assets (days) and Volume of GSL Breaches and GSL Payments	<p>Light maintenance works are recorded using SAP Notifications.</p> <p>The majority of the notifications are created by the 24x7 call centre which takes calls from the public regarding lights that require maintenance.</p> <p>The notification is created against the specific light that requires maintenance. This allows the attributes of the public light such as whether it is located on a Major Road or Minor Road, whether it is a GSL eligible light and the number of days to rectify or replace the light to be analysed and reported.</p>	<p>The methodology is documented in Jemena Document No. JEN PR 0500 - JEN AER Public Lighting Reporting Procedure.</p> <p>By extracting the SAP notifications related to specific SAP Public Lighting Codes we can determine the required quality of supply variables.</p> <p>Each SAP notification has the following information associated with it;</p> <ul style="list-style-type: none"> • Location of the light • Attributes of the light • Whether or not a GSL is applicable • Defect start time and date • Defect end time and date • Duration of defect <p>The public lighting notifications were extracted from SAP for 2015 and analysed.</p>	<p>No assumptions have been made in providing this information.</p>

Variable	Source and why actual	Methodology	Assumptions
Quality of Supply – Volume of Customer Complaints	<p>Customer complaints are managed by Stakeholder Relations.</p> <p>Stakeholder Relations may receive complaints through the following means:</p> <ul style="list-style-type: none"> • Phone call to our Call Centre • Email • Phone call direct to Jemena • Internal referral of an email or phone call <p>Stakeholder Relations stores and maintains all customer complaints in the “Claims Database”.</p>	<p>Customer complaints can be classified into two categories:</p> <ul style="list-style-type: none"> • A complaint that results from inaction of a previous action. For example, a customer may call about a light out and the light is still not repaired within the set time and the customer calls again to express dissatisfaction that light is still out. • A complaint is lodged on initial contact, whether by phone or email, expressing dissatisfaction. For example, a customer may call to express dissatisfaction with field crew who have damaged their front yard while performing public light maintenance. <p>Both categories of complaints are considered legitimate complaints and are stored in the Claims Database with relevant detail.</p>	<p>No assumptions have been made in providing this information. All data is an actual and can be traced back to a complaint on the Claims Database.</p>

Estimated information

There is no estimated information for this section.

4.1.3 COST METRICS

Actual information

Variable	Source and why actual	Methodology	Assumptions
Major Road Light Installation	Not applicable.	Not applicable.	In line with the AER – Explanatory Statement Final category Analysis, Clause: 17.6 it was deemed that the expenditure associated with this variable is related to a negotiated public lighting service and is not required to be reported.
Minor Road Light Installation	Not applicable.	Not applicable.	In line with the AER – Explanatory Statement Final category Analysis, Clause: 17.6 it was deemed that the expenditure associated with this variable is related to a negotiated public lighting service and is not required to be reported.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Major Road Light Replacement and Minor Road Light Replacement	<p>Light Replacement works is recorded using SAP Notifications.</p> <p>The expenditure associated with performing this work is recorded against SAP projects.</p> <p>Each SAP project is associated with an SAP Activity Code.</p>	<p>By extracting the SAP notifications related to specific SAP Public Lighting Codes we can determine the quantity of light replacement activities and categorise them according to Major and Minor Roads.</p> <p>By extracting the SAP costs related to specific SAP Public Lighting Activities we can determine the total direct expenditure of light replacement activities.</p> <p>The SAP Public Lighting Codes (MAQ) were;</p>	<p>Jemena is unable to calculate the unit rate for each light type within the major road or minor road category and therefore we have been required to make the assumption that the material cost for each type of light has minimal impact on the overall unit rate. Therefore we have assumed that all light types in the same category are the same unit rate.</p> <p>For example, replacements performed on lights on minor roads are set to the same cost per unit rate regardless of light type.</p>	<p>This is the best estimate because it uses the best available information.</p> <p>Future enhancements to asset management IT systems will be required to be able to provide the required level of detail.</p> <p>JEN is unaware of a better estimation methodology.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<p>RLJ (Replace Single Light on Main Road) RLM (Replace Single Light Minor Road)</p> <p>Therefore the unit cost for a major and minor road light replacement has been calculated using the cost to replace the major and minor road lights (total cost less the pole replacement cost) divided by the total number of major and minor road lights that were replaced.</p> <p>Jemena is unable to calculate a separate unit rate for major and minor roads or for each light type within each category.</p>		
<p>Major Road Light Maintenance</p> <p>and</p> <p>Minor Road Light Maintenance</p>	<p>Light Maintenance works is recorded using SAP Notifications.</p> <p>The expenditure associated with performing this work is recorded against SAP projects.</p> <p>Each SAP project is associated with an SAP Activity Code.</p>	<p>By extracting the SAP notifications related to specific SAP Public Lighting Codes we can determine the quantity of light maintenance activities and categorise them according to Major and Minor Roads.</p> <p>By extracting the SAP costs related to specific SAP Public Lighting Activities we can determine the total direct expenditure of light maintenance activities.</p> <p>The SAP Public Lighting Codes (MAQ) were; MLF (Main Road Public Lighting Fault) MRB (Bulk Lamp Replacement – Minor Roads)</p>	<p>Jemena is unable to calculate the unit rate for each light type within the major road or minor road category and therefore we have been required to make the assumption that the material cost for each type of light has minimal impact on the overall unit rate. Therefore we have assumed that all light types in the same category are the same unit rate.</p> <p>For example, maintenance performed on lights on minor roads is set to the same cost per unit rate regardless of light type.</p>	<p>This is the best estimate because it uses the best available information.</p> <p>Future enhancements to asset management IT systems will be required to be able to provide the required level of.</p> <p>JEN is unaware of a better estimation methodology.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<p>MRF (Minor Road Public Lighting Fault)</p> <p>Therefore the unit cost for a major and minor road light maintenance has been calculated using the cost to maintain the major and minor road lights (total cost less the pole maintenance cost) divided by the total number of major and minor road lights that were maintained.</p> <p>Jemena is unable to calculate a separate unit rate for major and minor roads or for each light type within each category.</p>		

4.2 METERING

4.2.1 METERING DESCRIPTOR METRIC

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Meter volumes	<p>Accurate actuals required interrogation of the Asset Data Base for 2015.</p> <p>The meter volume data is retrieved at the end of each year from JEN's two SAP systems</p>	<p>Estimates are determined by linear interpolation of actuals.</p> <p>Actuals are available for December 2014 & 2015</p> <p>Estimation for year average</p>	<p>Meter growth is linear</p> <p>Meter classification</p> <p>Type 4 = AMI (<160MWh)</p> <p>Type 5 = Non AMI interval</p> <p>Type 6 Accumulation - Peak & Off Peak</p>	<p>The alternate approach of retrospective Data Base interrogation requires tracking install & removal dates. This is less accurate, particularly for Type 5&6 meters which are tracked in an older IT system.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	(legacy and new)—SAP-ISU for Type 4 meters and CIS+ for Type 5 and Type 6 meters	= (Dec target year + Dec previous year)/2 The source of actual data is from AMI-SAP for Type 4 meters and CIS+ for Type 5 and 6 meters, which are Jemena's Customer Information Systems		JEN is unaware of a better estimation methodology.

4.2.2 COST METRICS (VOLUME & COST)

Under category analysis RIN Table 4.2.2 Metering Cost Metrics, the costs include Capex costs (Note 1), Opex direct costs and related party margins.

Note1: The Capex expenditure comprises both direct and indirect costs where the direct costs are associated with the AMI meter installation and program delivery directly e.g. Meter purchase and contractor costs. The indirect costs are those related to staff who manage the AMI program delivery, MRO audit fees and fleet & vehicles costs.

Actual information

Variable	Source and why actual	Methodology	Assumptions
Purchase Volume	Purchase Orders – Purchase Orders provide actual information regarding the volume of meters purchased by Jemena	Type 4- JEN AMI Mass Rollout (MRO) team was responsible for the purchase of AMI meters. The AMI Finance team collect the relevant PO's for 2015.	None
Special Meter Read Volume	N/A All special reads are performed as fee based services and are covered in section 4.3	N/A Volume = 0	Recovery of data from failed meters is covered in Sub-category Meter Maintenance.
New Meter Installation Volume	Type 4 AMI MRO Program and New Connection Activities are accurately tracked. Faulty meter replacement is considered to be meter maintenance and is covered in Meter Maintenance section of the table.	Data was retrieved from annual RIN submission for 2015.	Year of Install is determined based on the date when it became active in the market.

Variable	Source and why actual	Methodology	Assumptions
Meter Replacement Volume	As a result of the AMI MRO program, all Type 5 & 6 meters are being replaced by Type 4 meters and consequently, end of life family replacement of these meters was stopped.	Volume = 0	None
Meter Purchase Costs	Purchase Costs: The majority of the meters are sourced from a supplier called Secure Australasia Pty Ltd where purchase orders / invoices are approved by various levels of authority then processed through SAP financial systems and recognised as CAPEX expenditure under the AMI program.	The meter purchase costs are classified into remote read interval meters and transformers (Type 4), manually read interval meters (Type 5) and accumulation meters (Type 6). All of which are included under the CAPEX section in the RIN and AMI Revised Charges Application reporting. JEN AMI MRO team is responsible for the purchase of Type 4 meters. Expenditure information is obtained from the SAP system.	None
Special Meter Reading Costs	N/A All Special Meter Reading costs are captured under Fee-based Services in section 4.3.	N/A	N/A

Variable	Source and why actual	Methodology	Assumptions
New Meter Installation Costs	The New Meter Installation costs are included as part of the CAPEX program based on the AER reporting category from a financial model which is supported by the monthly historical actual and future forecasting information maintained by JEN's Finance AMI team.	<p>New meter installation costs captured from SAP system. JEN's cost collection process uses a combination of projects (WBS elements) to collect costs at the macro level. PM orders and activities are set up to collect costs at a micro level. The actual costs for New Meter installation costs are also captured under Jemena's financial systems and reported under our monthly CMS CAPEX reports under the following categories:</p> <ul style="list-style-type: none"> • Installation (Mass Rollout) – Type 4 • No Type 5 or 6 installations occurred in 2015 	None
IT Infrastructure CAPEX Costs	The IT Infrastructure CAPEX costs are included under CAPEX - IT section based on the AER reporting category from a financial model which is supported by the monthly historical actual and future forecasting information maintained by JEN's Finance AMI team.	The IT cost is also captured from SAP system and the key drivers to collect the cost is WBS elements at macro level and PM orders and activities are set up to collect at a micro level. These actual costs are also captured and reported under the CAPEX - IT section of a financial model based on the AER reporting category.	None
IT Infrastructure OPEX Costs	The IT Infrastructure OPEX costs are included under OPEX - IT section based on the AER reporting category from a financial model which is supported by the monthly historical actual and future forecasting information maintained by JEN's Finance AMI team.	JEN uses its ERP system, SAP to capture costs associated with operating expenditure. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a number of areas, however the system upgrades do not capture data	None

Variable	Source and why actual	Methodology	Assumptions
		<p>in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>JEN's cost collection process uses a combination of projects (WBS elements) and cost centres to collect costs at the macro level. PM orders and activities are set up to collect costs at a micro level.</p> <p>These PM orders /activities are designed to collect costs based on the activity, on which an employee works and to accept any external costs associated with that activity These actual costs are captured and reported under the OPEX - IT section.</p>	
<p>Communications Infrastructure CAPEX Costs</p>	<p>The Communications Infrastructure CAPEX costs are included under CAPEX – Communications based on the AER reporting category from a financial model which is supported by the monthly historical actual and future forecasting information maintained by JEN's Finance AMI team.</p>	<p>The Communications Infrastructure CAPEX cost is also captured from SAP system and the key drivers to collect the cost is WBS elements at macro level and PM orders and activities are set up to collect at a micro level. These actual costs are also captured and reported under the CAPEX - IT section of a financial model based on the AER reporting category.</p>	<p>None</p>
<p>Communications Infrastructure OPEX Costs</p>	<p>The Communications Infrastructure OPEX costs are included under OPEX – AMI Network Operations and AMI Backhaul Communications sections based on the AER reporting category from a financial model which is supported by the monthly historical actual and future</p>	<p>JEN uses its ERP system, SAP to capture costs associated with operating expenditure. JEN partially upgraded its SAP system in the current year to improve the reporting capabilities in a</p>	<p>None</p>

Variable	Source and why actual	Methodology	Assumptions
	forecasting information maintained by Jemena's Finance AMI team.	<p>number of areas, however the system upgrades do not capture data in the detailed categories required by the RIN. Resultantly, Management is still required to estimate this information as described in this basis of preparation.</p> <p>JEN's cost collection process uses a combination of projects (WBS elements) and cost centres to collect costs at the macro level. PM orders and activities are set up to collect costs at a micro level.</p> <p>These PM orders /activities are designed to collect costs based on the activity, on which an employee works and to accept any external costs associated with that activity. These actual costs are also captured and reported under the OPEX – AMI Network Operations and AMI Backhaul Communications sections of a financial model based on the AER reporting category.</p>	

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Meter Investigation Volume	This task is estimated because tracking is spread over 3 cost centres: response to customer calls, AMI NOC investigation and Back office investigation. The split between type 5 and type 6 investigations is accurately tracked.	<p>Meter investigation volumes obtained from Select Invoice, SAP report and Service Notification are summed to get the count for meter investigation.</p> <p>The invoice was used to identify the volume of Meter Investigation carried out by Select in order for JEN to meet its regulatory compliance obligations.</p> <p>SAP Report was used for customer raised investigation which wasn't charged to the customer. SAP report available for 2015. Service Notification- Meter Investigation raised by MRO, AMI field tech and back office. Service Notifications are available in SAP for 2015.</p>	. Meter investigations for type 5 and 6 metering installations were proportionally divided between type 5 and type 6 meters based on the volume of each type of meter installed in the network.	The split of investigations for legacy meters (type 5 & 6) is not tracked well in JEN systems. The volume of legacy meters is very small and is reducing; proportional allocation gives an unbiased estimate of the split between type 5 and 6 investigations.
Scheduled Meter Reading volume	Actual meter read data is available for 2015 from CIS+ reports. However the data does not show the split between type 5 and type 6 meter read. Hence we estimated the split between the two categories based on the volume of each type installed in the network.	<p>Scheduled meter reading is only required for type 5 and 6 meters.</p> <p>Meter reading is out sourced to Skilltech. Meter reads are processed by Aegis and a summary of read performance is provided to Jemena on a daily basis. Jemena uses the Aegis data and CISPlus data to track read performance on a daily and monthly basis.</p>	All Type 4 AMI meters are read remotely	<p>Proportional estimate was considered the most accurate method of determining the split between type 5 and type 6 meter reads.</p> <p>JEN is unaware of a better estimation methodology.</p>
Remote Meter Reading volume	<p>Applies to Type 4 meters only. Daily numbers of Active meters (in the market) are not tracked.</p> <p>Remote reading is not a</p>	<p>Type 4 AMI meters readings are delivered to the market daily. The AMI meters are read every 4 hours.</p> <p>Remote read volume is calculated based on retailer billing cycle.</p>	Number of meters read is equivalent to the average number of meters installed over the year.	The Average for the year is assumed to be a linear relationship between the opening and closing balance for the year.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	distinguishable part of the AMI system	Hence for this table the remote read count is obtained by multiplying the AMI meter volume by 12.		JEN is unaware of a better estimation methodology.
Meter Testing volume	<p>Meter Testing volumes were obtained by reviewing the Purchase Orders submitted by Select and also by looking at the AMI sample testing plan submitted by Jemena to the contractor.</p> <p>Testing is planned and contracts are issued for each year.</p>	Meter test volumes were identified by reviewing invoices submitted by our sub-contractor (Select) for the period.	<p>The purchase order submitted by Select classifies the test activity based on the type of meter tested (basic or interval meters). However, the invoice does not sub-classify the test carried out into Type4 AMI meters and 5 and 6 meters. However, decision was taken not to continue testing of legacy interval meters, as these are progressively replaced. Meter testing volume is therefore assumed to be all Type 4 AMI meters.</p>	Once the decision was made not to opt for exchange of legacy meters, in nearly all cases, an option to exchange the legacy meter for type 4 would have been taken by Select solution in preference to testing.
Meter Maintenance volume	This task is estimated because tracking is spread over different cost centres with variable accuracy. Not all records track maintenance activities by meter type.	<p>Type 4- Meter maintenance volumes obtained are from Select Invoice and SAP report are summed to get the count for Type 4 meter maintenance for 2015.</p> <p>Note: decision was taken not to continue maintenance of legacy meters, as these are progressively replaced, hence, no volume for type 5 and 6 meters.</p>	The Select invoice does not clearly classify certain meter maintenance job performed based on the meter type. e.g. Meter Control - Meters & Time switches Scrapped does not tell you whether they are Type 5 or Type 6 meters. Since decision was taken not to continue maintenance of legacy meters, as these are progressively replaced, hence, we have assumed that there are no volumes for type 5 and 6 meters.	JEN is unaware of a better estimation methodology.
Remote Meter Reconfiguration volume	<p>Applies to Type 4 meters only.</p> <p>The remote configuration includes the software and meter configuration update.</p> <p>The AMI Network Operations Centre (NOC) team keeps record of the software and tariff</p>	<p>The AMI NOC team keeps track of the entire meter configuration performed in an excel spreadsheet. For this analysis we have included the software and tariff updates.</p> <p>An average monthly configuration volume was determined for meter software and tariff update based on the 2015 data (Excluding</p>	The amount of remote configuration completed by the NOC team is proportional to the meter volume.	<p>Proportional estimate was considered the most accurate method of determining this breakdown in the absence of actual data.</p> <p>JEN is unaware of a better</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	configuration completed for each year. Fee based reconfigurations such as solar are covered in section 4.3	Outlier months). Outliers are when we do a complete population upgrade to the next tariff/Software version.		estimation methodology.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Meter Testing Costs	The Meter Testing costs are included as part of the OPEX - Asset Operations costs based on the AER reporting category from a financial model which is supported by the monthly historical actual and future forecasting information maintained by JEN's Finance AMI team.	The methodology of applying the costs to Meter Testing is based on the number of activity volume by meter types 4, 5 & 6 times the average unit cost which is derived from total costs of Asset Operations divided by the total number of activity from the three work activity streams i.e. Meter Testing, Meter Investigation and Meter Maintenance in 2015. Note: decision was taken not to continue testing of legacy interval meters, as these are progressively replaced, hence, no costs for type 5 and 6 meters.	An assumption has been made to allocate the Asset Operations costs based on each calendar year's costs evenly across the three meter types 4, 5 & 6 and three work activity streams under Meter Testing, Meter Investigation and Meter Maintenance as these activity costs are captured together within the same set of cost codes in the Jemena's financial systems.	Proportional pro-rata estimate was considered the most accurate method of determining the costs in the absence of actual data. JEN is unaware of a better estimation methodology.
Meter Investigation Costs	The Meter Investigation costs are included as part of the OPEX - Asset Operations costs based on the AER reporting category from a financial model which is supported by the monthly historical actual and future forecasting information maintained by JEN's Finance AMI team.	The methodology of applying the costs to Meter Investigations is based on the number of activity volume by meter types 4, 5 & 6 times the average unit cost which is derived from total costs of Asset Operations divided by the total number of activity from the three work activity streams i.e. Meter Testing, Meter Investigation, and Meter Maintenance in 2015.	As above	Proportional pro-rata estimate was considered the most accurate method of determining the costs in the absence of actual data. JEN is unaware of a better estimation methodology.
Scheduled Meter Reading Costs	The Scheduled Meter Reading costs are included under the OPEX – Meter Data Collection based on the AER reporting category from a financial model which is supported by the monthly historical actual and future forecasting information maintained by JEN's Finance AMI team.	The methodology of applying the Scheduled Meter Reading costs is based on the number of activity volume by meter types times the 2015 unit cost which is taken from the Skilltech Pricing table for 2015.	Assumptions have been made that an average unit rate per Scheduled Meter Read on meter types 5 & 6 based on CY 2014 actual costs would be applicable across 2014 – 2015 and all AMI meters are read remotely and therefore not reported under this meter reporting category.	This is the best estimate as we believe the average activity unit price in CY 2014 will be in line with that in CY2015.. JEN is unaware of a better estimation methodology.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Meter Maintenance Costs	The Meter Maintenance costs are included as part of the OPEX - Asset Operations costs based on the AER reporting category from a financial model which is supported by the monthly historical actual and future forecasting information maintained by JEN's Finance AMI team	The methodology of applying the costs to Meter Maintenance is based on the number of activity volume by meter types 4, 5 & 6 times the average unit cost which is derived from total costs of Asset Operations divided by the total number of activity from the three work activity streams i.e. Meter Testing, Meter Investigation & Meter Maintenance in each of the reporting calendar years. Note: decision was taken not to continue maintenance of legacy interval meters, as these are progressively replaced, hence, no costs for type 5 and 6 meters.	An assumption has been made to allocate the Asset Operations costs based on each calendar year's costs evenly across the three meter types 4, 5 & 6 and three work activity streams under Meter Testing, Meter Investigation and Meter Maintenance as these activity costs are captured together within the same set of WBS in Jemena's financial systems.	Proportional pro-rata estimate was considered the most accurate method of determining the costs in the absence of actual data. JEN is unaware of a better estimation methodology.
Meter Replacement Costs	As a result of the AMI MRO program, all Type 5 & 6 meters are being replaced by Type 4 meters and as a consequence no costs associated with end of life family replacement of these meters were incurred.	N/A	N/A	N/A
Remote Meter Reading Costs	The Remote Meter Reading costs are included under the OPEX – Meter Data Collection based on the AER reporting category from a financial model which is supported by the monthly historical actual and future forecasting information maintained by JEN's Finance AMI team.	The methodology of applying the Remote Meter Reading costs is based on the average costs over the year in order to form a reasonable unit activity cost in line with the reporting year.	This applies to type 4 meters only.	Remote meter reading uses an automated collection system, only a portion of back office meter data collection costs can be attributed to remote meter reading opex. The primary remote meter reading functions are embedded in IT systems. JEN is unaware of a better estimation methodology.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Remote Meter Re-configuration Costs	The Remote Meter Re-configuration costs are included as part of the OPEX – Communications Infrastructure costs as there are no specific actual of forecast codes capture costs in order to align to this AER reporting category in the financial model nor SAP.	Remote meter reconfiguration for AMI is a high volume batch driven process for firmware and configuration management. These costs are captured within the total Communications Infrastructure OPEX costs which comprise AMI Network Operations and Backhaul Communications.	It is assumed that the Remote Meter Re-configuration costs are accurately captured under the AMI Network Operations and Backhaul Communications sections within the financial model.	This is the best estimate because JEN uses the costs collected under AMI Network Operations and Backhaul Communications as the basis for the estimate. A portion of these costs relate to the Remote Meter re-configuration services. JEN is unaware of a better estimation methodology.
Other Metering Costs	These include the costs of OPEX AMI Transitional Business activities & Asset Strategy & Planning costs. These costs are considered estimated as they are classified as Type 4 meter costs only with no cost allocation for Type 5 and 6 meters.	Type 4 meter costs only with no cost allocation for Type 5 and 6 meters.	An assumption was made that the costs incurred are for Type 4 meters only as the objective of the AMI program is to roll out Type 4 meter installations. There are no separate cost codes to capture costs incurred under Type 5 and 6 meters in this category.	Other meter reading costs principally relate to type 4 activities and the residual type 5 and 6 are insignificant at less than 29% of the total direct metering opex . JEN is unaware of a better estimation methodology.

4.3 ANCILLARY SERVICES – FEE BASED SERVICES

4.3.1 COST METRICS FOR FEE-BASED SERVICES

Actual information

Variable	Source and why actual	Methodology	Assumptions
Volume data	<p>Volume data for jobs completed in the month was sourced directly JEN's two SAP systems (CIS+ and SAP ISU) and so this information is reported as 'actual information'. These services are:-</p> <ul style="list-style-type: none"> • De-energisation • Re-energisation • Special meter reading • Re-test of type 5 and 6 metering installations for first tier customers with annual consumption greater than 160 MWh • Fault response - not DNSP fault • Temporary disconnect/reconnect services • Wasted attendance - not DNSP fault • Service truck visits • Temporary supply services • Remote meter re-configuration 	Actual Billing information from JEN's internal business records has been used.	Billing lags by a month and so does cost data on completed jobs; therefore resultant unit cost is reflective of actual cost

Variable	Source and why actual	Methodology	Assumptions
	<ul style="list-style-type: none"> • Remote de-energisation • Remote re-energisation • Routine Connections -customers <100 amps • Exception - Reserve Feeder data was based on actual KW billed 		

Estimated information

variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Expenditure data	Dollar data for CY15 reported in JEN's annual RIN A included network overhead amounts, Starting with the figure reported in JEN's annual RIN ensured consistency and provided audit trail. The network overheads were then removed to provide estimated data for the category analysis RIN. The services are the same as the ones described above.	<p>Compilation by reported service in RIN A - Annual RIN, adjusted by excluding the component of those reported costs that are a direct overhead amount.</p> <p>JEN's system did not capture expenditure information for remote meter reconfiguration, remote de-energisation, remote re energisation, special meter reading, re-test of type 5 and 6 metering installations for first tier customers with annual consumption greater than 160 MWH, fault response – not DNSP fault and Temporary disconnect/reconnect services. The cost to investigate or estimate the expenditure exceeds the benefit in doing so; given the expected spend for these years would be immaterial.</p>	The difference in the capture of lag cost is immaterial on a yearly basis.	The basis used enables audit trail and consistency with the reporting done under the RIN A. JEN is unaware of a better way for estimating these amounts.

4.4 QUOTED SERVICES

4.4.1 COST METRICS FOR QUOTED SERVICES

Actual information

Variable	Source and why actual	Methodology	Assumptions
Volume - Supply abolishment	Actual numbers as per New Connections Monthly Reports	Compilation of data from monthly reports	New connections report is accurate
Volume - Emergency Recoverable works	Actual invoices raised	Sum of invoices raised	Volume of invoices raised reflects volume of work completed

Variable	Source and why actual	Methodology	Assumptions
Volume – After hours truck by appointment	Based on invoices raised by specified product code	Sum of invoices	Volume of invoices raised reflects volume of work completed
Volume – Customer recoverable works	Number of active jobs in a particular year which is not reflective of the actual number of jobs completed.	The number of jobs performed during the year has been estimated based on the jobs created in SAP	Each job created in SAP represents one item of recoverable work
Volume – Routine connections for customers > 100 amps	Volume data for routine connections jobs completed in the month was compiled from CIS+ and SAP ISU. Includes the Volume for Elective undergrounding count component.	Actual billing information has been used for routine connections and for elective undergrounding based on CY 2015 job count data	Billing lags by a month

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Expenditure data	Dollar data for CY15 reported in JEN’s annual RIN A included network overhead amounts, Starting with the figure reported in JEN’s annual RIN ensured consistency and provided audit trail. The network overheads were then removed to provide estimated data for the category analysis RIN. The services are the same as the ones described above	Compilation by reported service in the Annual RIN, adjusted by excluding the component of those reported costs that are a direct overhead amount.	The difference in the capture of lag cost is immaterial on a yearly basis.	JEN is unaware of a better way to estimate these amounts

5. NETWORK INFORMATION

5.2 ASSET AGE PROFILE

5.2.1 ASSET AGE PROFILE

Actual information

Variable	Source and why actual	Methodology	Assumptions
Underground Cables - >1kV & <=11kV, >11kV & <=22kV,	JEN's internal GIS system is the single source of the network asset data. This data was able to be provided without estimation due to the completeness of the HV cable installation dates within GIS and is therefore considered actual information.	The cable data is extracted from the GIS using a data interrogation tool. Once extracted the data is filtered to provide only in-service cables that belong to JEN.	No assumptions were made.
Transformers – Ground outdoor / Indoor chamber mounted : >33kV & <=66kV; <=15 MVA; and <=40 MVA (Zone Substation Equipment – Cap Banks, CT/VT, Buildings, DC Battery, DC Battery Chargers).	JEN's internal SAP system is the single source of the zone substation asset data. This data was able to be provided without estimation due to the completeness of the zone substation equipment installation dates in SAP and is therefore considered actual information.	The zone substation equipment is extracted from SAP using a data interrogation tool. Once extracted the data is filtered to provide only in-service equipment that belongs to JEN.	No assumptions were made.

Variable	Source and why actual	Methodology	Assumptions
Public Lighting – Lamps	<p>JEN's internal GIS system is the single source of the network asset data.</p> <p>This data was able to be provided without estimation due to the completeness of the public lighting lamps installation dates within GIS and is therefore considered actual information.</p>	<p>The public lighting lamps data is extracted from the GIS using a data interrogation tool. Once extracted the data is filtered to provide only in-service public lighting lamps that belong to JEN.</p>	<p>No assumptions were made.</p>
SCADA Network Control & protection systems - Field Devices (Relay)	<p>JEN's internal SAP system is the single source of the zone substation asset data.</p> <p>This data was able to be provided without estimation due to the completeness of the relay installation dates and is therefore considered actual information.</p>	<p>The zone substation equipment is extracted from SAP using a data interrogation tool. Once extracted the data is filtered to provide only in-service equipment that belong to JEN.</p>	<p>No assumptions were made.</p>
SCADA Network Control & protection systems - Communication Network Assets	<p>JEN's internal SAP system is the single source of the zone substation asset data.</p> <p>This data was able to be provided without estimation due to the completeness of the Supervisory Cable installation dates and is therefore considered actual information.</p>	<p>The zone substation equipment is extracted from SAP using a data interrogation tool. Once extracted the data is filtered to provide only in-service equipment that belong to JEN.</p>	<p>No assumptions were made.</p>

Variable	Source and why actual	Methodology	Assumptions
Assets with voltage levels of 33 kV and 132 kV	Not applicable. JEN does not have any assets operating at 33kV or 132kV, therefore all line items with these respective voltage levels have been set to zero.		
Mean and Standard Deviation	<p>SAP is the source of data to calculate mean and standard deviation for the assets below:</p> <ul style="list-style-type: none"> - Underground Cables > 1kV & <= 11 kV - Underground Cables > 11kV & <= 22 kV - Underground Cables > 33kV & <= 66 kV - Transformer Ground Outdoor / Indoor Chamber Mounted <=15 MVA - Transformer Ground Outdoor / Indoor Chamber Mounted >15 & <= 40 MVA - Field Devices - CT/VT <p>This data was able to be provided without estimation due to the completeness of the installed date and retirement date. This allowed the age of the asset to be determined and the mean and standard deviation to be calculated.</p>	<p>In order to obtain a mean replacement life and associated standard deviation the following data for each asset type was used;</p> <ul style="list-style-type: none"> - Date of installation - Date of retirement - A sample size large enough to make the calculation of Standard Deviation meaningful. 	No assumptions were made.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Mean and Standard Deviation	For a percentage of the assets, installation dates are estimated and are used to calculate the mean and standard deviation.	<p>In order to obtain a mean replacement life and associated standard deviation to inform an aged based replacement model used the following data for each asset type;</p> <ul style="list-style-type: none"> • Date of installation 	<p>The assets below are assumed to have the same mean and standard deviation (due to insufficient data sample).</p> <ul style="list-style-type: none"> • <=11kV fuses and >11kV and <=22kV fuses 	This is the best estimation method because it uses date of installation and date of retirement which is readily available.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		<ul style="list-style-type: none"> • Date of retirement • A sample size large enough to make the calculation of Standard Deviation meaningful. 	<ul style="list-style-type: none"> • – <=11kV switch and >11kV and <=22kV 	<p>However the required data is unavailable for all asset classes at the required level of detail.</p> <p>JEN has data for removed assets from 1999 to the present day only. Consequently in all but a few cases the results of the calculation are not realistic and are of a questionable level of accuracy.</p> <p>JEN is unaware of a better estimation methodology.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Poles: Staking of a wooden pole	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	<p>Poles: Staking of a wooden pole with an unknown date of installation were estimated using the dates from the nearby poles in the same pole line.</p> <p>The asset installed date is reported in this category, not the asset staked date.</p>	There is an assumption that staked poles were installed at a similar time to the poles surrounding them.	<p>This is the best estimate because it uses other known data to make a high confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was low enough to make manual assessment and assignments feasible.</p> <p>JEN is unaware of a better estimation methodology.</p>
Poles: >22kV & <=66kV; Wood, Concrete, Steel	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Poles: >22kV & <=66kV; Wood, Concrete, Steel with an unknown date of installation were estimated using the dates from the nearby poles in the same pole line.	There is an assumption that Poles: >22kV & <=66kV; Wood, Concrete, Steel are installed in an entire pole line at one time in order to complete the sub-transmission loop.	<p>This is the best estimate because it uses other known data to make a high confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was low enough to make manual assessment and assignments feasible.</p> <p>JEN is unaware of a better estimation methodology.</p>
Poles – >1kV & <=11kV, >11kV &	Dates for asset installation were not known for all assets. Actual	Poles – >1kV & <=11kV, >11kV & <=22kV, Wood, Concrete, Steel with an unknown	There is an assumption that Poles – >1kV & <=11kV, >11kV & <=22kV, Wood,	This is the best estimate because it uses other known

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
<p><=22kV, Wood, Concrete, Steel</p>	<p>installed dates were combined with estimates to produce age profiles.</p>	<p>date of installation were estimated using the average date of installation for poles within a 1km square area around the pole.</p>	<p>Concrete, Steel were installed at a similar time to the poles surrounding them.</p>	<p>data to make a medium confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was too high to feasibly assess each site manually and as such a programmatic approach was required.</p> <p>JEN is unaware of a better estimation methodology.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Poles – <=1kV, Wood, Concrete, Steel	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	<p>Step 1: Poles – <=1kV, Wood, Concrete, Steel were dated from the distribution substation feeding the conductors on them.</p> <p>Step 2: Poles – <=1kV, Wood, Concrete, Steel with unknown dates were estimated off the average age of poles within a 1km square around them.</p>	<p>Step 1: There is an assumption that the Poles – <=1kV, Wood, Concrete, Steel were installed at the same time the Distribution Substation was installed.</p> <p>Step 2: There is an assumption that the Poles – <=1kV, Wood, Concrete, Steel were installed at a similar time to the poles surrounding them.</p>	<p>Step 1: This is the best estimate because it uses other known data to make a medium-high confidence estimation based on the assumptions outlined.</p> <p>Step 2: This is the best estimate because it uses other known data to make a medium confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was too high to feasibly assess each site manually and as such a programmatic approach was required.</p> <p>JEN is unaware of a better estimation methodology.</p>
Public Lighting – Poles, Major Road, Minor Road	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	<p>Public Lighting poles with an unknown or date of installation that was considered too old were manually assessed to identify patterns in the installation date of poles surrounding them.</p> <p>This included assessing poles with similar lantern types to estimate an era of</p>	<p>There is an assumption that the Public Lighting poles are likely to be installed in a localised area at the same time in order to meet the lighting code.</p> <p>There is an assumption that Public Lighting Lanterns were introduced and retired from standards in eras.</p> <p>There is an assumption that public lighting</p>	<p>This is the best estimate because it uses knowledge of the design of public lighting systems and lighting code to determine dates where very little associated asset data exists.</p> <p>The volume of unknown assets</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		installation and the dates of installation on surrounding assets.	poles that are not classified to be major nor minor roads are included in the minor roads.	<p>in the class was low enough to make manual assessment and assignments feasible.</p> <p>JEN is unaware of a better estimation methodology.</p>
Public Lighting – Luminaires, Major Road, Minor Road	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	<p>Public Lighting lanterns with an unknown or date of installation that was considered too old were manually assessed to look for patterns in the installation date of poles surrounding them.</p> <p>This included looking at poles with similar lantern types to estimate an era of installation and the dates of installation on surrounding assets.</p>	<p>There is an assumption that the Public Lighting poles are likely to be installed in a localised area at the same time in order to meet the lighting code.</p> <p>There is an assumption that Public Lighting Lanterns were introduced and retired from standards in eras.</p>	<p>This is the best estimate because it uses knowledge of the design of public lighting systems and lighting code to determine dates where very little associated asset data exists.</p> <p>The volume of unknown assets in the class was low enough to make manual assessment and assignments feasible.</p> <p>JEN is unaware of a better estimation methodology.</p>
Public Lighting – Brackets, Major Road, Minor Road	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Public Lighting brackets with an unknown date installation were assigned a date based on the installation date of attached assets such as the public lighting pole and luminaire.	There is an assumption that the public lighting bracket was installed at the same time as the public lighting pole and where no better information is available there is an assumption that the public lighting bracket is installed at the same time as the luminaire.	<p>This is the best estimate because it uses other known data about the pole the bracket is mounted to, in order to make a medium-high confidence estimation based on the assumptions outlined.</p> <p>This is the best estimate because it uses other known data about the luminaire</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
				<p>installed on the bracket where no other asset data is available in order to make an estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was too high to feasibly asses each site manually and as such a programmatic approach was required.</p> <p>JEN is unaware of a better estimation methodology.</p>
Overhead Conductor - > 22 kV & <= 66 kV	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Overhead Conductor - > 22 kV & <= 66 kV with an unknown date of installation were manually estimated from the dates of the conductors in the same pole line and dates on construction drawings and route plans.	<p>There is an assumption that Overhead Conductor - > 22 kV & <= 66 kV are installed in an entire line at one time in order to complete the sub-transmission loop.</p> <p>There is an assumption that the replacement of the Overhead Conductor - > 22 kV & <= 66 kV has been minimal.</p>	<p>This is the best estimate because it uses other known data to make a medium-high confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was low enough to make manual assessment and assignments feasible.</p> <p>JEN is unaware of a better estimation methodology.</p>
Overhead Conductor - > 1 kV & <= 11 kV, >	Dates for asset installation were not known for all assets. Actual installed dates were combined	The date of the substation downstream from the conductor was used to populate the HV conductor dates.	There is an assumption that the Overhead Conductor - > 1 kV & <= 11 kV, > 11 kV & <= 22 kV ; Single-Phase, >	This is the best estimate because it uses other known data to make a medium

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
11 kV & <= 22 kV ; Single-Phase, > 11 kV & <= 22 kV ; Multiple-Phase	with estimates to produce age profiles.		<p>11 kV & <= 22 kV ; Multiple-Phase were required to be installed before the downstream substation could be commissioned.</p> <p>There is also an assumption that the network configuration has not changed significantly since the installation of the HV conductors.</p>	<p>confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was too high to feasibly assess each site manually and as such a programmatic approach was required.</p> <p>JEN is unaware of a better estimation methodology.</p>
Overhead Conductor - <= 1 kV	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Overhead Conductor - <= 1 kV were dated using the date of the distribution substation feeding the conductors on them.	<p>There is an assumption that the Overhead Conductor - <= 1 kV were installed at the same time as the distribution substation feeding them.</p> <p>There is also an assumption that the LV network configuration has not changed significantly since the installation of the Overhead Conductor - <= 1 kV.</p>	<p>This is the best estimate because it uses other known data to make a moderately high confidence estimated based on the assumption outlined.</p> <p>The volume of unknown assets in the class was too high to feasibly assess each site manually and as such a programmatic approach was required.</p> <p>JEN is unaware of a better estimation methodology.</p>
Underground Cables -> 33 kV & <= 66 kV	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age	Underground Cables -> 33 kV & <= 66 kV were estimated based on known cable head dates.	There is an assumption that the cables were installed at the same time that the cable head.	As Underground Cables -> 33 kV & <= 66 kV failures are rare, the estimate that the cable installation date is the

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	profiles.			<p>same as the installation date of the cable head will give a high level of confidence.</p> <p>The volume of unknown assets in the class was low enough to make manual assessment and assignments feasible.</p> <p>JEN is unaware of a better estimation methodology</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
<p>Underground Cables – < = 1 kV</p>	<p>Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.</p>	<p>Step 1: Underground Cables – < = 1 kV were estimated based on construction drawings provided at the time of installation.</p> <p>Step 2: Underground Cables – < = 1 kV were estimated based on known associated assets such as cable heads, joints, pillars and pits.</p>	<p>Step 1: There is an assumption that the cable was installed at the time the construction drawing was created.</p> <p>Step 2: There is an assumption that the associated LV assets were installed at the same time as the Underground Cables – < = 1 kV.</p>	<p>Step 1: This is the best estimate because it uses other known data to make a high confidence estimated based on the assumption outlined.</p> <p>Manual assessment and assignment was used here as the number of construction drawings was low enough to be feasible.</p> <p>Step 2: This is the best estimate because it uses other known data to make a moderate-high confidence estimated based on the assumption outlined.</p> <p>The volume of unknown assets in the class was too high for any form of manual assessment and assignments to be feasible and as such a programmatic solution provided the most consistent and accurate result.</p> <p>JEN is unaware of a better estimation methodology.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Service Lines – Residential and Commercial and Industrial (Simple Type)	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	<p>Dates from the pole supporting the service were assigned to the service as long as the service was of the correct type for that era.</p> <p>The connectivity in the GIS between the service line and the supply point was used. The attributes of the connected supply point were used to determine whether the service line was connected to a residential, commercial or industrial property.</p>	<p>There is an assumption that the overhead service was installed at the same time as the pole was installed and that neither the service nor pole has been replaced since then.</p> <p>For service type that is not classified as residential or commercial/industrial such as farm, public light, N/A, other are assumed to be classified as part of residential.</p>	<p>This is the best estimate because it uses other known data to make a medium confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was too high for any form of manual assessment and assignments to be feasible and as such a programmatic solution provided the most consistent and accurate result.</p> <p>JEN is unaware of a better estimation methodology.</p>
Service Lines < 11 kV (Complex Type) and Service Lines >11 kV	<p>JEN does not have service lines that operate at voltages >11kV. Therefore the value of zero has been entered for these line items.</p> <p>JEN has assumed that all service lines are simple type. Therefore a value of zero has been entered for line items labelled as complex type.</p>			
Underground Cables <=1 kV	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Underground services with an unknown installation date were estimated using the known dates of attached equipment such as service tee joints, pillars and pits.	There is an assumption that the underground service cable and the pits, pillars and service tee joint were all installed at the same time.	<p>This is the best estimate because it uses other known data to make a high confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was too high for any form of manual assessment and assignments</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
				<p>to be feasible and as such a programmatic solution provided the most consistent and accurate result.</p> <p>JEN is unaware of a better estimation methodology.</p>
Transformers – Pole Mounted, Kiosk Mounted, Ground Outdoor / Indoor Chamber Mounted (excluding zone substation transformers)	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Distribution transformers with an unknown installation date were manually assigned an estimated date based off associated assets such as ring main units, switches, fuses and attached cables.	There is an assumption that the transformer was installed at the same time as the associated ring main unit, switches, fuses and underground cables.	<p>This is the best estimate because it uses other known data to make a high confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was too high for any form of manual assessment and assignments to be feasible and as such a programmatic solution provided the most consistent and accurate result.</p> <p>JEN is unaware of a better estimation methodology.</p>
Switchgear – HV Fuses	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	<p>HV Line Fuses with an unknown installation date were estimated using the installation date from the poles they are mounted on.</p> <p>HV Substation Fuses with an unknown installation date were estimated using the installation date from the substation they are</p>	<p>There is an assumption that the HV Line Fuse was installed at the same time as the pole on which it is mounted.</p> <p>There is an assumption that the HV Substation Fuse was installed at the same time as the substation that it is protecting.</p>	<p>This is the best estimate because it uses other known data to make a moderately-high confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		protecting.		<p>in the class was too high for any form of manual assessment and assignments to be feasible and as such a programmatic solution provided the most consistent and accurate result.</p> <p>JEN is unaware of a better estimation methodology.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Switchgear – Switch (<=11kV Air Break Switch including LV switches)	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	LV Isolators with an unknown installation date were estimated using dates from the cables or conductors connected to the isolator.	There is an assumption that the LV Isolators were installed at the same time as the conductors or cables that the isolators are switching.	<p>This is the best estimate because it uses other known data to make a moderately-high confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was too high for any form of manual assessment and assignments to be feasible and as such a programmatic solution provided the most consistent and accurate result.</p> <p>JEN is unaware of a better estimation methodology.</p>
Switchgear – Switch (Isolators, Air Break Switches)	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	HV Isolators with an unknown installation date were estimated using dates from the cables or conductors connected to the isolator.	There is an assumption that the HV Isolators were installed at the same time as the conductors or cables that the isolators are switching.	<p>This is the best estimate because it uses other known data to make a moderately-high confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was too high for any form of manual assessment and assignments to be feasible and as such a programmatic solution provided the most consistent and accurate result.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		Air break switches with unknown dates of installation were manually estimated based on associated assets with the following priority: <ol style="list-style-type: none"> 1) Surge Diverters 2) Insulators 3) Pole Date 4) HV Conductors 5) HV Cables 6) Crossarms 	There is an assumption that the air break switch was installed at the same time as the associated assets.	The volume of unknown assets in the class was low enough to make manual assessment and assignments feasible. JEN is unaware of a better estimation methodology.
Switchgear – Switch (Gas)	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Gas switches with unknown dates of installation were manually estimated based on associated assets with the following priority: <ol style="list-style-type: none"> 1) Surge Diverters 2) Insulators 3) Pole Date 4) HV Conductors 5) HV Cables 6) Crossarms 	There is an assumption that the Gas switch was installed at the same time as the associated assets.	This is the best estimate because it uses other known data to make a high confidence estimation based on the assumptions outlined. The volume of unknown assets in the class was low enough to make manual assessment and assignments feasible. JEN is unaware of a better estimation methodology.
Switchgear – Switch (RMU)	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age	Ring Main Units with unknown installation dates were estimated using the associated transformer, substation object and cables.	There is an assumption that the RMU was installed at the same time as the transformer, substation object and cables.	This is the best estimate because it uses other known data to make a high confidence estimation based on the

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	profiles.			<p>assumptions outlined.</p> <p>The volume of unknown assets in the class was too high for any form of manual assessment and assignments to be feasible and as such a programmatic solution provided the most consistent and accurate result.</p>

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Switchgear – Switch (Circuit Breaker)	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Circuit Breakers with unknown installation dates were estimated using the associated transformer, substation object and cables.	There is an assumption that the circuit breaker was installed at the same time as the transformer, substation object and cables.	<p>This is the best estimate because it uses other known data to make a high confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was too high for any form of manual assessment and assignments to be feasible and as such a programmatic solution provided the most consistent and accurate result.</p> <p>JEN is unaware of a better estimation methodology.</p>
Switchgear – Switch (ACR)	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	<p>ACRs with unknown dates of installation were manually estimated based on associated assets with the following priority:</p> <ul style="list-style-type: none"> • Surge Diverters • Insulators • Pole Date • HV Conductors • Crossarms 	There is an assumption that the ACR was installed at the same time as the associated assets.	<p>This is the best estimate because it uses other known data to make a high confidence estimation based on the assumptions outlined.</p> <p>The volume of unknown assets in the class was low enough to make manual assessment and assignments feasible.</p> <p>JEN is unaware of a better estimation methodology.</p>

5.3 MAXIMUM DEMAND AT NETWORK LEVEL

5.3.1 RAW AND WEATHER CORRECTED COINCIDENT MD AT NETWORK LEVEL (SUMMED AT TRANSMISSION CONNECTION POINT)

Actual information

Variable	Source and why actual	Methodology	Assumptions
Raw network coincident MD	The data is the 15 minute MW transmission connection point wholesale meter readings that have been sourced from the Interval Meter Store (IMS). Therefore the data provided is actual data.	The raw adjusted total maximum demand (MW) and corresponding date and time for summer and winter is recorded in the data source file. The raw adjusted total maximum demand (MW) value and corresponding date, time and season are copied directly to the RIN template.	Category analysis RIN column headings are interpreted as follows to align with readily available data recorded in the normal course of business: 2014-15 = 1/10/2014 to 31/3/2015 As winter 2015 data is not yet available, 2015 raw coincident MD is assumed to occur in summer as JEN is a summer peaking network. Network coincident MD is assumed to occur at the time when the sum of terminal station connection point MW demand is greatest.
Date MD occurred			
Half hour time period MD occurred			
Winter/Summer peaking			

Variable	Source and why actual	Methodology	Assumptions
<p>Embedded generation</p>	<p>Source: \\vtalpwwfile07\netmgt\network_planning\terminal_station_forecasts\2015_AEMO_Forecasts\Cogen\JEN_TOTAL_GENERATION_MW_(2015).xls The data contained within the above files is 15 minute MW embedded generation meter readings sourced from the Interval Meter Store (IMS). Therefore the data provided is actual data.</p>	<p>Only embedded generators above 1MW capacity are included, as follows:</p> <ul style="list-style-type: none"> • EDL – Bolinda Landfill • EDL – Brooklyn Landfill • Preston Mini Hydro • Visy <p>The total MW value corresponding to the date and time of maximum MW demand (as above) is copied directly to the category analysis RIN template.</p>	<p>Bioscience Research Centre not included as it does not export power.</p> <p>LaTrobe University cogen is not included at subtransmission level as it is connected via the AusNet Services network.</p> <p>Somerton Power Station not included since it is connected at terminal station level and is not included in the raw network coincident MD.</p>
<p>Weather corrected (10% PoE) network coincident MD</p> <p>Weather corrected (50% PoE) network coincident MD</p>	<p>These particular variables are derived from other records used in ordinary course of business, and are categorised as actual information on the basis that they are materially dependent on information recorded in JEN’s business records and their presentation for the purposes of the Notice is not contingent on judgement and assumptions for which there are valid alternatives which could lead to a materially different presentation in the response to the Notice.</p> <p>These variables include a temperature sensitivity assumption in order to provide weather corrected data. To derive this method, we used a recorded sample of actual historical weather and demand data to determine the temperature sensitivity relationship.</p>	<p>Coincident/Non-coincident summated weather adjusted MW MD at zone substation level / transmission connection point are derived by summation of respective weather adjusted MW MDs of individual zone substation / transmission connection point</p> $Weather\ adjusted\ MW\ MD = \sum_{1}^n MD_b$ <p>Where: <i>n</i> = number of JEN transmission connection points/JEN owned zone substations</p> $MD_b = MD_a \times \frac{A \cdot t_b^2 + B \cdot t_b + C}{A \cdot t_a^2 + B \cdot t_a + C}$ <p><i>A, B, C</i> = coefficients determined based on historical data for each station. These values are as recorded in the load demand forecast.</p> <p><i>MD_b</i> = MW MD after temperature adjustment</p>	<p>It is assumed that the 10% POE and 50% POE average daily temperatures and MD temperature sensitivity relationship is consistent for 2015.</p>

Variable	Source and why actual	Methodology	Assumptions
	<p>The data source of actual weather unadjusted MW and MVA_r for transmission connection points is Wholesale market meter data.</p> <p>The data source of actual weather unadjusted MW and MVA_r for JEN zone substations is the PI system.</p>	<p>MD_a = actual unadjusted MW MD</p> <p>t_b = average daily temperature to adjust to (32.9°C for 10% POE or 29.4°C for 50% POE)</p> <p>t_a = average daily temperature on day of actual unadjusted MW MD</p> <p>Average daily temperature is calculated as follows:</p> $t = \frac{(t_{max} - t_{min})}{2}$ <p>Where:</p> <p>t = average daily temperature</p> <p>t_{max} = maximum temperature of the day (24 hour period) (data sourced from PI)</p> <p>t_{min} = minimum temperature of the day (24 hour period) (data sourced from PI)</p> <p>Weather corrected values are assumed to have the same MW/MVA ratio as raw adjusted data. Therefore weather corrected MVA is calculated as:</p> $MVA_{adjusted} = \frac{MVA_{raw}}{MW_{raw}} \times MW_{adjusted}$	

Estimated information

None.

5.4 MAXIMUM DEMAND AND UTILISATION AT SPATIAL LEVEL

5.4.1 NON-COINCIDENT & COINCIDENT MAXIMUM DEMAND

Actual information

Variable	Source and why actual	Methodology	Assumptions
Subtransmission Substation – Substation Rating	Data not provided (cells shaded black). JEN does not own any subtransmission substations or terminal stations	Not applicable	Not applicable
Subtransmission Substation – Raw Adjusted MD	Source: Summer:	<p><u>Non-coincident data:</u> The maximum total MW demand and corresponding MVAr, date and time for summer and winter is recorded in the JEN Load Demand Forecast (1forecast inputs & constants.xlsm). Since winter MDs have not yet been extracted in the normal course of business, winter MDs are extracted separately for stations where the MD has occurred during winter within the last 5 years. For the season where MW MD is greatest, the MW MD value, MVA (calculated from MW MD and corresponding MVAr value), date, time and season are copied directly to the category analysis RIN template.</p> <p><u>Coincident data:</u> Date, time and season of MD are as per the category analysis RIN template 5.3. The MW demand values and MVA (calculated from MW</p>	<p>JEN does not keep record of transmission connection point MD data in the normal course of business, therefore total data for JEN load on each terminal station bus group is provided as this data is readily available.</p> <p>MVA MD is assumed to occur at the time of MW MD.</p> <p>Category analysis RIN column headings are interpreted as follows to align with readily available data recorded in the normal course of business: 2014-15 = 1/10/43 to 30/6/15 (end date is due to restricted entry cells in RIN template).</p> <p>It is assumed that if a station did not have a winter</p>
Subtransmission Substation – Date MD Occurred	<ul style="list-style-type: none"> Non-coincident data: \\vtalpwfile07\netmgt\network planning\feeder forecasts & MDs\2015 Forecasts\Model - WITH ACIL REVISED FORECAST 20NOV2015\1forecast inputs & constants.xlsm 		
Subtransmission Substation – Time MD Occurred	<ul style="list-style-type: none"> Coincident data: \\vtalpwfile07\netmgt\network planning\feeder forecasts & MDs\2015 Forecasts\Model - WITH ACIL REVISED FORECAST 20NOV2015\9Historical System Coincident Demand.xlsm 		
Subtransmission Substation – Winter/Summer Peaking			

Variable	Source and why actual	Methodology	Assumptions
	<p>Winter:</p> <ul style="list-style-type: none"> Coincident and non-coincident: \\vtalpwfile07\netmgt\network planning\AER\3 - Category Analysis (RIN C)\2015 RIN C\Template 5.3 & 5.4\2015 winter MDs <p>The data contained within the above files is 15 minute MW and MVAR transmission connection point wholesale meter readings sourced from the Interval Meter Store (IMS). Therefore the data provided is actual data.</p>	<p>and MVAR) corresponding to these times are copied directly from the JEN load demand forecast (9Historical System Coincident Demand.xlsm) into the category analysis RIN template.</p> <p>The date/time provided is the end time of the 15 minute interval (AEST).</p> <p>Note: MD data contained within the data source file has been adjusted to system normal conditions by accounting for temporary switching and for temporary load changes from major customers. The methodology for identifying abnormal is to visually inspect the graphed demand data. The methodology to adjust for abnormal is as follows:</p> <ul style="list-style-type: none"> Non-coincident data: Demand during abnormal conditions is ignored and the highest demand under system normal conditions is recorded as the MD. For long-term abnormal, MD is estimated. Please refer to 'Estimated Information' section below. Coincident data: If the station is under abnormal conditions at the time of coincident MD, the MD is estimated. Please refer to 'Estimated Information' section below. 	<p>MD in the past 5 years then it will not have a winter MD in 2015.</p> <p>"Coincident" is assumed to be at the time of JEN network coincident MD, as per template 5.3.</p>
<p>Subtransmission Substation – Adjustments – Embedded Generation</p>	<p>Source: \\vtalpwfile07\netmgt\network planning\terminal station forecasts\2015 AEMO Forecasts\Cogen\JEN TOTAL</p>	<p>Only embedded generators above 1MW capacity are included, as follows:</p> <ul style="list-style-type: none"> EDL – Bolinda Landfill EDL – Brooklyn Landfill 	<p>Bioscience Research Centre not included as it does not export power.</p> <p>LaTrobe University cogen is not included at subtransmission level as it is connected via the</p>

Variable	Source and why actual	Methodology	Assumptions
	<p data-bbox="488 309 846 336">GENERATION MW (2015).xls</p> <p data-bbox="412 379 913 533">The data contained within the above files is 15 minute MW embedded generation meter readings sourced from the Interval Meter Store (IMS). Therefore the data provided is actual data.</p>	<ul data-bbox="967 328 1263 451" style="list-style-type: none"> • Preston Mini Hydro • Somerton Power Station* • Visy <p data-bbox="967 496 1503 619">The MW value corresponding to the date and time of maximum MW demand (as above) is copied directly to the category analysis RIN template for each terminal station / bus group.</p> <p data-bbox="967 671 1451 727">*SMTS MD does not include Somerton Power Station.</p>	<p data-bbox="1550 312 1827 336">AusNet Services network.</p>

Variable	Source and why actual	Methodology	Assumptions
<p>Zone Substation – Substation Rating</p>	<p>Sources:</p> <p>2015: Distribution Annual Planning Report (DAPR) f:\v\alp\file07\netmgmt\network\planning\Distribution Annual Planning Report\2015 DAPR\03 Report\2015-Distribution-Annual-Planning-Report.pdf</p> <p>The ratings are actual data as they are the normal cyclic ratings as per the transformer nameplates, except where transformers have been de-rated based on asset condition or where other network components limit the rating of the transformers (e.g. transformer cables).</p>	<p>Zone substation normal cyclic ratings (MVA) are copied directly from the Distribution Annual Planning Report (DAPR). The rating provided in the category analysis RIN template is the rating at the time of MD.</p> <p>The normal cyclic ratings given in the DAPR are as per the transformer nameplate except where transformers have been de-rated based on asset condition or where other network components limit the rating of the transformers (e.g. transformer cables, where normal cyclic ratings are determined from manufacturer data sheets and modelling of the installation).</p> <p>Zone substation ratings are provided only where the substation is owned by JEN. Ratings are not provided (cells shaded black) for the following zone substations owned by customers or other distribution network service providers:</p> <ul style="list-style-type: none"> • MAT • MB • SA • TT • VCO • WT 	<p>For each year the rating provided is for the season in which the MD occurs.</p>

Variable	Source and why actual	Methodology	Assumptions
<p>Zone Substation – Zone Substation – Raw Adjusted MD</p> <p>Zone Substation – Date MD Occurred</p> <p>Zone Substation – Time MD Occurred</p> <p>Zone Substation – Winter/Summer Peaking</p>	<p>Sources:</p> <p>Source:</p> <p>Summer:</p> <ul style="list-style-type: none"> - Non-coincident data: \\vtalpwfile07\netmgt\network planning\feeder forecasts & MDs\2015 Forecasts\Model - WITH ACIL REVISED FORECAST 20NOV2015\1forecast inputs & constants.xlsm - Coincident data: \\vtalpwfile07\netmgt\network planning\feeder forecasts & MDs\2015 Forecasts\Model - WITH ACIL REVISED FORECAST 20NOV2015\9Historical System Coincident Demand.xlsm <p>Winter:</p> <ul style="list-style-type: none"> - Coincident and non-coincident: \\vtalpwfile07\netmgt\network planning\AER\3 - Category Analysis (RIN C)\2015 RIN C\Template 5.3 & 5.4\2015 winter MDs <p>The data contained within the above source files is extracted from PI and Gabi. This is actual metered MD data.</p>	<p><u>Non-coincident data:</u> The maximum total MW demand and corresponding MVA_r, date and time for summer and winter is recorded in the JEN Load Demand Forecast (1forecast inputs & constants.xlsm). Since winter MDs have not yet been extracted in the normal course of business, winter MDs are extracted separately for stations where the MD has occurred during winter within the last 5 years. For the season where MW MD is greatest, the MW MD value, MVA (calculated from MW MD and corresponding MVA_r value), date, time and season are copied directly to the category analysis RIN template.</p> <p><u>Coincident data:</u> Date, time and season of MD are as per the category analysis RIN template 5.3. The MW demand values and MVA (calculated from MW and MVA_r) corresponding to these times are copied directly from the JEN load demand forecast (9Historical System Coincident Demand.xlsm) into the category analysis RIN template.</p> <p>For zone substations MAT, MB, TT, VCO and WT, data has been extracted from the interval meter store (IMS) and the date/time provided is the end time of the 15 minute interval (AEST). For all other zone substations, data has been extracted from OSI PI and date time provided is exact time of MD (adjusted for daylight savings time, i.e. AEDT).</p> <p>Zone substation demand is at the transformer and therefore includes the impact of any capacitor banks at the terminal station.</p>	<p>MVA MD is assumed to occur at the time of MW MD.</p> <p>As JEN load at SA is supplied from shared feeders, there is no metered actual data available for JEN load. Therefore, SA MD is estimated. Please refer to 'Estimated Information' section below.</p> <p>Category analysis RIN column headings are interpreted as follows to align with readily available data recorded in the normal course of business: 2014-15 = 1/10/14 to 30/6/15 (end date is due to restricted entry cells in RIN template).</p> <p>It is assumed that if a station did not have a winter MD in the past 5 years then it will not have a winter MD in 2015.</p> <p>"Coincident" is assumed to be at the time of JEN network coincident MD, as per template 5.3.</p>

Variable	Source and why actual	Methodology	Assumptions
		<p>Note: MD data contained within the data source file has been adjusted to system normal conditions by accounting for temporary switching and for temporary load changes from major customers. The methodology for identifying abnormal is to visually inspect the graphed demand data. The methodology to adjust for abnormal is as follows:</p> <ul style="list-style-type: none"> • Non-coincident data: Demand during abnormal conditions is ignored and the highest demand under system normal conditions is recorded as the MD. For long-term abnormal, MD is estimated. Please refer to 'Estimated Information' section below. • Coincident data: If the station is under abnormal conditions at the time of coincident MD, the MD is estimated. Please refer to 'Estimated Information' section below. 	

Variable	Source and why actual	Methodology	Assumptions
<p>Zone Substation – Adjustments – Embedded Generation</p>	<p>Sources:</p> <ul style="list-style-type: none"> - Cogen folder \\vtalpwwfile07\netmgt\network\planning\terminal_station_forecasts\2015 AEMO Forecasts\Cogen (use generator files relevant to each zone substation) <p>The data contained within the above files is 15 minute MW embedded generation meter readings sourced from the Interval Meter Store (IMS). Therefore the data provided is actual data.</p>	<p>Only embedded generators above 1MW capacity are included, as follows:</p> <ul style="list-style-type: none"> • EDL – Bolinda Landfill (ZSS: BD) • EDL – Brooklyn Landfill (ZSS: TH) • LaTrobe University (ZSS: TT) • Preston Mini Hydro (ZSS: CN) • Visy (ZSS: VCO) <p>The cogen MW value corresponding to the date and time of maximum MW demand (as above) is copied directly to the category analysis RIN template.</p>	<p>Bioscience Research Centre (ZSS: NH) not included as it does not export power.</p> <p>Somerton Power Station is not included at zone substation level as it is connected at subtransmission level.</p>
<p>Subtransmission Substation – Weather Corrected MD</p> <p>Zone Substation – Weather Corrected MD</p>	<p>These particular variables are derived from other records used in ordinary course of business, and are categorised as actual information on the basis that they are materially dependent on information recorded in JEN’s business records and their presentation for the purposes of the Notice is not contingent on judgement and assumptions for which there are valid alternatives which could lead to a materially different presentation in the response to the Notice.</p> <p>These variables include a temperature sensitivity assumption in order to provide weather corrected data. To derive this method, we used a recorded sample of actual historical weather and demand data to determine the temperature sensitivity relationship.</p>	<p>Coincident/Non-coincident summated weather adjusted MW MD at zone substation level / transmission connection point are derived by summation of respective weather adjusted MW MDs of individual zone substation / transmission connection point</p> $Weather\ adjusted\ MW\ MD = \sum_1^n MD_b$ <p>Where: <i>n</i> = number of JEN transmission connection points/JEN owned zone substations</p> $MD_b = MD_a \times \frac{A \cdot t_b^2 + B \cdot t_b + C}{A \cdot t_a^2 + B \cdot t_a + C}$ <p><i>A, B, C</i> = coefficients determined based on historical data for each station. These values are as recorded in the load demand forecast.</p>	<p>It is assumed that the 10% POE and 50% POE average daily temperatures and MD temperature sensitivity relationship is consistent for 2015.</p>

Variable	Source and why actual	Methodology	Assumptions
	<p>The data source of actual weather unadjusted MW and MVA_r for transmission connection points is Wholesale market meter data.</p> <p>The data source of actual weather unadjusted MW and MVA_r for JEN zone substations is the PI system.</p>	<p>MD_b = MW MD after temperature adjustment</p> <p>MD_a = actual unadjusted MW MD</p> <p>t_b = average daily temperature to adjust to (32.9°C for 10% POE or 29.4°C for 50% POE)</p> <p>t_a = average daily temperature on day of actual unadjusted MW MD</p> <p>Average daily temperature is calculated as follows:</p> $t = \frac{(t_{max} - t_{min})}{2}$ <p>Where:</p> <p>t = average daily temperature</p> <p>t_{max} = maximum temperature of the day (24 hour period) (data sourced from PI)</p> <p>t_{min} = minimum temperature of the day (24 hour period) (data sourced from PI)</p> <p>Weather corrected values are assumed to have the same MW/MVA ratio as raw adjusted data.</p> <p>Therefore weather corrected MVA is calculated as:</p> $MVA_{adjusted} = \frac{MVA_{raw}}{MW_{raw}} \times MW_{adjusted}$	

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
SA zone substation: Zone Substation – Raw Adjusted MD – Coincident & Non-coincident Zone Substation – Date MD Occurred – Non-coincident Zone Substation – Time MD Occurred – Non-coincident Zone Substation – Winter/Summer Peaking – Non-coincident	JEN load at zone substation SA consists of sections of feeders. Metering of the JEN load supplied by SA is unavailable, therefore the MD must be estimated.	Metered data for the full load on SA feeders is available. The at SA is estimated by a combination of <ul style="list-style-type: none"> Using ACR data provided by Powercor, where available, multiplying the full feeder load by an assumed proportion of JEN load for each feeder where ACR data is not available, applying knowledge of customer growth/new customer loads obtained from customer applications, and trending from previous year's MDs. 1.	It is assumed that JEN load at SA is the following proportion of the SA feeders supplying JEN load: <ul style="list-style-type: none"> SA02: 10% SA06: 25% SA12: 30% – 	Combines all available knowledge of JEN load supplied by SA zone substation. JEN is unaware of a better estimation methodology.
Subtransmission Substation – Raw Adjusted MD – abnormal conditions	If the station is under abnormal conditions at the time of coincident MD, the metered demand value stored in PI will reflect the abnormal condition. As the MD value is required to be adjusted to system normal	The value is estimated with consideration of known load transfers/supply outages, the demand trend at the station/similar stations, the non-coincident MD in that year and diversity factor trends at the	If the station is under abnormal conditions at the time of coincident MD, it is generally assumed that the coincident MD is equal to the non-coincident MD.	Estimate is based on available actual data. JEN is unaware of a better

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Zone Substation – Raw Adjusted MD – abnormal conditions	conditions, the MD must be estimated.	station/similar stations.	If other available information does not support the above assumption, it is assumed that known transfers/supply outages and trending are an accurate basis for estimation of the raw adjusted coincident MD.	estimation methodology.

6. SERVICE & QUALITY

6.3 SUSTAINED INTERRUPTIONS TO SUPPLY

6.3.1 SUSTAINED INTERRUPTIONS TO SUPPLY

Actual information

Variable	Source and why actual	Methodology	Assumptions
Sustained interruptions to supply (2015)	<p>Jemena's Outage Management System (OMS) is the repository for all outage information since 18 June 2010.</p> <p>The system contains outage dates and times, the number of customer affected, restoration dates, times, restoration stages and cause descriptions. As the sustained interruptions can be directly sourced from the OMS, we consider it to be 'actual information'.</p>	<p>The data used to calculate the reliability variables (KPI's) is extracted from OMS at the end of each month and is validated and cleansed to correct data errors. The cleansed data is loaded into the Customer Minutes Off Supply (CMOS) database. The reliability KPI's are then calculated.</p> <p>The cause descriptions in OMS are JEN cause descriptions. Each event cause has been verified against the event description and corrected in the CMOS database. They are then mapped to the "Reason for interruption" and the "Detail reason for interruption" where applicable.</p> <p>For vegetation related outages, the "Detailed reason for interruption" for each event has been verified against JEN's Electric Line Clearance Performance Report 2015 produced for the ESV and Councils.</p> <p>Unplanned SAIDI and unplanned SAIFI is calculated by dividing customer minutes-off-supply and customer affected respectively with urban or rural-short customer numbers as per feeder classifications</p>	<p>For single premise outages where the service fuse has blown and no clear identification of which element caused the fuse to operate and was not specified as cause not found, JEN has allocated the Reason for interruption to Asset failure and Detailed reason for interruption to LV.</p> <p>JEN observes that columns I and J in the 2015 template 6.3 have the same heading. Given that the header has comments, JEN continues to treat Column J as "Effect on unplanned SAIDI (by feeder classification)" similar to 2014.</p>

Variable	Source and why actual	Methodology	Assumptions
		<p>Urban or rural-short customer numbers are calculated as average of at the start and at the end of the reporting period and are equal to the numbers reported in the Annual RIN Appendix C 1a. Table 4.</p> <p>Unplanned SAIFI is reported as per 0.01 interruptions as per the definition in the report i.e. Unplanned interruptions divided by the relevant feeder category customers and divided by 0.01.</p>	