2 June 2013

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Mr Chris Pattas
General Manager, Network Operations and Development
Australian Energy Regulator
GPO Box 520
Melbourne VIC 3001

By Email: AERInquiry@aer.gov.au

Confidential

Dear Chris

Jemena Electricity Networks (Vic) Ltd: Response to the Category Analysis Regulatory Information Notice for the 2009-13 regulatory years

Jemena Electricity Networks (Vic) Ltd (**JEN**) is pleased to submit its response to the Regulatory Information Notice (**RIN**) that the Australian Energy Regulator (**AER**) served on JEN on 7 March 2014.

The JEN response includes the:

- Excel template with JEN's actual category analysis information
- Excel template with JEN's estimated category analysis information
- Excel template with JEN's consolidated category analysis information
- Excel template with JEN's colour-coded consolidated category analysis information
- JEN's audit opinion and review reports
- JEN's basis of preparation document.

JEN notes that the following tables in its response to the RIN contain a large proportion of subjective data that has been colour coded orange or red:

- Connections
- Labour
- Fee-based services, and
- Quoted services.

JEN considers that information colour coded red or orange is not fit for the purpose of regulatory analysis or decision making.

JEN also notes that it is the smallest stand-alone electricity distributor in Victoria, and one of the smallest in Australia. As a result, JEN's fixed costs of running an electricity network are spread over a much smaller number of customers than JEN's peers, which places JEN at a scale disadvantage in any benchmarking comparison. JEN considers that the AER should take this into account when considering the results of any comparative benchmarking analysis.

JEN provides two copies of its response to the category analysis RIN for regulatory years 2009-13: a confidential version with identified areas of content that contain materials that are commercial-in-confidence, and a second public version with areas of content that are commercial-in-confidence redacted.

Annexure 1 to this letter details the relevant sections of the RIN that JEN considers to be commercial-in-confidence and the basis of the claims.

If you have any questions regarding this submission please contact me on (03) 8544 9036 or anton.murashev@jemena.com.au.

Yours sincerely

Anton Murashev
Manager Asset Regulation and Strategy

Copies:

Paul Dunn
Email: paul.dunn@aer.gov.au

Annexure 1 - Jemena Electricity Networks (Vic) Ltd response to the category analysis RIN for the 2009-13 regulatory years

Claims for commercial-in-confidence

The following table sets out specific sections of JEN's RIN response that JEN claims to be commercial-in-confidence and the basis of the claim. JEN has applied the rationale for claiming information as commercial-in-confidence as set out in the AER's confidentiality guideline.

JEN has provided reasons detailing how and why disclosure of the information would cause detriment to the business. JEN understands that this confidential information being available to the AER to perform its functions under the rules provides a public benefit, and has assessed that in all identified cases JEN's confidentiality reasons, together with the benefits already realised through the AER's confidential use of this data, are not outweighed by any additional public benefit to disclosure of the information.

Title, page and paragraph number of document containing the confidential information	**Description of the confidential information.**	**Topic the confidential information relates to (e.g. capex, opex, the rate of return etc.)**	**Identify the recognised confidentiality category that the confidential information falls within.**	**Provide a brief explanation of why the confidential information falls into the selected category. If information falls within 'other' please provide further details on why the information should be treated as confidential.**	**Specify reasons supporting how and why detriment would be caused from disclosing the confidential information.**	**Provide any reasons supporting why the identified detriment is not outweighed by the public benefit (especially public benefits such as the effect on the long term interests of consumers).**
Excel templates **2.2 Repex** Expenditures in N11:R143	Expenditure information that can be used to derive implied unit rates	Replacement capex activites	Market sensitive cost inputs	Implied unit rates for various replacement activities can be derived when expenditure is divided by the corresponding volumes. This could reveal underlying supplier prices, internal labour costs, and information which would affect JEN's (and third party suppliers) ability to obtain competitive prices in future procurement processes.	Revealing unit rates for procuring particular types of materials or services could set a floor in the market when procuring such services in the future. Disclosure could therefore harm JEN's legitimate business interests and, ultimately, increase costs passed onto customers.	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.

Title, page and paragraph number of document containing the confidential information	Description of the confidential information.	Topic the confidential information relates to (e.g. capex, opex, the rate of return etc.)	Identify the recognised confidentiality category that the confidential information falls within.	Provide a brief explanation of why the confidential information falls into the selected category. If information falls within 'other' please provide further details on why the information should be treated as confidential.	Specify reasons supporting how and why detriment would be caused from disclosing the confidential information.	Provide any reasons supporting why the identified detriment is not outweighed by the public benefit (especially public benefits such as the effect on the long term interests of consumers).
Excel templates **2.3 Augex** Expenditures in: X13:14, Z13:14, AL13:14, AR13:14, AT13:14, AU13:14, T74, W74, AP74, AS74, M152:Q153, M155:Q156, M158:Q160 and M176:Q176	Expenditure information that can be used to derive implied unit rates of materials and end-to-end service provision of augmentation projects. AT13:14 discloses related party margins paid by JEN to its related party suppliers.	Augmentation capex (and some opex) activities	Market sensitive cost inputs	Implied unit rates for various materials (eg. transformers, switchgear) and augmentation activities can be derived when expenditure is divided by the corresponding volumes. Also commercially agreed related party margins and total cost of service unit rates can be derived. The former could reveal underlying supplier prices, internal labour costs, and information which would affect JEN's (and third party suppliers) ability to obtain competitive prices in future procurement processes, while the latter would disadvantage JEN's related party providers, which operate in a competitive market.	Revealing unit rates for procuring particular types of materials or services could set a floor in the market when procuring such services in the future. Disclosure could therefore harm JEN's legitimate business interests and, ultimately, increase costs passed onto customers. Revealing margins paid by JEN to its related party providers could prejudice those providers' commercial negotiations with other clients (who would likely demand terms no worse than those provided to JEN).	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.
Excel template **2.5 Connections** Expenditures in: N18:R18, N20:R20, N22:R22, N31:R31, N33:R33, N35:R35, N40:R40, N42:R42, N44:R45 and AF14:AJ23	Expenditure information that can be used to derive implied unit rates of connection service provision	Connection activities (capex and opex)	Market sensitive cost inputs	Implied unit rates for connection activities can be derived when expenditure is divided by the corresponding volumes. This would reveal underlying supplier prices, internal labour costs, and information which would affect JEN's (and third party suppliers) ability to obtain competitive prices in future procurement processes.	Revealing unit rates for procuring particular types of materials or services could set a floor in the market when procuring such services in the future. Disclosure could therefore harm JEN's legitimate business interests and, ultimately, increase costs passed onto customers.	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.

Title, page and paragraph number of document containing the confidential information	Description of the confidential information.	Topic the confidential information relates to (e.g. capex, opex, the rate of return etc.)	Identify the recognised confidentiality category that the confidential information falls within.	Provide a brief explanation of why the confidential information falls into the selected category. If information falls within 'other' please provide further details on why the information should be treated as confidential.	Specify reasons supporting how and why detriment would be caused from disclosing the confidential information.	Provide any reasons supporting why the identified detriment is not outweighed by the public benefit (especially public benefits such as the effect on the long term interests of consumers).
Excel template **2.6 Non-network** Expenditures in: N14:R15 and N20:R29	Expenditure information that can be used to derive implied unit rates of IT devices and motor vehicles	IT devices and motor vehicles (capex and opex)	Market sensitive cost inputs	Implied unit rates for IT devices and motor vehicles can be derived when expenditure is divided by the corresponding volumes. This would reveal underlying supplier prices and internal labour costs which would affect JEN's (and third party suppliers) ability to obtain competitive prices in future procurement processes.	Revealing unit rates for procuring particular types of materials or services could set a floor in the market when procuring such services in the future. Disclosure could therefore harm JEN's legitimate business interests and, ultimately, increase costs passed onto customers.	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.
Excel template **2.7 Vegetation management** Expenditures in: AW11:BA11, AW15:BA15, AW19:BA20, AW24:BA24, and AW28:BA28.	Expenditure information that can be used to derive implied unit rates for vegetation management services	Vegetation management opex	Market sensitive cost inputs	Implied unit rates for vegetation management services can be derived when expenditure is divided by the corresponding volumes. This would reveal underlying supplier prices and labour costs which would affect JEN's (and third party suppliers) ability to obtain competitive prices in future procurement processes.	Revealing unit rates for procuring particular types of materials or services could set a floor in the market when procuring such services in the future. Disclosure could therefore harm JEN's legitimate business interests and, ultimately, increase costs passed onto customers.	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.

Title, page and paragraph number of document containing the confidential information	Description of the confidential information.	Topic the confidential information relates to (e.g. capex, opex, the rate of return etc.)	Identify the recognised confidentiality category that the confidential information falls within.	Provide a brief explanation of why the confidential information falls into the selected category. If information falls within 'other' please provide further details on why the information should be treated as confidential.	Specify reasons supporting how and why detriment would be caused from disclosing the confidential information.	Provide any reasons supporting why the identified detriment is not outweighed by the public benefit (especially public benefits such as the effect on the long term interests of consumers).
Excel template **2.8 Maintenance** Expenditures in: CM13:DG42	Expenditure information that can be used to derive implied unit rates of key maintenance services	Maintenance opex	Market sensitive cost inputs	Implied unit rates for maintenance services can be derived when expenditure is divided by the corresponding volumes. This would reveal underlying internal (and contractor) labour costs which would affect JEN's (and third party service providers') ability to obtain competitive prices in future procurement processes.	Revealing unit rates for procuring particular types of materials or services could set a floor in the market when procuring such services in the future. Disclosure could therefore harm JEN's legitimate business interests and, ultimately, increase costs passed onto customers.	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.
Excel template **2.11 Labour** Expenditures in: AD11:AH11, AD29:AH29, AD32:AH32, AD35:AH35	Labour expenditure information for employee categories with 3 or less employees	Labour opex	Personal information and market sensitive cost inputs	Labour classifications with 3 or less Average Staffing Levels (**ASL**s) are commercial in confidence, as the employees' salaries within these bands could be identified. Salary information is 'personal information'. Furthermore it is also market sensitive information as this could be used by competing firms to target JEN employees for recruitment.	Detriment would be caused by breaching privacy laws in circumstances where personal information is published that can identify an employee. Disclosure could also harm JEN's legitimate business interests by making it more difficult to retain qualified staff.	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.

Title, page and paragraph number of document containing the confidential information	Description of the confidential information.	Topic the confidential information relates to (e.g. capex, opex, the rate of return etc.)	Identify the recognised confidentiality category that the confidential information falls within.	Provide a brief explanation of why the confidential information falls into the selected category. If information falls within 'other' please provide further details on why the information should be treated as confidential.	Specify reasons supporting how and why detriment would be caused from disclosing the confidential information.	Provide any reasons supporting why the identified detriment is not outweighed by the public benefit (especially public benefits such as the effect on the long term interests of consumers).
Excel template **2.12 Input tables** Costs in: O9:BF10 CF9:CH10 M28:CI80	Direct costs that can be used to derive margins and unit rates of materials and services	Direct material costs (opex and capex), direct labour costs (opex), contract cost (opex), other costs (opex and capex) and related party contract margins (opex)	Market sensitive cost inputs	Direct material costs, labour costs, contract costs, other costs and related party contract margins—all by service and asset classes, can be used to derive unit rates when costs are divided by corresponding volumes. The margins earned by JEN's related party suppliers can also be observed from this information. The former would prejudice JEN's ability to obtain competitive prices in future procurement processes, while the latter would disadvantage JEN's related party providers, which operate in a competitive market.	Revealing unit rates for procuring particular types of materials or services could set a floor in the market when procuring such services in the future. Disclosure could therefore harm JEN's legitimate business interests and, ultimately, increase costs passed onto customers. Revealing margins paid by JEN to its related party providers could prejudice those providers' commercial negotiations with other clients (who would likely demand terms no worse than those provided to JEN).	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.
Excel template **4.1 Public lighting** Expenditures in: M52:Q52 M56:Q56 M81:Q100	Expenditures used to derive public lighting installation unit rates and unit rates (by type of light)	Public lighting capex and opex	Market sensitive cost inputs	Implied unit rates for public lighting replacement and maintenance services can be derived when expenditure is divided by the corresponding volumes. This would reveal underlying internal (and contractor) labour costs which would affect JEN's (and third party service providers') ability to obtain competitive prices in future procurement processes.	Revealing unit rates for procuring particular types of materials or services could set a floor in the market when procuring such services in the future. Disclosure could therefore harm JEN's legitimate business interests and, ultimately, increase costs passed onto customers.	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.

Title, page and paragraph number of document containing the confidential information	Description of the confidential information.	Topic the confidential information relates to (e.g. capex, opex, the rate of return etc.)	Identify the recognised confidentiality category that the confidential information falls within.	Provide a brief explanation of why the confidential information falls into the selected category. If information falls within 'other' please provide further details on why the information should be treated as confidential.	Specify reasons supporting how and why detriment would be caused from disclosing the confidential information.	Provide any reasons supporting why the identified detriment is not outweighed by the public benefit (especially public benefits such as the effect on the long term interests of consumers).
Excel template **4.2 Metering** Expenditures in: AD12:AH45	Expenditure information that can be used to derive implied unit rates of key metering services	Metering capex and opex	Market intelligence (with respect to type 4 meters-contestable) and Market sensitive cost inputs (with respect to type 5 and 6 meters)	Implied unit rates for metering services can be derived when expenditure is divided by the corresponding volumes. This would reveal underlying internal (and contractor) material and labour costs which would affect JEN's (and third party service providers') ability to obtain competitive prices in future procurement processes.	Revealing unit rates for procuring particular types of materials or services could set a floor in the market when procuring such services in the future. Disclosure could therefore harm JEN's legitimate business interests and, ultimately, increase costs passed onto customers.	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.
Excel template **4.3 Fee-based services** Expenditures in: L11:P12 L14:P21 L25:P25	Expenditure information that can be used to derive implied unit rates of key fee-based services	Capex and opex	Market sensitive cost inputs	Implied unit rates for fee-based services can be derived when expenditure is divided by the corresponding volumes. This would reveal underlying internal (and contractor) material and labour costs which would affect JEN's (and third party service providers') ability to obtain competitive prices in future procurement processes.	Revealing unit rates for procuring particular types of materials or services could set a floor in the market when procuring such services in the future. Disclosure could therefore harm JEN's legitimate business interests and, ultimately, increase costs passed onto customers.	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.

Title, page and paragraph number of document containing the confidential information	Description of the confidential information.	Topic the confidential information relates to (e.g. capex, opex, the rate of return etc.)	Identify the recognised confidentiality category that the confidential information falls within.	Provide a brief explanation of why the confidential information falls into the selected category. If information falls within 'other' please provide further details on why the information should be treated as confidential.	Specify reasons supporting how and why detriment would be caused from disclosing the confidential information.	Provide any reasons supporting why the identified detriment is not outweighed by the public benefit (especially public benefits such as the effect on the long term interests of consumers).
Excel template **4.4 Quoted services** Expenditures in: L11:P15	Expenditure information that can be used to derive implied unit rates of key quoted services	Capex and opex	Market sensitive cost inputs	Implied unit rates for quoted services can be derived when expenditure is divided by the corresponding volumes. This would reveal underlying internal (and contractor) material and labour costs which would affect JEN's (and third party service providers') ability to obtain competitive prices in future procurement processes.	Revealing unit rates for procuring particular types of materials or services could set a floor in the market when procuring such services in the future. Disclosure could therefore harm JEN's legitimate business interests and, ultimately, increase costs passed onto customers.	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.
JEN basis of preparation, page 137	Margins	Margins	Market sensitive cost inputs	The margins paid by JEN to its related parties have been commercially agreed. Public disclosure would disadvantage JEN's related party providers, which operate in a competitive market.	Revealing margins paid by JEN to its related party providers could prejudice those providers' commercial negotiations with other clients (who would likely demand terms no worse than those provided to JEN).	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.

Title, page and paragraph number of document containing the confidential information	Description of the confidential information.	Topic the confidential information relates to (e.g. capex, opex, the rate of return etc.)	Identify the recognised confidentiality category that the confidential information falls within.	Provide a brief explanation of why the confidential information falls into the selected category. If information falls within 'other' please provide further details on why the information should be treated as confidential.	Specify reasons supporting how and why detriment would be caused from disclosing the confidential information.	Provide any reasons supporting why the identified detriment is not outweighed by the public benefit (especially public benefits such as the effect on the long term interests of consumers).
Appendix 2 Entire report	Independent audit opinion and review report	Audit reports	Market sensitive cost inputs	JEN's audit opinion and review report of its category analysis RIN response is confidential in entirety, as there would be harm to both JEN and the Auditor, should the report be publicly disclosed.	While JEN is not publicly listed, the Jemena Group has publicly listed debt. Therefore, public information could have value implications for Jemena's traded debt. If the audit report in question (and potential similar future reports) were to be published, investors could rely on the information in those reports. Most investors would not understand the difference between a statutory audit report and a regulatory audit report. Given this, any potential non-compliance with an AER RINs, which may be noted in a regulatory audit report, could mistakenly be perceived by investors as an issue with JEN's statutory financial reporting. This could damage JEN's reputation with investors and result in unnecessary costs of JEN issuing explanations and re-assurances to the market.	While the detriment of publishing the information is clear, JEN is not aware of any material incremental benefit from the AER publishing this information, as opposed to using it on a confidential basis. Confidentiality arrangements can be put in place to allow access to the information for the relevant interested parties involved in regulatory processes.

Jemena Electricity Networks (Vic) Ltd

Response to the Category Analysis Regulatory Information Notice for regulatory years 2009-13

Basis of preparation

Information from CY2009 to CY2013

Public

31 May 2014

Jemena
Vital Service. Vital Planet.

An appropriate citation for this paper is:

JEN response to Category Analysis Regulatory Information Notice for 2009-13 regulatory years

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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
MVAr	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

Jemena Electricity Networks (Vic) Ltd (**JEN**) is required to respond to a category analysis Regulatory Information Notice (**RIN**), covering calendar years 2009 to 2013 (inclusive). RIN data templates and accompanying audit report and review report(s) are due to the Australian Energy Regulator (**AER**) by 31 May 2014. The RIN was served upon JEN by the AER under the National Electricity Law (**NEL**) on 7 March 2014.

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.

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.

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 (i.e. section *2.2 Repex* of this basis of preparation document refers to worksheet *2.2 Repex* in the Excel templates).

JEN has included in its basis of preparation all other information JEN prepared in accordance with the requirements of the RIN.

PROCESS REQUIREMENTS

JEN's basis of preparation will be independently reviewed and verified by statutory declaration. In relation to providing an audit opinion, or making an attestation report on the Excel templates presented by JEN, the auditor shall provide an opinion or attest by reference to JEN's basis of preparation. That is, the auditor will review JEN's basis of preparation when conducting their audit of actual information and issuing their review document of estimated information.

BEST ESTIMATES

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 limited 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.

Due to the requirement for JEN to populate input cells relating to a number of previous years, JEN has estimated some variables.

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

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

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.

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
- illogical for JEN to enter '0' in response to the variable when posed as a question.

These cells are shaded orange in the clean Excel templates

For each variable identified in the RIN and the Excel templates (through orange shading) as potentially not applicable to JEN, JEN has considered whether the variable is actually applicable to it.

Where the variable is actually applicable to JEN, 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

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

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.

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.

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
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

2.1.1 STANDARD CONTROL SERVICES CAPEX

Actual information

Variable	Source and why actual	Methodology	Assumptions
Capitalised Corporate Overhead (CY11 to CY13) **** Note that JEN cannot change the date format in the template which is protected.***	The data is sourced from actual template of 2.10 Overheads	Refer to the Basis of Preparation for 2.10 Overheads	None
Customer Contributions (CY09 to CY13)	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) (CY09 to CY13)	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 (CY09 to CY13)	The data is sourced from the estimate template of 2.5 Connections	Refer to the Basis of Preparation for 2.5 Connections. For the period CY11-13, JEN was able to separate the Connections activities into SCS, Fee based and Quoted services. JEN extracted master data from its ERP system for Connection type activities and, with input from experienced engineers, manually categorised these activities into SCS, Fee based and Quoted services. However, this was not possible for the period CY09-10 as JEN's ERP system did not capture data to facilitate this categorisation. Using the capex data for the period CY11-13, JEN calculated a percentage between SCS and ACS and applied the resulting percentage to the total Connection capex to arrive at the SCS and ACS amounts for CY09-10.	Refer to the Basis of Preparation for 2.5 Connections.	Refer to the Basis of Preparation for 2.5 Connections
Augmentation Expenditure (Augex) (CY09 to CY13)	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-Networks (CY09 to CY13)	The data is sourced from templates of 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 (CY09 to CY13)	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.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Balancing Item (CY09 to CY13)	The balancing item is the outcome from the reconciliation made to SCS Capex reported in the RAS/RIN submissions. As the items making up the balance consist of estimated items and/or items not reported in RAS/RIN submissions, it is estimated data.	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 RAS/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

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Vegetation Management (CY09 to CY13)	The data is sourced from the estimate template in 2.7 Vegetation Management.	Refer to the Basis of Preparation for 2.7 Vegetation Management.	Refer to the Basis of Preparation for 2.7 Vegetation Management.	Refer to the Basis of Preparation for 2.7 Vegetation Management.
Maintenance (CY09 to CY13)	The data is sourced from the estimate template in 2.8 Maintenance.	Refer to the Basis of Preparation for 2.8 Maintenance.	Refer to the Basis of Preparation for 2.8 Maintenance.	Refer to the Basis of Preparation for 2.8 Maintenance.
Emergency Response (CY09 to CY13)	The data is sourced from the estimate template in 2.9 Emergency Response.	Refer to the Basis of Preparation for 2.9 Emergency Response.	Refer to the Basis of Preparation for 2.9 Emergency Response.	Refer to the Basis of Preparation for 2.9 Emergency Response.
Non-Networks (CY09 to CY13)	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 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.
Network Overheads (CY09	The data is sourced from the	Refer to the Basis of	Refer to the Basis of Preparation for 2.10	Refer to the Basis of Preparation

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
to CY13)	estimate template in 2.10 Overheads	Preparation for 2.10 Overheads.	Overheads. It is assumed that non network costs are included in the "Network Overhead - Overhead expenditure before allocation standard control services" section of template 2.10 Overheads, To avoid the impact of double counting, JEN removed motor vehicle, building & property costs that were disclosed in the non-network template. Non network IT costs are separately removed from Corporate Overheads in template 2.1.	for 2.10 Overheads.
Corporate Overheads (CY09 to CY13)	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. . 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 for 2.10 Overheads.

2.1.3 ALTERNATIVE CONTROL SERVICES CAPEX

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Connections (CY09 to CY13)	The data is sourced from the estimate template of 2.5 Connections	Refer to the Basis of Preparation for 2.5 Connections. For the period CY11-13, JEN was able to separate the Connections activities into SCS, Fee based and Quoted services. JEN extracted master data from its ERP system for Connection type activities and with input from experienced engineers, it manually categorised these activities into SCS, Fee	As Connections is not reported as a separate category in the RAS/RIN submissions, JEN has deemed this data as an estimate.	Refer to the Basis of Preparation for 2.5 Connections

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		based and Quoted services. However, this was not possible for the period CY09-10 as JEN's ERP system did not capture data to facilitate this categorisation. Using the capex data for the period CY11-13, JEN calculated a percentage between SCS and ACS as applied the resulting percentage to the total Connection capex to arrive at the SCS and ACS amounts for CY09-10.		
Metering (CY09 to CY13)	The data is sourced from template 4.2 Metering The estimated cost category with reference to template 4.2 is part of Other Metering. These Capex costs include Capex Other and capitalised interest. Corporate overheads, Opex transitional business activities and Opex asset strategy & planning costs have been excluded.	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 (CY09 to CY13)	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.
Fee & Quoted (CY09 to CY13)	The data is sourced from the estimate templates of 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. JEN included the following items as capex:	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.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		• 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		
Balancing Item (CY09 to CY13)	The balancing item is the outcome from the reconciliation of ACS Capex reported in the RAS/RIN submissions and the inputs from the templates in RIN C e.g. Repex, Augex, etc. As the items making up the balance consist of estimated items not reported in RAS/RIN submissions, it is hence deemed an estimated data.	Refer to Appendix A – Balancing items reconciliation for details of the balancing items	Refer to Appendix A – Balancing items. This item is solely dependent on assumptions made and explained in other templates.	Refer to Appendix A – Balancing items. This item is solely dependent on best estimates made and explained in other templates.

APPENDIX A – Balancing Item Reconciliation

Expenditure Summary - Balancing Items	2009	2010	2011	2012	2013
Balancing Item - SCS *(as per 2.1.1)*	4,240	2,492	4,465	(404)	(2,297)
Balancing Item - ACS *(as per 2.1.3)*	(8,533)	(10,264)	(8,175)	(3,739)	(3,796)
Total	**(4,293)**	**(7,772)**	**(3,710)**	**(4,144)**	**(6,093)**

Balancing Item (to achieve RIN/RAS additions) :	2009	2010	2011	2012	2013
Fee-Based & Quoted Services - *refer to (a)*	(2,110)	(2,958)	(3,142)	(3,319)	(4,927)
Public Lighting - *refer to (b)*	(265)	(343)	(499)	(479)	(723)
Contested Services - *refer to (c)*	1,320	1,536	0	0	0
OH on Contested Services - *refer to (d)*	0	0	(69)	(346)	(440)
Margin Adjusted - *refer to (e)*	(3,243)	(6,010)	0	0	0
Other - *refer to (f)*	5	4	0	0	(3)
Total	**(4,293)**	**(7,772)**	**(3,710)**	**(4,144)**	**(6,093)**

(a) The cost for new connection services is reflected in the 'Connection' template, as well as the 'Fee based' or 'Quoted' templates. This line item is to negate the effect of items being disclosed in more than one template—to avoid a double count.

(b) The cost for replacement of public lighting is reflected in the 'Replacement Expenditure' template, as well as the 'Public Lighting' template. This line item is to negate the items being disclosed in more than one template—to avoid a double count.

(c) For 2009-2010 RAS submission, the 'excluded services' include contested services. For this RIN, the contested services are excluded, as they are not classified under the national electricity rules. Hence, to arrive back to the 'excluded services' amount per the RAS, these 'contested services' have been added back in.

(d) For 2011-2013, the network and corporate overheads shown in the SCS section include the overheads on contested services. Since the contested services are to be excluded, the overheads pertaining to contested services are also subtracted.

(e) Consistent with JEN's response to the AER's EDPR RIN in the last round of price reviews, for years 2009 and 2010, adjustments were made to historical RAS expenditures to ensure a proper reflection of the related party margins applicable for these years. The balancing items backs these adjustments out to reconcile the total amounts back JEN's RAS submissions for 2009 and 2010.

(f) Others are immaterial items of minor nature.

2.1.4 ALTERNATIVE CONTROL SERVICE OPEX

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Metering (CY09 to CY13)	The data is sourced from the estimate template in 4.2 Metering. The estimated cost categories with reference to template 4.2 are as follows: • Meter Testing • Meter Investigation • Scheduled Meter Reading • Meter Maintenance • Remote Meter Reading • IT Infrastructure - Opex • Communications Infrastructure - Opex Other Metering – Opex part representing asset strategy & planning and AMI transitional business activities costs	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
Public Lighting (CY09 to CY13)	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.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Fee & Quoted (CY09 to CY13)	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: • 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 template 4.3. Various opex type items, which include Supply abolishment, Emergency recoverable works, After hours truck by appointment These were sourced from table 4.4.1 of template 4.4.	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.
Balancing Items (CY09 to CY13)	The data is sourced from the estimate template in 2.10 Overheads under the heading Network Overheads ACS "Overhead Before Allocation Alternative Control Services". The items making up the balance are listed in the said section of the 2.10 Overheads template. As the items making up the balance consist of estimated items and/or items not reported in RAS/RIN submissions, it is hence deemed to be estimated data.	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

2.1.6 DUAL FUNCTION ASSETS OPEX BY CATEGORY

2.2 REPEX

2.2.1 COST METRICS BY ASSET CATEGORY

Actual information

Variable	Source and why actual	Methodology	Assumptions
REPLACEMENT, VOLUMES AND ASSET FAILURES BY ASSET CATEGORY (ASSET FAILURE - VOLUMES)	Source of data: OMS – Outage notification report (accidental) for all except public lighting assets. This data was able to be provided without estimation due to the completeness of the outage notification report (accidental). For public lighting assets the source of data is SAP Notifications. The notification is created against the specific light that requires replacement. This allows the attributes of the	The report is filtered by: 1. Year -> 2009, 2010, 2011, 2012, 2013 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. - Asset – Electrical Failure - Asset – Mechanical Damage - Asset – Rot or Termites - Asset – Underground - Elements – Aged and deteriorated - Misc – No Identified Cause	No assumptions were made.

Variable	Source and why actual	Methodology	Assumptions
	public light such as whether it is located on a Major Road or Minor Road to be analysed and reported on.		
POLES BY: HIGHEST OPERATING VOLTAGE ; MATERIAL TYPE; STAKING (IF WOOD) (ASSET REPLACEMENTS)	Project costing line item report detailing actual pole numbers booked to the relevant WBS Elements over the defined period with additional details from associated PM Orders and Equipment records.	**Pole Staking:** Used existing JEN BRIO Query ***Staked Poles By Feeder*** to extract details of poles staked for the period 2009 to 2013 calendar years. **Pole Replacement:** **Extract from JSAP (2009 – Mar 2012) and ex-Agility SAP (Apr 2012 – 2013):** SAP report S_ALR_87013543 was used to extract Total Cost data (excluding settlement) from projects linked to Pole Replacement activities (AAA-RPL, RPH, RPS, RPA and RPB for JSAP and C445 for ex-Agility SAP) 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 over the relevant periods (2009 to 2013 calendar years). This data was used to determine the number of poles replaced under these activities for each year (poles booked equals poles replaced). 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. The Split of Pole Replacement quantities between Urban and Short Rural was determined by considering the Feeder associated with the highest voltage on the pole. The feeders designated as Short Rural are	• The poles were replaced in the year that they were booked to the job. • The number of poles booked to these PM Orders over the period in question 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. Ie 11m = LV pole

Variable	Source and why actual	Methodology	Assumptions
		• COO-011 • SA0-002 • SBY-011 • SBY-014 • SBY-032 • SHM-011 All other distribution and subtransmission feeders are designated Urban.	

Variable	Source and why actual	Methodology	Assumptions
POLE TOP STRUCTURES BY: HIGHEST OPERATING VOLTAGE (ASSET REPLACEMENTS)	Project costing line item report detailing actual crossarm numbers booked to the relevant WBS Elements over the defined period with additional details from associated PM Orders and Equipment records.	**Extract from JSAP (2009 – Mar 2012):** SAP report S_ALR_87013543 was used to extract Total Cost data (excluding settlement) from projects linked to Crossarm Replacement activities (AAA-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 the relevant periods (2009 to 2013 calendar years). This data was used to determine the number of crossarms replaced under these activities for each year. For crossarms booked to RPH (HV Crossarm Replacement). The functional locations linked to the PM Orders were used to determine the relevant voltage. **Extract from ex-Agility SAP (Apr 2012 – 2013):** SAP report S_ALR_87013543 was used to extract Total Cost data (excluding settlement) from projects linked to Crossarm Replacement activities (C443*), 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 the relevant periods (2009 to 2013 calendar years). This data was used to determine the number of crossarms replaced under these activities for each year. 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.	• 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
OVERHEAD CONDUCTORS BY: HIGHEST OPERATING VOLTAGE; NUMBER OF PHASES (AT HV) (ASSET REPLACEMENTS)	Project costing line item report detailing actual Overhead Conductor lengths booked to the relevant WBS Elements over the defined period with additional details from associated PS Networks, PM Orders and equipment records.	**Extract from JSAP (2009 – Mar 2012) and ex-Agility SAP (Apr 2012 – 2013):** SAP report S_ALR_87013543 was used to extract Total Cost data (excluding settlement) from projects linked to OH Conductor Replacement activities (AAA-ROH, ROA, ROL for JSAP and C447 for ex-Agility SAP) 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 each of the relevant periods (2009 to 2013 calendar years). This data was used to determine the length of OH conductor replaced under these activities for each year. From these PM Orders (Overhead Conductor 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 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. The Split of OH Conductor Replacement quantities between Urban and Short Rural was determined by considering the Feeder associated with the OH conductor replaced. The feeders designated as Short Rural are • COO-011 • SA0-002 • SBY-011 • SBY-014 • SBY-032 • SHM-011 All other distribution and subtransmission feeders are designated Urban.	• 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
UNDERGROUND CABLES BY: HIGHEST OPERATING VOLTAGE (ASSET REPLACEMENTS)	Project costing line item report detailing actual UG Cable lengths booked to the relevant WBS Elements over the defined period with additional details from associated PM Orders and Equipment records.	**Extract from JSAP (2009 – Mar 2012) and ex-Agility SAP (Apr 2012 – 2013):** SAP report S_ALR_87013543 was used to extract Total Cost data (excluding settlement) from projects linked to UG Cable Replacement activities (AAA-RUA, RUC, RUS for JSAP and C448 for ex-Agility SAP) 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 each of the relevant periods (2009 to 2013 calendar years). This data was used to determine the length of UG cable replaced under these activities for each year. 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. 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 • COO-011 • SA0-002 • SBY-011 • SBY-014 • SBY-032 • SHM-011 All other distribution and subtransmission feeders are designated Urban.	• 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
TRANSFORMERS BY: MOUNTING TYPE; HIGHEST OPERATING VOLTAGE ; AMPERE RATING; NUMBER OF PHASES (AT LV) (ASSET REPLACEMENTS)	Project costing line item report detailing actual transformers booked to the relevant WBS Elements over the defined period.	**Extract from JSAP (2009 – Mar 2012) and ex-Agility SAP (Apr 2012 – 2013):** SAP report S_ALR_87013543 was used to extract Total Cost data (excluding settlement) from projects linked to Transformer Replacement activities (AAA-RHA, RHB, RHD, RHK for JSAP and C451 for ex-Agility SAP), 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 relevant periods (2009 to 2013 calendar years). This information was used to determine the number of transformers replaced under these activities for each year. 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 The Zone Substation transformer replacement figures for the period 2009 to 2013 calendar years were unable to be determined using the above report and method because these transformers are not a stock item and therefore do not appear in the reports in the same manner. Because of the low numbers of these types of transformers that are replaced, JEN manually identified the quantities for these were able to be .	• 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.
SWITCHGEAR BY: HIGHEST OPERATING VOLTAGE; SWITCH FUNCTION (ASSET	Project costing line item report detailing actual switchgear booked to the relevant WBS Elements over the defined period.	**Extract from JSAP (2009 – Mar 2012) and ex-Agility SAP (Apr 2012 – 2013):** **Fuse & Switch Replacement:** SAP report S_ALR_87013543 was used to extract Total Cost data (excluding settlement) from projects linked to Switchgear Replacement	• The Switchgear items were replaced in the year that they were booked to the job.

Variable	Source and why actual	Methodology	Assumptions
REPLACEMENTS)		activities (AAA-RHE, RHG, RHH, RHJ, RHL, RHO, RHF, RXD, RXE, RXF, RXJ, RHI for JSAP and C444, C449, C450 for ex-Agility SAP), 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 relevant periods (2009 to 2013 calendar years). This information was used to determine the number of items of switchgear replaced under these activities for each year. The material description was used to determine the split of switchgear items by these attributes. **Circuit Breaker Replacement:** 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.	
PUBLIC LIGHTING BY: ASSET TYPE; LIGHTING OBLIGATION (ASSET REPLACEMENTS)	The public lighting asset replacements have also been reported in the Public Lighting Tab 4.1. Public Light (luminaire) replacement work is recorded using SAP Notifications. The notification is created against the specific light that requires replacement.	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. 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. The relevant SAP Public Lighting Codes (MAQ) were;	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. Note that prior to June 2012, public lighting

Variable	Source and why actual	Methodology	Assumptions
	Public Lighting Pole replacement work is also recorded using SAP Notifications. The notification is created against the specific pole that requires replacement. The other source of data is the monthly reports from the public lighting prime contractor. 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.	**RLJ** (Replace Single Light on Main Road) – All notifications with activity code RLJ relate to "Major Road Light Replacement". **RLM** (Replace Single Light Minor Road) – All notifications with activity code RLM relate to "Minor Road Light Replacement". **RPA** (Public Lighting Pole Replacement on Main Road) – All notifications with activity code RPA relate to "Major Road Light Pole Replacement". **RPB** (Public Lighting Pole Replacement on Minor Road) – All notifications with activity code RPB relate to "Minor Road Light Pole Replacement".	notifications were generated in SAP (now known as Legacy SAP). The system was transitioned from Legacy SAP to JSAP. Therefore 2012 public lighting notification data is a combination of Legacy SAP and JSAP data. Data for previous years (2009 to 2011) has been sourced solely from Legacy SAP. Although not impacting the total number of poles replaced, it is worth noting that in instances where the public lighting pole is of a non-standard type (such as that supplied by Vic Roads or Councils) our prime contractor for public lighting services arranges for the supply and installation of the pole. JEN supplies standard public lighting poles to our prime public lighting contractor.
SCADA, NETWORK CONTROL AND PROTECTION SYSTEMS BY: FUNCTION (ASSET REPLACEMENTS)	SAP Equipment lists and details of associated equipment status changes.	**Field Devices (Zone Sub Relays):** The list of ZS_RELAY equipment that had been set to a status of removed (RMVD) in the period 2009 to 2013 was extracted and the RMVD date was used in conjunction with this list to determine the quantities of ZS Relays replaced in each year. Because of an anomaly relating to the incorrect setting of equipment to status of inactive (INAK) instead of RMVD (which was later corrected in Sep 2011) the INAK date was used in lieu of the RMVD date for the equipment shown as RMVD in Sep 2011.	• 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
OTHER BY: FUNCTION (ASSET REPLACEMENTS)	SAP Equipment lists and details of associated equipment status changes.	**CAPACITOR BANK (ST):** The list of ZS_CAPUNIT equipment that had been set to a status of removed (RMVD) in the period 2009 to 2013 was extracted and the RMVD date was used in conjunction with this list to determine the quantities of ZS Cap Banks replaced in each year. Again the assumption here is that all Zone Sub capacitor banks that had been removed were subsequently replaced. **EARTHS (ST):** The quantity for this activity is the number of Zone Substation Earth Grid Replacement projects completed. The quantities were determined by first extracting the details of the projects that were associated with this activity and then reviewing the list to manually confirm the details of those earth grid replacement projects that were completed in each year. **ZSS PROPERTY (ST):** The quantity for this activity is the number of Zone Substation Property projects completed. The quantities were determined by extracting the details of the projects that were associated with this activiity and then counting the projects with each project being given a quantity of 1 in the year that expenditure was last posted.	• The ZS Capacitor Bank equipment status of **INAK** / **RMVD** was set in the year that the service was removed. • All Zone Sub Cap Banks that were removed (set to RMVD) were subsequently replaced.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
GENERAL COMMENTS; REPLACEMENT EXPENDITURE, ASSET CATEGORY	REPEX direct expenditure data for the five years was sourced from the JEN SAP system. Although JEN was able to source the data at the asset group level and to some degree at the asset category level from its ERP systems, JEN provided its best estimate for areas within the asset category that is not recorded in its ERP systems. Therefore JEN has been unable to reliably calculate a rate for each asset category and as such we have allocated the total cost across the asset categories in proportion to the volume replaced. This means for example that the rate for an LV pole replacement has been reported as being the same as an ST pole replacement which is not the case in reality. Another reason as to why Repex is reported as an estimate in this template is because overheads were extracted (at an estimated percentage) to obtain the direct costs.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. REPEX expenditure data disclosed in RIN C is sourced from SAP, the ERP system that JEN uses to capture its financial and some operational information. 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. 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. 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. Expenditure data, categorised as described above, was entered into the relevant sections of the template. In order to populate the relevant sections of the template, categorisation choices for "Class", "Sub-	JEN assumes expenditure data was accurately recorded against projects in the SAP system, and equipment is accurately recorded when it is replaced.	Direct expenditure data for the five years was sourced from the JEN SAP system and reconciled back to JEN's Regulatory Accounts. 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 record and expenditure assigned to the asset group level in SAP.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		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. The first (and highest) level category used was "Class" These classes corresponded to the high level data input requirements of the RIN C Template The following nine classes were used: - OH Conductors - Other - Poles - Pole top Structures - Public Lighting - Service Lines - Switchgear - Transformers - UG Cables The second level category used was "Sub-class" These sub-classes corresponded to more detailed level data input requirements of the RIN C Template The following twenty sub-classes were used: - Bus - Capacitor Bank - Circuit Breakers - Connectors - Distribution Transformers		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		- Earths - HV Installation - OH Conductors - Other - Poles - Public Lighting - Public Light Poles - Relays - Service Lines - Staking - Structures - Switchgear - UG Cables - ZSS Property - ZSS Transformers The third (and lowest) level category used was "Voltage" These voltages corresponded to the most detailed level data input requirements of the RIN C Template The following three voltages were used: - High Voltage - Low Voltage - Sub-transmission The information gathered (by the process described above) was analysed and sorted in excel (via v-lookup function and pivot tables) to provide		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		an input sheet for entry of the data into Table 2.2.1 of the RIN C Template. 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 RIN C Template. 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.		
SERVICE LINES BY: CONNECTION VOLTAGE; CUSTOMER TYPE; CONNECTION COMPLEXITY (ASSET REPLACEMENTS)	SAP Equipment lists and associated RCM Z Tables	SAP equipment list edit transaction IH08 is used to extract the details of SAP equipment type **LV COND** that have been set to status **RMVD** for the relevant periods (2009 to 2013 calendar years). This list of equipment is loaded into BRIO Query ***Removed Services.bqy*** with the resultant output being interrogated via pivot table and filtered to provide the number of services replaced for the period. The split of services between residential and commercial/industrial was determined by matching the GIS supply point with each of the services identified as having been replaced (using X-Y coordinates). Using the characteristics of the supply point it was identified whether the service was residential, commercial or industrial. Any that were unknown were allocated using the ratio of	• The Overhead Service equipment status of **RMVD** was set in the year that the service was removed.	A portion of the service line replacements was not able to be allocated to either residential or commercial/industrial so these were split based on the known ratio for each year. This is the most reliable basis on which this estimate could be based.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		residential to commercial/industrial for that year. This method was used to determine the number of services replaced primarily because each replaced OH service is recorded and the asset status set to Historic in GIS and the details passed through to JSAP where the equipment status is set to RMVD. In addition to this the method used for other asset categories (whereby the quantities of Service Cable booked to the relevant jobs would be considered) would also necessitate an estimate of the length of each service to be calculated and then used to determine the number of services replaced from the total length of cable booked. The method employed here is considered to be more accurate. For Services classified as HV (OH or UG), any replacement activity quantities would be captured under either OH Conductor Replacement or UG Cable Replacement.		

2.2.2 DESCRIPTOR METRICS

Actual information

Variable	Source and why actual	Methodology	Assumptions
SELECTED ASSET CHARACTERISTICS – ASSET GROUP (ASSET REPLACEMENTS)	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 AER definition of a Rural Short and Urban Feeder has been used. The methodology for determining the asset replacements is documented in the relevant section of this basis of preparation.	The assumption for determining the asset replacements is documented in the relevant section of this basis of preparation. There were no additional assumptions made in determining the asset replacements by asset group.

Variable	Source and why actual	Methodology	Assumptions
TRANSFORMERS BY: TOTAL MVA	Project costing line item report detailing actual transformers booked to the relevant WBS Elements over the defined period.	**Extract from JSAP (2009 – Mar 2012) and ex-Agility SAP (Apr 2012 – 2013):** SAP report S_ALR_87013543 was used to extract Total Cost data (excluding settlement) from projects linked to Transformer Replacement activities (AAA-RHA, RHB, RHD, RHK for JSAP and C451 for ex-Agility SAP), 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 relevant periods (2009 to 2013 calendar years). This information was used to determine the number and total rating of transformers replaced under these activities for each year. The material description, which contains the transformer KVA, rating was used to determine the value for the TOTAL MVA REPLACED for each year.	• 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. • The MVA rating of the transformers booked to these jobs equals the MVA rating of the transformers removed.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
SELECTED ASSET CHARACTERISTICS – ASSET	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age	The AER definition of a Rural Short and Urban Feeder has been used. Assets with an unknown date of installation	The assumptions are outlined in the basis of preparation for Tab 5.2 Age Profile. There were no additional assumptions	The reason that this is the best estimate is documented in the basis of preparation for Tab 5.2 Age Profiles.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
GROUP (ASSET VOLUMES CURRENTLY IN COMMISSION)	profiles.	were estimated using the methodology outlined in the basis of preparation for Tab 5.2 Age Profile.	made in determining the asset volumes by asset group.	
ASSET REPLACEMENTS TOTAL P OLES BY: FEEDER TYPE	The quantities for non-public lighting poles were sourced from the Actual Quantities as detailed in Table 2.2.1 Actual information. The quantities of public lighting pole replacements were based on the actual public lighting pole replacements as detailed in Table 2.2.1 Actual information. However the classification of these poles across urban and short rural could not be determined.	The Split of Pole Replacement quantities between Urban and Short Rural for Public Public lighting poles only was determined by considering the Feeder associated with the highest voltage on the pole. The feeders designated as Short Rural are • COO-011 • SA0-002 • SBY-011 • SBY-014 • SBY-032 • SHM-011 All other distribution and subtransmission feeders are designated Urban. For Distribution pole replacements, the actual figures were used in the determination of these figures. For public lighting poles this was determined by considering the total split of Poles classified as Public Lighting across Urban and Rural Feeders and using this ratio to determine the split of public lighting poles replaced across these same categories.	The split of quantities for the replacement of public lighting poles across Urban and Short Rural feeders is proportional to the split of in-service public lighting poles across the same categories.	JEN deems this to be the best estimate because it uses the most relevant actual data—the total number of Public Lighting Only Poles—as the basis of this estimate.

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 2008/09, 2009/10 etc. is a mistake and should be 2009, 2010.

Variable	Methodology	Assumptions
Classification of Projects	JEN "Augex" projects over the period requested are classified by the ex-Agility WBS codes beginning C453-C459 and JSAP project codes DOA, DSA, DSJ, DSS, DZA, GPA (Augex related land purchases only), PRA and PQA. A list and total cost of all JEN classified "Augex" projects with any expenditure incurred from FY 2009 to March 2014 was run using SAP for the purpose of categorising projects and applying the materiality thresholds. These projects were categorised into the requested Augex categories in table 2.3.4 based on the project code, the project description, or where in doubt, using the business case. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	'Other assets' projects were defined as projects: • Voltage Conversion projects. These projects do not fall into any one category and have always been reported separately to augmentation projects as they can also be driven by a replacement need. • 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. Note: JEN separates projects where a new HV feeder requires a new circuit breaker at the zone-substation. The feeder works have been categorised as HV feeder, and the circuit breaker works within the zone-substation have been categorised as 'zone substations'. JEN considers these assumptions are reasonable to give the AER the desired information for capacity related projects in the categories it has requested.
Material Projects (over Threshold)	The projects have been separated into the separate categories using the project list as identified above. This was then used to identify material projects, i.e. projects over the relevant thresholds, ($5M for zone substation and subtranmsission lines, $500k for HV feeders, and $50k for LV feeders).	Projects thresholds were applied on total nominal actual expenditure including overheads.

Variable	Methodology	Assumptions
Reporting of costs and volumes for projects	The methodology to determine which year to report the volume and/or costs for the all projects relevant to tables 2.3.1 and 2.3.2, and the material projects in table 2.3.3, was determined using the following steps: • Projects which weren't migrated into JEN's JSAP were assumed to be closed. • A report was run on all projects to determine which projects were currently open. • A calendar year breakdown of costs was run for all projects to determine the project close year for closed projects. • Material projects with a project close year in the 2009 to 2013 time period were reported. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	For closed projects the project close year was determined as the year when 99% of cost had been spent. This will allow the costs to more closely align with volumes particularly for some cases where a project may have miniscule cost years after the project was completed. Note For tables 2.3.1 and 2.3.2 to obtain the breakdown as required, cost as realised in the project have been used. For tables 2.3.3.2 and 2.3.4 the costs have been determined using the costs settled to the fixed asset register and the tables reconcile to the regulatory accounts. In any case the RIN requires volumes to be added to the project close year as defined above. This means that the volumes in table 2.3.3.1 and the expenditure in table 2.3.3.2 will not align in years, and could not be used to form a yearly unit rate, particularly where there are a low volume of projects (i.e. material HV feeder and LV feeder projects). Also note that material projects that are not complete will have cost in table 2.3.3.2 but no volume in 2.3.3.1.

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

Actual information

Material Projects

JEN had 2 zone substation projects over the $5M threshold with a project close year from 2009-13 determined using the methodology outlined under 2.3 above.

Variable	Source and why actual	Methodology	Assumptions
Substation ID, Substation Type, Project ID,	These project description and changes were determined from the project description and business case. The business case contains the	The business case and project description were consulted to determine these project description and changes.	None

Variable	Source and why actual	Methodology	Assumptions
Project Type, Project Trigger, Voltage (kV)	actual information relating to the projects.	For the project ID both ex-Agility SAP and JSAP project WBS have been given along with the project title. For the voltage for the station incoming and outgoing voltages have been given. These were confirmed using the JSAP and the current state of the network.	
Substation Rating Normal Cyclic (MVA)	JEN has consulted the business case to determine the pre and post normal cyclic substation rating. The business case contains the actual information.	JEN has consulted the business case to determine the pre and post normal cyclic substation rating. This was confirmed with planning records and the current state of the network.	For new zone-substations the pre normal cyclic substation rating is 0MVA. JEN uses transformer nameplate rating (with forced cooling i.e. ODAF) as its basis to determine, "The maximum peak loading based on a given daily load cycle that an asset or element of the *network* can supply each day of its life under normal conditions resulting in a normal rate of wear", for a zone-substation and therefore this is what has been provided. 'Normal conditions' also assumes all transformers are in service.
Transformers (Units and MVA Added)	The number of units added was determined by consultation of the business case, scope of works and design drawings to determine exactly what was installed.	The number of units added was determined by consultation of the business case, scope of works and design drawings to determine exactly what was installed. This was confirmed with planning records and the current state of the network.	As defined in section 7.1(b) of the RIN, JEN has used the normal cyclic rating of the transformers in the MVA added column. As mentioned above JEN uses transformer nameplate rating as its basis for its normal cyclic rating.
Transformers (Expenditure)	The yearly breakdown of transformer cost was determined by consulting the purchase order(s) for the transformer in SAP.	JEN has gone through the cost line items and purchase orders to determine the transformer expenditure. The cost breakdown was obtained by	None

Variable	Source and why actual	Methodology	Assumptions
		extracting the amount and date it was posted to the project. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index.	
Switchgear (Units Added)	The number of units added was determined by consultation of the business case, scope of works and design drawings to determine the actual quantity installed.	The number of units added was determined by consultation of the business case, scope of works and design drawings to determine exactly what was installed.	JEN has used the definition of switchgear in the RIN. If JEN has installed an indoor switchboard, JEN has counted the number of units added as the number of circuit breakers in this switchboard.
Switchgear (Expenditure)	The yearly breakdown of switchgear cost was determined by consulting the purchase order(s) for the switchgear in SAP.	JEN has gone through the cost line items and purchase orders to determine the switchgear expenditure. The cost breakdown was obtained by extracting the amount and date it was posted to the project. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index.	None
Capacitors (MVAr Added)	The MVAR added was determined by consultation of the business case, scope of works and design drawings to determine the actual quantity installed.	The MVAR added was determined by consultation of the business case, scope of works and design drawings to determine exactly what was installed. This was confirmed with planning records and the current state of the network.	None
Capacitors (Expenditure)	The yearly breakdown of capacitor bank cost was determined by consulting the purchase order(s) for the capacitor bank in SAP.	JEN has gone through the cost line items and purchase orders to determine the capacitor bank expenditure. The cost breakdown was obtained by extracting the amount and date it was posted to the project. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index.	None
Other plant item	JEN has obtained the calendar year breakdown	JEN has obtained the calendar year breakdown of	For these projects it has been assumed that other

Variable	Source and why actual	Methodology	Assumptions
(expenditure)	of each of the total project cost into direct material, direct labour, direct contractors, direct other, overhead and margin from its SAP system. This has been used to determine the expenditure of other plant items.	each of the total project cost into direct material, direct labour, direct contractors, direct other, overhead and margin from its SAP system. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index.	plant = direct material – transformer expenditure – switchgear expenditure – capacitor expenditure. This method also assumes that the project costs were correctly assigned by the project manager into the direct material, direct labour, direct contractors, direct other, overhead and margin categories.
Installation Labour (volumes)	JEN has determined the actual number of internal labour hours allocated to the project using its SAP system.	The number of internal labour hours transferred to the project was determined for each project using SAP (Ex-Agility transaction ZCUT, and JSAP transaction ZFTMTC009_CLI).	JEN has defined installation labour as all internal labour allocated to deliver the project.
Years incurred	These were the years in the project that had any expenditure incurred in accordance with the breakdown in SAP systems.	The total direct cost split by year was used to determine the years of expenditure.	None

Variable	Source and why actual	Methodology	Assumptions
All Related Party Contracts - Related Party Margins (expenditure)	The yearly breakdown of related party margins was determined from the project breakdown of costs in SAP.	JEN has obtained the calendar year breakdown of each of the total project cost into direct material, direct labour, direct contractors, direct other, overhead and margin from its SAP system. For these projects the margin component is the related party margin charged between JEN and its entity JAM (Jemena Asset Management) from January 2010 –March 2012. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index.	None
All Non-related Party Contracts (expenditure)	Since both projects were delivered for JEN by JAM (Jemena Asset Management) under a related party contract JEN has no non-related party contracts,	Since both projects were delivered for JEN by JAM (Jemena Asset Management) under a related party contract, JEN has no non-related party contracts and so this field is zero. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	None
Land Purchases and Easements (expenditure)	JEN has determined the direct cost of land and easement projects allocated to the project using its SAP system.	Note that JEN has separate projects for its land purchases and easements and construction for its zone substations. JEN also separates the due diligence costs for its land purchase. Provided in this category are the costs relating to the land purchase itself (legal, stamp duties and cost of purchase) as per RIN section 7.2 (n). The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	None

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Substation Rating N-1 Emergency (MVA)	For new transformers JEN knows the N-1, 2 hour emergency rating of the transformer. JEN does not use or keep records of N-1 emergency 2 hour ratings for old transformers.	For the old transformers such as in project BAA-DZA-090 at PV JEN has used the N-1 cyclic rating. This has been added to the known N-1 emergency 2 hour rating of the new transformers.	For transformers of condition of the old transformers at PV, JEN does not operate these transformers beyond its N-1 cyclic rating due to the likelihood of accelerated deterioration. Hence the 2 hour emergency rating is assumed to be the same as the N-1 cyclic rating of the transformer. This is consistent with JEN asset management approach. JEN's N-1 cyclic rating is derived on the basis that for each 24 hour of such loading will account for 0.03% of loss of transformer life.	Since JEN does not have or use a 2 hour emergency rating for old transformers, JEN considers the use of the N-1 cyclic rating as the best estimate.
Installation Labour (expenditure)	Prior to 2013 there were embedded overheads included in the labour rate which have been removed using a percentage relevant to the year in which the labour cost was incurred. As such this has been classified as an estimate.	JEN has obtained the calendar year breakdown of each of the total project cost into direct material, direct labour, direct contractors, direct other, overhead and margin from its SAP system. Prior to 2013 there were embedded overheads included in the labour rate. This has been removed using a percentage relevant to the year in which the labour cost was incurred to determine the direct labour cost. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index.	JEN has defined installation labour as all internal labour allocated to deliver the project. This method also assumes that the project costs were correctly assigned by the project manager into the direct material, direct labour, direct contractors, direct other, overhead and margin categories.	Given the embedded overhead component in the labour rates charged to projects JEN considers this the best method to obtain the internal installation labour,

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Civil Works (expenditure)	JEN does not capture civil works separately in its SAP system and as such an estimate had to be made.	JEN has estimated the civil works for these projects by using the percentage total split of the civil works in the business case cost estimate applied to the total direct cost of the project. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	It has been assumed that the business case has accurately estimated the proportion of civil works in the total cost. It is also reliant on the estimate made for total direct expenditure as detailed below.	Given JEN's cost split in SAP JEN considers this the most reasonable way to estimate civil works for a project. This is considered to be more accurate than estimating the line items (and what proportion of line items) are related to civil works.
Other Direct (expenditure)	This category is an estimate since it relies on the estimates made for the civil works and total direct expenditure categories as detailed above and below.	JEN has obtained the calendar year breakdown of each of the total project cost into direct material, direct labour, direct contractors, direct other, overhead and margin from its SAP system. This category was determined as equal to all remaining direct expenditure that is not transformer, switchgear, capacitor bank, other plant items, installation labour or civil works. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	This method also assumes that the project costs were correctly assigned by the project manager into the direct material, direct labour, direct contractors, direct other, overhead and margin categories. It is also reliant on the estimates made for civil works expenditure and total direct expenditure.	Given JEN's cost split in SAP JEN considers this the most reasonable way to estimate other direct category for a project.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Total Direct (expenditure)	Due to the estimate made above to obtain the direct labour cost, prior to 2013, this category has been classified as an estimate.	JEN has obtained the calendar year breakdown of each of the total project cost into direct material, direct labour, direct contractors, direct other, overhead and margin from its SAP system to obtain the direct cost. As above, prior to 2013 there were embedded overheads included in the labour rate. This has been removed using a percentage relevant to the year in which the labour cost was incurred to determine the direct labour cost. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	This method also assumes that the project costs were correctly assigned by the project manager into the direct material, direct labour, direct contractors, direct other, overhead and margin categories. It is also reliant on the estimate made for direct labour expenditure prior to 2013.	Given the embedded overhead component in the labour rates charged to projects JEN considers this the best method to obtain the direct cost of the project.
All Related Party Contracts – Total (expenditure)	This category is reliant on the estimates made to obtain the total direct cost as detailed above.	Both projects were delivered for JEN by JAM (Jemena Asset Management) under a related party contract. As such the entire total direct expenditure was reported as a related party contract. The yearly split of the total direct cost was escalated to $2013 dollars using the relevant inflation index.	This method also assumes that the project costs were correctly assigned by the project manager into the direct material, direct labour, direct contractors, direct other, overhead and margin categories. It is also reliant on the estimate made for total direct expenditure prior to 2013 as detailed above.	Given the embedded overhead component in the labour rates charged to projects JEN considers this the best method to obtain the direct cost of the project and hence the related party contract total.

2.3.2 AUGEX ASSET DATA – SUBTRANSMISSION LINES

Material Projects

JEN had 1 sub-transmission line project over the $5M threshold with a project close year within 2009-13 period determined using the methodology outlined under 2.3 above. This project "c456-026 Rearrange TTS-ST-SSS-EPG-TTS" was mainly initiated by the need to offload Thomastown terminal station (TTS) to South Morang Terminal Station (SMTS) and involved splitting of a shared Jemena and SPI Electricity sub-transmission loop into 2 separate loops (SMTS-ST-SSS-SMTS and SMTS-EPG-SMTS). A significant proportion of the project cost for JEN involved the purchase of SPI Electricity assets.

Actual information

Variable	Source and why actual	Methodology	Assumptions
Line ID, Project ID, Project Type, Project Trigger, Voltage (kV)	These project description and changes were determined from the project description and the business case. The business case contains the actual information relating to the project.	The business case and project description were consulted to determine these project description and changes. For the project ID both ex-Agility SAP and JSAP project WBS have been given along with the project title.	The project involved new construction by SPI Electricity, re-conductoring by JEN, and the transfer of assets between each party. As such it did not fall into any one category in the drop down for 'project type' and was designated as "other –specify". The project trigger was due to demand growth on the terminal station and the sub transmission loop.
Underground Cables (Added/Upgraded and expenditure)	JEN could not identify any underground cable work that it performed for this project in the business case or design drawings. This is actual as the expenditure and volume are zero.	The business case and design drawings were consulted to determine the km's added by JEN of sub-transmission underground cable. No underground cable works were identified and hence zero has been reported for all three variables.	The business case and design drawings were consistent with the work performed.
Installation Labour (volumes)	JEN has determined the actual number of internal labour hours allocated to the project using its SAP system.	The number of internal labour hours transferred to the project was determined for each project using SAP (Ex-Agility transaction ZCUT, and JSAP transaction ZFTMTC009_CLI).	JEN has defined installation labour as all internal labour allocated to deliver the project. This method also assumes that the project costs have been correctly allocated into the direct material, direct labour, direct contractors, direct other, overhead and margin categories for these projects.

Variable	Source and why actual	Methodology	Assumptions
Years incurred	These were the years in the project that had any expenditure.	Used total direct cost split by year to determine the years of expenditure.	None
All Related Party Contracts - Related Party Margins (expenditure)	The yearly breakdown of related party margins was determined from the project breakdown of costs in SAP.	JEN has obtained the calendar year breakdown of each of the total project cost into direct material, direct labour, direct contractors, direct other, overhead and margin from its SAP system. For this project the margin component is the related party margin charged between JEN and its entity JAM (Jemena Asset Management) from January 2010 –March 2012. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	None
All Non-related Party Contracts (expenditure)	This project was delivered for JEN by JAM (Jemena Asset Management) under a related party contract—JEN has no non-related party contracts,	This project was delivered for JEN by JAM (Jemena Asset Management) under a related party contract JEN has no non-related party contracts and so this field is zero.	None
Land Purchases and Easements	JEN has completed no land purchase or easement projects relating to sub-transmission lines in the period requested by the RIN.	JEN has completed no land purchase or easement projects relating to sub-transmission lines in the period requested by the RIN. Note that JEN has separate projects for its land purchases and easements and construction for its sub-transmission lines.	None

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Route Line Length Added	JEN did not record the exact length of route line length added for this project.	JEN has estimated the route line length added to its network as a result of the project using the project scope and design drawings.	Before this project JEN owned only the TTS-SSS-ST portion of the sub transmission loop. After the project JEN owned the entire SMTS-SSS-ST-SMTS loop. As part of the project JEN acquired (and upgraded the majority of) a double circuit 7.6km line between SMTS and TTS. One circuit was t owned by SPI PowerNet. JEN also acquired 13.0km between SMTS and ST. As a result, JEN has a route line length added of ~20.6km.	Based on the nature of the project, and the information available JEN considers this the best way to determine the required information.
Poles and Towers (Added/ Upgraded)	JEN did not record the exact number of poles added and upgraded for this project.	JEN has estimated the number of poles added and upgraded for the work it performed in this project using the project scope and design drawings.	JEN has estimated this information for the work it performed only (the upgrade of the SMTS-TTS double circuit line). Any purchase of poles, or poles added/upgraded by SPI Electricity (and owned by SPI Electricity) has not been included. JEN has defined upgraded as any work performed on the pole including the relocation or replacement of the pole. JEN has defined “added” if a new pole is installed which increases the previous number of poles.	Based on the nature of the project, and the information available JEN considers this the best way to determine the required information.
Poles and Towers (Expenditure)	JEN does not separate expenditure relating to poles (including structures and civil works).	JEN has gone through the project cost line items in SAP for the project to determine which items related to the pole costs (including structures and civil works) for those it upgraded/added using the material or purchase order description. The yearly split of this cost was escalated to $2013 dollars using the relevant	Assumptions have been made based on the material and purchase order description. This method relies on an adequate description with sufficient detail in the cost line item or purchase order. The purchase order titled “Clayton Store Material” was assumed to be material costs for the poles that JEN upgraded/added. The purchase order titled	JEN considers this the best way it could estimate the information requested for the work it has performed, given the available information.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		inflation index.	"Civil work SMTS-TTS" was assumed to be the pole related civil works as requested. JEN considers these reasonable assumptions given the purchase order description and work done in this project.	
Overhead Lines (Added/ Upgraded)	JEN did not record the exact kilometres of overhead lines added and upgraded for this project.	JEN has estimated the km's it upgraded for the work it performed in this project using the project scope and design drawings.	JEN has estimated this information for the work it performed only (the upgrade of the SMTS-TTS double circuit line). Any purchase of overhead lines added/upgraded by SPI Electricity (and owned by SPI Electricity) has not been included. From the design drawings JEN reconductored 7.1km of 66kV double circuit lines. It has therefore reported 14.2km of upgraded overhead lines.	Based on the nature of the project, and the information available JEN considers this the best way to determine the required information.
Overhead Lines (Expenditure)	JEN does not separate expenditure relating to overhead line expenditure.	JEN has gone through the project cost line items in SAP for the project to determine which items related to the overhead lines for those it upgraded/added using the material description. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index.	It is assumed that the expenditure on overhead lines is referring to the expenditure on the overhead conductor itself. JEN has filtered its cost line items for the conductor line items. It should be noted that the cost of all conductor allocated to the project has been given and should not be used to determine a unit rate for sub-transmission line conductors using the volume reported. For example some of the conductor was smaller in size and was not sub-transmission, which was likely used to be due to replacement small sections of HV feeder connections on the new SMTS-TTS 66kV pole line. If the AER require the unit rate for sub-transmission conductor for the project this can be provided.	JEN considers this the best way it could estimate the information requested for the work it has performed, given the available information.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Other plant item (expenditure)	This category is an estimate since it relies on the estimate made for the expenditure of poles/towers and overhead lines works categories as above.	JEN has obtained the calendar year breakdown of each of the total project cost into direct material, direct labour, direct contractors, direct other, overhead and margin from its SAP system. Note it was determined that some of the cost originally allocated to direct material was actually direct contractors and therefore a correction has been made. For this project it has then been assumed that other plant = direct material – poles/towers – overhead line expenditure. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index.	This method also assumes that the project costs were correctly assigned by the project manager into the direct material, direct labour, direct contractors, direct other, overhead and margin categories. It is also reliant on the estimate made for the poles/towers and overhead lines expenditure. Note other plant in this case includes the purchase of assets from SP Ausnet.	JEN considers this the best way it could estimate the information requested for the work it has performed, given the available information.
Installation Labour (expenditure)	Prior to 2013 there were embedded overheads included in the labour rate which have been removed using a percentage relevant to the year in which the labour cost was incurred. As such this has been classified as an estimate.	JEN has obtained the calendar year breakdown of each of the total project cost into direct material, direct labour, direct contractors, direct other, overhead and margin from its SAP system. Prior to 2013 there were embedded overheads included in the labour rate. This has been removed using a percentage relevant to the year in which the labour cost was incurred to determine the direct labour cost.	JEN has defined installation labour as all internal labour allocated to deliver the project. This method also assumes that the project costs were correctly assigned by the project manager into the direct material, direct labour, direct contractors, direct other, overhead and margin categories.	Given the embedded overhead component in the labour rates charged to projects JEN considers this the best method to obtain the internal installation labour,

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index.		
Civil Works (expenditure)	JEN does not capture civil works separately in its SAP system.	JEN has gone through the project cost line items in SAP for the project to determine which items related to the civil works excluding those related to pole/towers. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	Assumptions have been made based on the material and purchase order description. This method relies on an adequate description with sufficient detail in the cost line item or purchase order.	Given JEN's cost split in SAP JEN considers this the most reasonable way to estimate civil works for a project. This is considered to be more accurate than estimating the line items (and what proportion of line items) are related to civil works.
Other Direct (expenditure)	This category is an estimate since it relies on the estimates made for all the other expenditure categories as above.	JEN has obtained the calendar year breakdown of each of the total direct expenditure for the project from its SAP system. This category was determined as equal to all remaining direct expenditure that is not poles/tower, overhead line, other plant items, installation labour or civil works. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index.	This assumes that the project costs have been correctly allocated into the direct material, direct labour, direct contractors, direct other and overhead categories for these projects. It is also reliant on the estimates made for the poles/tower, overhead line, other plant items, installation labour or civil works expenditure.	Given JEN's cost split in SAP JEN considers this the most reasonable way to estimate other direct category for a project.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		These costs are inclusive of any related party margins for the period April 2010 to March 2012.		
Total Direct (expenditure)	Due to the estimate made above to obtain the direct labour cost, prior to 2013, this category has been classified as an estimate.	JEN has obtained the calendar year breakdown of each of the total project cost into direct material, direct labour, direct contractors, direct other, overhead and margin from its SAP system to obtain the direct cost. As above, prior to 2013 there were embedded overheads included in the labour rate. This has been removed using a percentage relevant to the year in which the labour cost was incurred to determine the direct labour cost. The yearly split of this cost was escalated to $2013 dollars using the relevant inflation index. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	This method also assumes that the project costs were correctly assigned by the project manager into the direct material, direct labour, direct contractors, direct other, overhead and margin categories. It is also reliant on the estimate made for direct labour expenditure prior to 2013.	Given the embedded overhead component in the labour rates charged to projects JEN considers this the best method to obtain the direct cost of the project.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
All Related Party Contracts – Total (expenditure)	This category is reliant on the estimates made to obtain the total direct cost as detailed above.	This project was delivered for JEN by JAM (Jemena Asset Management) under a related party contract. As such the entire total direct expenditure was reported as a related party contract. The yearly split of the total direct cost was escalated to $2013 dollars using the relevant inflation index. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	This method also assumes that the project costs were correctly assigned by the project manager into the direct material, direct labour, direct contractors, direct other, overhead and margin categories. It is also reliant on the estimate made for total direct expenditure prior to 2013 as detailed above.	Given the embedded overhead component in the labour rates charged to projects JEN considers this the best method to obtain the direct cost of the project and hence the related party contract total.

2.3.3 AUGEX DATA – HV/LV FEEDERS AND DISTRIBUTION SUBSTATIONS

2.3.3.1 Descriptor metrics

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
HV Feeder Augmentations (volume)	JEN has not recorded the actual added or upgraded overhead lines or underground cables for each (material) project.	JEN has gone through every business case and/or scope of works, design drawing and estimated the km of overhead added or upgraded for the material projects. This often involved using GIS to confirm the lengths and what work was actually performed. The quantity was added in the project close year based on the settled cost as identified above. If a material project was not complete the quantities were not added.	Unless evidence was found to the contrary when examining the design or GIS it was assumed that the business case and scope of works were accurate. It was assumed that thermal uprating and re-conductoring were upgrades.	JEN considers this a reasonable methodology for estimating the quantity required.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		Note that the as incurred expenditure in table 2.3.3.2 will not align with the quantities reported in 2.3.3.1, and could not be used to form a yearly unit rate as mentioned above. Also note that material projects that are not complete will have cost in table 2.3.3.2 but no volume in 2.3.3.1.		
LV Feeder Augmentations (volume)	JEN has not recorded the actual added or upgraded overhead lines or underground cables for each (material) project.	JEN has gone through every business case and/or scope of works, design drawing and estimated the km of overhead added or upgraded for the material projects. This often involved using GIS to confirm the lengths and what work was actually performed. The quantity was added in the project close year based on the settled cost as identified above. If a material project was not complete the quantities were not added. Note that the as incurred expenditure in table 2.3.3.2 will not align with the quantities reported in 2.3.3.1, and could not be used to form a yearly unit rate as mentioned above. Also note that material projects that are not complete will have cost in table 2.3.3.2 but no volume in 2.3.3.1.	Unless evidence was found to the contrary when examining the design or GIS it was assumed that the business case and scope of works were accurate. It was assumed that thermal uprating and re-conductoring were upgrades.	JEN considers this a reasonable methodology for estimating the quantity required.
Distribution Substation Augmentations	JEN has not recorded the actual added or upgraded quantity of distribution substations for each project. In some cases estimates	JEN extracted the total quantity of transformers for each distribution substation project from SAP based on the material description. This would also assist in	The project BAA-DSJ-000043 ROUTINE-DSJ-20120401 is for field upgrades that are performed when a substation fails and the substation was identified as being	JEN considers this a reasonable methodology for estimating the quantity required.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
(volume)	had to be made to determine the type added.	determining which transformers were ground mounted (as they are identified by pad, or kiosk). JEN then went through every business case and/or scope of works to determine the quantity added or upgraded of each of the requested types of substations. Where there was a discrepancy identified between the business case or scope of works with SAP, or no business case or scope of works could be found, the design drawings and GIS were consulted to determine what was actually installed. The quantity was added in the project close year based on the settled cost as identified above. If a material project was not complete the quantities were not added. Note that the as incurred expenditure in table 2.3.3.2 will not align with the quantities reported in 2.3.3.1, and could not be used to form a yearly unit rate as mentioned above.	overloaded. For this project there were 7 (not ground mounted) transformers allocated in SAP. It was assumed that all of these transformers were all pole mounted type transformers as JEN has very few indoor transformers.	

2.3.3.2 Cost metrics

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
HV feeder augmentations (expenditure)	JEN projects are not separated into overhead and underground. Each individual project did also not have a cost split into overhead and underground categories. Also the expenditure information used to obtain this category was based on the direct costs, which were estimated, since overheads were extracted at an estimated percentage (see 2.3.4 below).	JEN has estimated the percentage overhead and underground for each material projects by using the business case and cost estimates, or where available for (one) new projects using SAP. The percentage overhead or underground estimated for each project was then applied to the determine the as incurred direct expenditure using the costs settled to the fixed asset register which were used to derive table 2.3.4. Note that the as incurred expenditure in table 2.3.3.2 will not align with the quantities reported in 2.3.3.1, and could not be used to form a yearly unit rate as mentioned above. Also note that material projects that are not complete will have cost in table 2.3.3.2 but no volume in 2.3.3.1. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	It is assumed that the business case estimates were accurate. Where a new overhead switch was installed as part of an underground feeder project all cost has been allocated into underground feeder. 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.	JEN considers this a reasonable methodology for estimating the quantity required.
LV feeder augmentations (expenditure)	Since all material projects for this category were 100% overhead no estimate was made to split the cost of individual projects	Using the business case and design, JEN determined that it had no material projects with any mixed overhead or underground works (they were all overhead).	None	JEN considers this a reasonable methodology for estimating the quantity required.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	between overhead and underground. However the expenditure information used to obtain this category was based on the direct costs, which were estimated, since overheads were extracted at an estimated percentage (see 2.3.4 below).	The percentage overhead or underground estimated for each project was then applied to the determine the as incurred direct expenditure using the costs settled to the fixed asset register which were used to derive table 2.3.4. Note that the as incurred expenditure in table 2.3.3.2 will not align with the quantities reported in 2.3.3.1, and could not be used to form a yearly unit rate as mentioned above. These costs are inclusive of any related party margins for the period April 2010 to March 2012.		
Distribution Substation Augmentations (expenditure)	JEN has used the methodology as described above for table 2.3.3.1 to determine whether a project belonged to pole, ground mounted, or indoor substation. Some of this was estimated see section 2.3.3.1 above. Also the expenditure information used to obtain this category was based on the direct costs, which were estimated, since overheads were extracted at an estimated percentage (see 2.3.4 below).	JEN has used the methodology as described above for table 2.3.3.1 to determine whether a project belonged to pole, ground mounted, or indoor substation. Some of this was estimated see section 2.3.3.1 above. The cost was extracted for all projects based on the type to determine the as incurred direct expenditure using the costs settled to the fixed asset register which were used to derive table 2.3.4. Note that the as incurred expenditure in table 2.3.3.2 will not align with the quantities reported in 2.3.3.1, and could not be used to form a yearly unit rate as mentioned above. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	The substation type is as identified in 2.3.3.1 above.	JEN considers this a reasonable methodology for estimating the quantity required.

2.3.4 AUGEX DATA – TOTAL EXPENDITURE

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Table 2.3.4 (Expenditure)	Augex expenditure data for the five years was sourced from the JEN SAP system and reconciled back to JEN's Regulatory Accounts as detailed in Section 2.1.1 (Expenditure Summary & Reconciliation Standard Control Services Capex). Augex expenditure is reported as an estimate in this template as overheads were extracted (at an estimated percentage) to obtain the direct costs. In addition, the Augex expenditure data was further categorised in to the sub-categories required as outlined in section 2.3 above. As a result of this process, assumptions were made that also make the expenditure data for each sub category an estimate rather than actual.	Augex expenditure categorisation was based upon activity and service category codes 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. In addition, the Augex expenditure data was further categorised in to the sub-categories required as outlined in section 2.3 above. Expenditure data, categorised as described above, was entered into the relevant sections of RIN C Template sheet 2.3.4. It was also used to populate the Augex section of RIN C Template sheet "2.1.2 – Inputs tables". These costs are inclusive of any related party margins for the period April 2010 to March 2012.	JEN assumes expenditure data was accurately recorded against projects in the SAP system.	Direct expenditure data for the five years was sourced from the JEN SAP system and reconciled back to JEN's Regulatory Accounts. JEN considers this the best way it could accurately extract and categorise the direct expenditure data required.

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 both Ex-Agility SAP and Jemena SAP (JSAP). For the period January 2009 to 31 March.2012 Ex-Agility SAP was utilised whilst for the period 1 April 2012 to 31 December 2013, Jemena (JSAP) was utilised.	The basis of the information is the Regulatory Accounts / Asset Base. From this point we identified the internal orders which had settled their accounts. 1. In Ex-Agility SAP, Projects settled their accounts to these internal orders via a percentage split predetermined. The projects have Plant Maintenance Orders settling where the direct costs originated. 2. In JSAP, 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. 3. 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.	It has been assumed that; • The Activity Codes have been allocated to the most appropriate RIN category (this is based on the Activity codes defined in the spread sheet Connection Classification Master.xlsx • That there was a consistent definition and usage of Activity Codes in the period 2009 to 2013.
RESIDENTIAL	For 2009 to 2012 the source of the data	The service orders are created at the time of the	The assumption is that the Residential

Variable	Source and why actual	Methodology	Assumptions
UNDERGROUND CONNECTIONS (000'S) RESIDENTIAL OVERHEAD CONNECTIONS (000'S) COMMERCIAL/INDUSTRIAL UNDERGROUND CONNECTIONS (000'S) COMMERCIAL/INDUSTRIAL OVERHEAD CONNECTIONS (000'S) SUBDIVISION UNDERGROUND CONNECTIONS (000'S) SUBDIVISION OVERHEAD CONNECTIONS (000'S)	is the Customer Information System (CIS+). For 2009 to 2013 the Subdivision underground connections are sourced from the CIS+ system This data is based on actual service orders by category and date.	connection request. The date, category and service are confirmed at the completion of the work.	Underground connection volumes are accurately represented by the total of underground connections supplied from CIS+ minus the Subdivision underground connections supplied by the CIS+ system.
RESIDENTIAL MEAN DAYS TO CONNECT RESIDENTIAL CUSTOMER WITH LV SINGLE PHASE CONNECTION (0'S)	The source of the data is the Customer Information System (CIS+). This data is based on actual service orders by category and date.	This data is based on actual service orders by category and date. The service order is created and an Initiated Date is assigned at the top of the service order. The service order is physically completed and an Effective Date is assigned. The Mean Days is calculated.	No assumptions have been made.
RESIDENTIAL VOLUME OF GSL BREACHES FOR	The source of the data is the databases used to manage GSL's.	The volume of GSL breaches are collated from the relevant business areas; New Connections,	No assumptions have been made.

Variable	Source and why actual	Methodology	Assumptions
RESIDENTIAL CUSTOMERS (0'S)	The data is collected within the Stakeholder Relations area.	Appointments and Asset Performance. These are then validated and summated.	
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 ($000'S)	The source of the data is the databases used to manage GSL's. The data is collected within the Stakeholder Relations area.	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.
EMBEDDED GENERATION UNDERGROUND CONNECTIONS (000'S) EMBEDDED GENERATION OVERHEAD CONNECTIONS (000'S)	The source of the Embedded Generation is the Geographical Information System (GIS).	Extracted all embedded generators from GIS and then filtered on the Asset Status of "Existing" and then filtered by Installed Date. Details on whether the embedded generator was connected underground or overhead were extracted from GIS.	No assumptions have been made.
EMBEDDED GENERATION AUGMENTATION HV (TOTAL SPEND $000'S) EMBEDDED GENERATION AUGMENTATION LV (TOTAL SPEND $000'S) EMBEDDED GENERATION DISTRIBUTION SUBSTATIONS	There was no expenditure on HV or LV augmentation or distribution substations for embedded generators. Expenditure associated with all new connections, irrespective of whether there is embedded generation involved are allocated to the residential connection activity. In the instance where a meter change is	See previous column	It has been assumed that there have been an insignificant number of cases where a site visit is required for a new embedded generator at an existing supply connection.

Variable	Source and why actual	Methodology	Assumptions
INSTALLED (TOTAL SPEND $000'S)	required to accommodate a new embedded generation installation the expenditure is allocated to the metering activity.		

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
RESIDENTIAL UNDERGROUND CONNECTIONS (000'S) RESIDENTIAL OVERHEAD CONNECTIONS (000'S) COMMERCIAL/INDUSTRIAL UNDERGROUND CONNECTIONS (000'S) COMMERCIAL/INDUSTRIAL OVERHEAD CONNECTIONS (000'S)	For 2013 the data has been based on data from the ISU and SAP systems.	Although the total number of connections is based on an actual data, the split between the overhead and underground connections has been calculated based on a similar ratio of underground and overhead from previous years, because service orders are not booked in this way.	The assumption has been made that the split between the overhead and underground connections for previous years is representative of the split of underground and overhead services in 2013. It is assumed that the financial data has been recognised in the calendar year (CY) it was incurred and not at the time of capitalising to the asset register or the time the asset commissioning of the asset.	This is considered the best estimate because it is based on the best available actual data— the total number of connections from SAP and ISU or 2013. It is considered an estimate however because the split between overhead and underground connections is based on an allocation.
RESIDENTIAL DISTRIBUTION SUBSTATIONS INSTALLED	The source of the data is SAP. The data is based on the MVA nameplate rating of the	SAP transaction CJI3 provides the project category by year and also provides the material use posted during this period.	It was established that in a small number of instances, equipment is posted back to the warehouse when it is not actually utilised on the project.	This is considered the best estimate because it is based on the best available actual data. The source of the data

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
(MVA ADDED) COMMERCIAL/INDUSTRIAL DISTRIBUTION SUBSTATIONS INSTALLED (MVA ADDED) SUBDIVISION DISTRIBUTION SUBSTATIONS INSTALLED (MVA ADDED) EMBEDDED GENERATION DISTRIBUTION SUBSTATIONS INSTALLED (MVA ADDED)	substations posted to the SAP projects during the period.	The MVA description is available from the SAP material master.	If transformers are returned within the same year as incurred then the posting is considered to be a return, but if not, it was not counted as a return.	is the 'posting date' of the transformer posted to the SAP project during the period.
RESIDENTIAL DISTRIBUTION SUBSTATIONS INSTALLED (000'S) COMMERCIAL/INDUSTRIAL DISTRIBUTION SUBSTATIONS INSTALLED (000'S) SUBDIVISION DISTRIBUTION SUBSTATIONS INSTALLED (000'S)	The source of the data is SAP. The data is based on the estimated volume of the substations posted to the SAP projects during the period.	SAP transaction CJI3 provides the project category by year and also provides the material use posted during this period.	It was established that in a small number of instances, equipment is posted back to the warehouse when it is not actually utilised on the project. If transformers are returned within the same year as incurred then the posting is considered to be a return, but if not, it was not counted as a return.	This is considered the best estimate because it is based on the best available actual data. The source of the data is the 'posting date' of the transformer posted to the SAP project during the period.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
EMBEDDED GENERATION DISTRIBUTION SUBSTATIONS INSTALLED (000'S)				
RESIDENTIAL AUGMENTATION HV (NET CIRCUIT KM ADDED) RESIDENTIAL AUGMENTATION LV (NET CIRCUIT KM ADDED) COMMERCIAL/INDUSTRIAL AUGMENTATION HV (NET CIRCUIT KM ADDED) COMMERCIAL/INDUSTRIAL AUGMENTATION LV (NET CIRCUIT KM ADDED) SUBDIVISION AUGMENTATION HV (NET CIRCUIT KM ADDED) SUBDIVISION AUGMENTATION LV (NET CIRCUIT KM ADDED)	The source of the data is JSAP and Ex-Agility SAP. The data is based on the actual volume (length) of the conductor or cable posted to the SAP projects during the period. 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.	SAP transaction CJI3 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.	It has been assumed that where there has not been a transformer allocated to the project then there are no HV network augmentation performed. Further, it has been assumed that for HV underground cable; • That for 3 core cable, 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. It has been assumed that for HV overhead conductor; • any conductor less than and equal to 19/2mm and 7/4.50mm would be classified as HV. It has been assumed that for LV underground cable; • 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	This is the best estimate because it uses the material that has been allocated to the project to estimate the net circuit km added.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
EMBEDDED GENERATION AUGMENTATION HV (NET CIRCUIT KM ADDED) EMBEDDED GENERATION AUGMENTATION LV (NET CIRCUIT KM ADDED)			divided by 4. It has been assumed that for LV overhead conductor; • any conductor other than 19/2mm and 7/4.50mm would be classified as LV.	
RESIDENTIAL AUGMENTATION LV (TOTAL SPEND $000'S) RESIDENTIAL AUGMENTATION HV (TOTAL SPEND $000'S)	Residential augmentation LV and HV direct expenditure data for the five years was sourced from the JEN SAP system. Although JEN was able to source some data as required in the template form its ERP systems, JEN provided its best estimate for areas within the Connection Subcategory that is not recorded in its ERP systems.	JEN's cost collectors from its SAP system relating to connections has been used to establish this estimate. JEN uses mapping tables to map the cost collectors in the RIN categories e.g. connections. As JEN does collect cost at the level required in the connections template, JEN filtered the cost collectors into those with transformers installed within the connections category. These orders were then filtered to identify those with transformers installed. The orders without transformers were classified under Augmentation LV on 100% basis. For cost for the remaining orders were then split based on a sample of projects and evaluation of material costs to determine the split below – Distribution Substation: 58% – Augmentation HV: 18% – Augmentation LV: 24%	It has been assumed that the cost collectors have been consistently applied to the connections category. It has been assumed that Internal Orders and Services Codes have been consistently applied. It has also been assumed that expenses incurred are recognised in the appropriate direct cost categories to reflect the nature/substance of the costs incurred. Only projects/orders that contained transformers received a percentage split of HV and LV and transformer costs. It is assumed that the financial data has been recognised in the calendar year (CY) it was incurred and not at the time of capitalising to the asset register or the time the asset commissioning of the asset.	This is the best estimate because it relies on business knowledge of JEN's operations, processes, how the various cost collectors, asset classes are used and applied.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		Then all costs were added to produce the final result.		
COMMERCIAL/INDUSTRIAL AUGMENTATION HV (TOTAL SPEND $000'S) COMMERCIAL/INDUSTRIAL AUGMENTATION LV (TOTAL SPEND $000'S)	This variable is an estimate because we do not capture costs in JSAP in accordance with the categories as set out in the RIN. Commercial and Industrial augmentation LV and HV direct expenditure data for the five years was sourced from the JEN SAP system. Although JEN was able to source some data as required in the template form its ERP systems, JEN provided its best estimate for areas within the Connection Subcategory that is not recorded in its ERP systems.	JEN's cost collectors from its SAP system relating to connections has been used to establish this estimate. JEN uses mapping tables to map the cost collectors in the RIN categories e.g. connections. As JEN does collect cost at the level required in the connections template, JEN filtered the cost collectors into those with transformers installed within the connections category. These orders were then filtered to identify those with transformers installed. The orders without transformers were classified under Augmentation LV on 100% basis. For cost for the remaining orders were then split based on a sample of projects and evaluation of material costs to determine the split below – Distribution Substation: 73% – Augmentation HV: 18% – Augmentation LV: 9% Then all costs were added to produce the final result.	It has been assumed that the cost collectors have been consistently applied to the connections category. It has been assumed that Internal Orders and Services Codes have been consistently applied. It has also been assumed that expenses incurred are recognised in the appropriate direct cost categories to reflect the nature/substance of the costs incurred. Only projects/orders that contained transformers received a percentage split of HV and LV and transformer costs. It is assumed that the financial data has been recognised in the calendar year (CY) it was incurred and not at the time of capitalising to the asset register or the time the asset commissioning of the asset.	This is the best estimate because it relies on the business knowledge of JEN's operations, processes, how the various cost collectors, asset classes are used and applied.
SUBDIVISION AUGMENTATION HV (TOTAL SPEND $000'S)	Subdivision augmentation LV and HV direct expenditure data for the five years was sourced from the JEN SAP system.	JEN's cost collectors from its SAP system relating to connections has been used to establish this estimate. JEN uses mapping tables to map the cost collectors	It has been assumed that Internal Orders and Services Codes have been consistently applied. It has also been assumed that	This is the best estimate because it relies on business knowledge of JEN's operations,

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
SUBDIVISION AUGMENTATION LV (TOTAL SPEND $000'S)	Although JEN was able to source some data as required in the template form its ERP systems, JEN provided its best estimate for areas within the Connection Subcategory that is not recorded in its ERP systems.	in the RIN categories e.g. connections. As JEN does collect cost at the level required in the connections template, JEN filtered the cost collectors into those with transformers installed within the connections category. These orders were then filtered to identify those with transformers installed. The orders without transformers were classified under Augmentation LV on 100% basis. For cost for the remaining orders were then split based on a sample of projects and evaluation of material costs to determine the split below – Distribution Substation: 30% – Augmentation HV: 40% – Augmentation LV: 30% Then all costs were added to produce the final result.	expenses incurred are recognised in the appropriate direct cost categories to reflect the nature/substance of the costs incurred. Only SAP Projects and Work Orders that contained transformers received a percentage split of HV and LV and transformer costs. It is assumed that the financial data has been recognised in the calendar year (CY) it was incurred and not at the time of capitalising to the asset register or the time the asset commissioning of the asset.	processes, how the various cost collectors, asset classes are used and applied.
SUBDIVISION COST PER LOT ($)	This variable is an estimate because we do not capture costs in JSAP in accordance with this requirement as set out in the RIN. The data is recorded only as a component of the whole project cost.	The estimate is based on whole of project costs and the number of service pits installed multiplied by the "K 1.7" factor. The "K" factor was determined from the average connections per pit for the period 2009 to 2013. This "K" factor was determined by extracting from GIS all of the External Plan References (XPR) installed since 1 January 2009. The XPR are a polygon in the GIS that	It has been assumed that the methodology used to calculate the number of services per pit is representative of the construction in the field. It is assumed that the financial data has been recognised in the calendar year (CY) it was incurred and not at the time of capitalising to the asset register or the time the asset commissioning of the asset.	This is the best estimate because it uses the material 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.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		covers the extents of the design drawing. All underground pits that were inside or touching each XPR were extracted. 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. 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. SAP transaction CJI3 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.		

2.5.2 COST METRICS BY CONNECTION CLASSIFICATION

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
RESIDENTIAL SIMPLE CONNECTION LV (000'S)	This is an estimate rather than an actual because there are many SAP Work Orders to one SAP Project and in	The SAP transaction KOB1 was used to identify the SAP Projects which have been assigned to each RIN category. The number of SAP Work Orders	The assumption is that all work orders and project definitions are individual connections as they have been grouped and summarised into an	This is the best estimate because the methodology uses the available financial accounts as the basis.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
RESIDENTIAL COMPLEX CONNECTION LV (000'S) RESIDENTIAL COMPLEX CONNECTION HV (000'S) COMMERCIAL/INDUSTRIAL SIMPLE CONNECTION LV (000'S) COMMERCIAL/INDUSTRIAL COMPLEX CONNECTION HV (CUSTOMER CONNECTED AT LV, MINOR HV WORKS) (000'S) COMMERCIAL/INDUSTRIAL COMPLEX CONNECTION HV (CUSTOMER CONNECTED AT LV, UPSTREAM ASSET WORKS) (000'S) SUBDIVISION COMPLEX CONNECTION LV (000'S)	many cases Projects then settle across to many asset accounts. JEN does not have discreet Work Orders for discreet work packages within all projects. These variables' HV and LV direct expenditure data for the five years was sourced from the JEN SAP system. Although JEN was able to source some data as required in the template form its ERP systems, JEN provided its best estimate for areas within the Connection Subcategory that is not recorded in its ERP systems.	assigned to each SAP Project was identified. The selection of the appropriate SAP Project is based on the project incurred costs within the defined year. As the projects can contain multiple connections and single connections, an extract was downloaded where it was summarised and then the duplicate WBS elements and orders were removed in order to provide the volumes. This extract was then loaded into CJI3 to extract the volumes that had expenditure against the order.	aggregated project.	The methodology provides a consistent approach that was able to be replicated for multiple years to align across both the Ex-Agility SAP and JSAP systems.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
SUBDIVISION COMPLEX CONNECTION HV (NO UPSTREAM ASSET WORKS) (000'S)				
RESIDENTIAL SIMPLE CONNECTION LV ($000'S) RESIDENTIAL COMPLEX CONNECTION LV ($000'S) RESIDENTIAL COMPLEX CONNECTION HV ($000'S) COMMERCIAL/INDUSTRIAL SIMPLE CONNECTION LV ($000'S) COMMERCIAL/INDUSTRIAL COMPLEX CONNECTION HV (CUSTOMER CONNECTED AT LV, MINOR HV WORKS) ($000'S) COMMERCIAL/INDUSTRIAL	HV and LV direct expenditure data for the five years was sourced from the JEN SAP system. Although JEN was able to source some data as required in the template form its ERP systems, JEN provided its best estimate for areas within the Connection Subcategory that is not recorded in its ERP systems.	We have assigned the JEN Activity Codes (Ex-Agility SAP), Asset Classes (Ex-Agility SAP) and Service Codes (JSAP) used in JEN projects to the AER categories and connection types. The SAP transaction KOB1 was used to identify the SAP Projects which have been assigned to each RIN category. The financials of Internal Orders (Ex-Agility SAP) and Service Orders (JSAP) relating to connections have been used to establish this estimate.	The assumption is that the cost collector codes for project and work orders are closely aligned and have been used correctly when capturing the data.	This is the best estimate because it relies on business knowledge of JEN's operations and processes, how the various activity codes, asset classes (internal orders) and service codes are used and applied.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
COMPLEX CONNECTION HV (CUSTOMER CONNECTED AT LV, UPSTREAM ASSET WORKS) ($000'S) SUBDIVISION COMPLEX CONNECTION LV ($000'S) SUBDIVISION COMPLEX CONNECTION HV (NO UPSTREAM ASSET WORKS) ($000'S)				
EMBEDDED GENERATION - SIMPLE CONNECTION LV ($000'S) EMBEDDED GENERATION - COMPLEX CONNECTION HV (SMALL CAPACITY) ($000'S) EMBEDDED GENERATION - COMPLEX CONNECTION HV (LARGE CAPACITY) ($000'S)	There was no expenditure on connections for embedded generation. Expenditure associated with all new connections, irrespective of whether there is embedded generation involved are allocated to the residential connection activity. In the instance where a meter change is required to accommodate a new embedded generation installation the expenditure is allocated to the metering activity.	See previous column	It has been assumed that there have been an insignificant number of cases where a site visit is required for a new embedded generator at an existing supply connection.	This is the best estimate because it relies on business knowledge of JEN's operations and processes, how the various activity codes, asset classes (internal orders) and service codes are used and applied.

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** CY09 – CY13	This information 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. JEN's costs are derived from internal and external sources. Internal costs are labour costs and are captured via time writing. Where practical and appropriate, all Jemena employees time write to an activity/network code or client e.g., JEN. These form direct costs together with external costs sourced from receipting against purchase orders. At a macro level, JEN's cost collection process uses a combination of SAP functionality e.g. projects, cost and profit centres. At a micro level, JEN uses activity and network codes which roll up to a project code, to collect costs. All property capex related costs use the above functionality within SAP.	The cost of Buildings and Property capex are derived from extracting financial transactions from SAP. A standard project cost report for each 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. The transactions were agreed back to the prior years' Regulatory Accounts. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	No assumptions have been made in providing this information.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
2.6.1 IT and Communications **Capex** CY09 – CY13 ***Client Devices***	This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. 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 deeming it be an estimate. In addition, the information contains network overheads (in CY13) and SCADA expenditure, which needs to be removed as the template requires the disclosure of direct costs only.	***Client device expenditure*** consists of desktop and laptop computers, desk and mobile phones as well as hand held devices. This conforms to the AER definition which is as follows: *"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."* JEN's cost collection process is noted above. The cost of client devices capex is derived by extracting financial transactions from SAP via a standard project cost report. Client Devices expenditure was identified from this report by experienced IT personnel who classified into the various categories as required by this template. These costs are inclusive of any related party margins for the period	There are no assumptions	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		April 2010 to March 2012.		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
2.6.1 IT and Communications **Capex** CY09 – CY13 ***Recurrent Expenditure***	This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. The recurrent cost is considered an estimate because JEN does not directly capture costs in accordance with the categories set out in this template. An experienced IT personnel use their judgement to further categorise the data, therefore deeming it be an estimate. In addition, the information contains network overheads (in CY13) and SCADA expenditure, which needs to be removed as the template requires the disclosure of direct costs only.	***Recurrent expenditure*** are costs incurred for systems growth due to business growth, enhancements and change, systems upgrades, systems replacement and retirements. This conforms to the AER definition which is as follows: *""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.* *Examples of recurrent IT & Communications expenditure may include cyclic replacement of assets and related costs (hardware, software, training etc.)."* JEN's cost collection process is noted above. The cost of recurrent capex is derived by extracting financial transactions from SAP via a standard project cost report. Recurrent expenditure was identified from this report by experienced IT personnel who classified into the various categories	There are no assumptions	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		as required by this template. These costs are inclusive of any related party margins for the period April 2010 to March 2012.		
2.6.1 IT and Communications **Capex** CY09 – CY13 **Non-Recurrent Expenditure**	This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. 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. An experienced IT personnel use their judgement to further categorise the data, therefore deeming it be an estimate. In addition to this, the information contains network overheads (in CY13) and SCADA expenditure, which needs to be removed as the template requires the disclosure of direct costs only.	***Non-recurrent expenditure*** includes all other costs - 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: *"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)."* JEN's cost collection process is noted above. The cost of non-recurrent capex is derived by extracting financial transactions from SAP via a standard project cost report. Non-recurrent expenditure was identified from this report by experienced IT personnel who classified into the various categories as required by this template. These costs are inclusive of any related party margins for the period	The credit amounts in CY11 are attributed to corrections to overcharges from prior periods.	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		April 2010 to March 2012.		
2.6.1 IT and Communications **Opex** CY09 – CY13 ***Client Devices***	This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. Client devices expenditure is an estimate because JEN does not capture costs in accordance with this category.	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. These costs are inclusive of any related party margins for the period April 2010 to March 2012. ***CY13:*** The client devices opex was sourced from the IT Services Cost Model. ***CY09-CY12:*** The percentage of JEN's client devices expenditure over JEN's total IT opex was calculated for Jul12-Jun13. This percentage was then applied to JEN's total IT opex each calendar year for CY09-CY12. The resulting figure is reported in this template as the client devices operating expenditure.	JEN assumed that client device expenditure for Jul12-Jun13 is consistent year on year as a percentage of overall IT expenditure. JEN also assumed that the cost incurred from Jul12-Jun13 is representative of all the prior year calendar years.	JEN is not aware of a superior estimation technique as these costs were not collected prior to 2013.
2.6.1 IT and Communications **Opex**	Data extracted from JEN's DNSP Economic Benchmarking Data (RINB) - Template 3. However, it is considered an	Total IT opex was reported on a calendar year basis in RINB. The costs disclosed in RINB were sourced from Appendix B of JEN's annual RIN response and previous RAS's which	The majority of IT operating costs is incurred by EBS and their partner subcontracting organisations. The level of detail necessary to distinguish between recurrent and non-recurrent expenditure has not been provided to JEN by	JEN is not aware of a superior estimation technique. Generally, the IT operating costs is typically recurrent in nature and by services

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
CY09 – CY13 ***Recurrent Expenditure***	estimate as client devices expenditure discussed above was removed to avoid double counting.	in turn was sourced from SAP, the ERP system that JEN uses to capture its financial information. To avoid double counting, the client devices expenditure has been removed as it has been reported above. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	EBS as an external service provider. Therefore, JEN's experienced IT personnel made the assumption that all the IT operating costs, excluding client devices is of a recurrent nature.	agreements with minimal one-off abnormal expenditures from one year to the next.
2.6.1 IT and Communications **Opex** CY09 – CY13 ***Non - Recurrent Expenditure***	Nil	Nil	Nil	Nil

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
2.6.1 Motor Vehicles **Capex** CY09 – CY13	The information is sourced from SAP, the ERP system that JEN uses to capture its financial information. Motor Vehicle costs are considered an estimate because JEN does not directly capture costs in accordance with the categories set out in this template. An experienced Fleet Management personnel use their judgement to further categorise the data, therefore deeming it to be an estimate.	Motor Vehicle capital expenditure is generally external costs and is derived from purchases made directly to the asset using SAP purchase orders. These costs are allocated to a particular asset class type in SAP. An Asset Acquisitions report was run in SAP, filtered for the motor vehicle asset classes, and lists all the purchases made during the 2009-2013 calendar years. It details the asset numbers, acquisition amounts, acquisition date and asset description. JEN's Fleet Management team allocated the costs by referring to the unique asset numbers listed on the report to determine the appropriate regulatory asset category. The transactions were reconciled to the prior years' Regulatory Statements. During this process, a few transactions (immaterial amounts) were found to be more of an equipment rather than motor vehicle nature. These amounts were therefore, excluded from the Motor Vehicles category and reported separately in the "Other" category. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	All assets are categorised by their physical and operational characteristics.	The reconciliation between this RIN and the prior years' Regulatory Accounts identified that immaterial amounts of equipment capex was reported under the Motor Vehicles capex category. These items were removed and reported in the "Other" category for this RIN.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
2.6.1 Motor Vehicles **Opex** CY09 – CY13	The information is sourced from SAP, the ERP system that JEN uses to capture its financial information. 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. Source of average kilometres for each vehicle category is a Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena. Note: The Fleet Management Companies contracted by Jemena during this period: • Interleasing - Jan09-Dec12 • Toyota Fleet Management - Jan13-Dec13.	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. ***CY09-10:*** In CY09 and CY10, fleet costs were embedded in JEN's total time writing (labour) costs. To isolate the fleet costs a percentage allocation methodology was devised, as follows: *Calculation of the percentage used for allocation:* Total fleet costs divided by the total operating costs (costs pertaining specific to the electricity business units i.e. Works Delivery and NAPS. *Application of the percentage:* This percentage calculated as mentioned above is then applied to the total time writing costs pertaining to the JEN business unit. The resulting figure is reported in this RIN as the motor vehicle operating expenditure. ***CY11-13:*** During this period, changes to the cost capture methodology were implemented in SAP. As a result, specific general ledger accounts were	JEN has made the assumption that kilometres travelled by a vehicle, is a key cost driver of total motor vehicle expenditure.	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		used to capture the fleet costs. Using these general ledger accounts as key parameters, costs are extracted from SAP using a standard report. *Allocation of Operating Expenditure to the various Motor Vehicle categories:* 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: The kilometres travelled per vehicle type divided by the total kilometres travelled by all motor vehicles per year. The average for each vehicle type thus arrived, is then applied to the total motor vehicle operating expenditure to provide the category breakdown as required by this template. These costs are inclusive of any related party margins for the period April 2010 to March 2012.		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
2.6.1 Buildings and Property **Opex** CY09 – CY13	Buildings and property expenditure include operational and maintenance costs of the following sites and its associated fittings and fixtures: 1. 321 Ferntree Gully Road, Mount Waverley (**Axxess Park**) 2. 34 King William Street, Broadmeadows (**Broadmeadows Depot**) 3. 351 Burwood Highway, Forest Hill (**Forest Hill**) 4. Levels 9& 10, 737 Bourke Street, Docklands (**Docklands**) This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN's cost collection process is noted above. Due to the difficulty of tracing the prior year costs in SAP for the sites listed above, a back cast calculation based on the current financial year's data was used to	**1. Axxess Park** JEN was unable to trace the costs for this site in the general ledger for the prior years. However, for the Apr13-Dec13 period, a specific project was created in SAP to collect the costs of this site. Using this project code, costs were extracted from SAP by running a standard report. The amount captured in this report was then annualised and JEN was allocated 40% of the total costs. In the absence of quality allocation data, management decided to use this percentage (based on experience) while it collected data to derive a better allocation to JEN. This calculated amount was then deflated by CPI for the prior years as reliable data is not available. During the Oct10-Oct13 period, Jemena subleased Level 1 to Fonterra Australia. The rental income received was tracked by Jemena's Property Management Team. As JEN was allocated 40% of this rental income, this income was deducted from the total costs incurred by JEN for the Axxess Park site.	JEN has made the assumption that property costs remained constant during this period, with only a CPI increase per annum.	Due to the difficulty in directly drawing out the costs of these properties from the general ledger, JEN is not aware of a superior estimation technique. Therefore a back casting calculation based on the current financial year's data was deemed to be the best estimate of these costs.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	estimate the costs, and the resulting figure is reported in this template.	**2. Broadmeadows Depot** This information was sourced directly from SAP. A project was set up in SAP to collect the costs of this site and a standard transactions report was run to obtain the costs on a calendar year basis. **3. Forest Hill** ***Jan09-Mar13:*** This information was sourced from JEN's financial records - a work paper detailing all the costs and its allocation to the various business units. The majority of the costs of this site, during this period was charged to the JSAP project (and therefore capitalised) and to the AMI project (captured under metering). ***Apr13-Dec13:*** During this period, a specific project was created in SAP to collect the costs of this site. Using this project code, costs were extracted from SAP by running a standard report. The amount captured in this report was then annualised and JEN was allocated 40% of the total costs. As noted above, due to the absence of		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		quality allocation data, management decided to use this percentage (based on experience) while it collected data to derive a better allocation to JEN. **4. Docklands** Site costs for this building are included as part of the 'One IT Services Agreement' (EBS) and therefore charged to JEN via the EBS invoice on a monthly basis. This information was sourced from JEN's financial records - a work paper detailing all the costs incurred for the Apr13-Dec13 period. The amount captured in this work paper was then annualised and JEN was allocated 40% of the total cost. As noted above, due to the absence of quality allocation data, management decided to use this percentage (based on experience) whilst it collected data to derive a better allocation to JEN. The calculated amount was then deflated by CPI for the prior years. These costs are inclusive of any related party margins for the period April 2010 to March 2012.		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
2.6.1 Other Expenditure **Capex** CY09 – CY13	This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. JEN's cost collection process is noted above. This category is considered an estimate as it captures all non-network capital expenditure that could not be allocated above in the IT and communications, Motor Vehicles, or the Buildings and Property categories. Examples of capital expenditure reported under this category include items such as trailers, forklifts and tool boxes.	As discussed above, an Asset Acquisitions report was run in SAP, filtered for the motor vehicle asset classes, and lists all the purchases made during the 2009-2013 calendar years. It details the asset numbers, acquisition amounts, acquisition date and asset description. The transactions were reconciled to the prior years' Regulatory Statements. During this process, a few transactions (immaterial amounts) were found to be more of an equipment rather than motor vehicle nature. These amounts were therefore, excluded from the Motor Vehicles category and reported separately in the "Other" category. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	No assumptions have been made in providing this information.	As stated above, the reconciliation between this RIN and the prior years' Regulatory Accounts identified that immaterial amounts of equipment capex was reported under the Motor Vehicles capex category. These items were removed and reported in the "Other" category for this RIN.

2.6.2 ANNUAL DESCIPTOR METRICS – IT & COMMUNICATIONS EXPENDITURE

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Employee Numbers **CY09 – CY13**	Employee numbers were required to be estimated because employee numbers were not recorded at a business unit level. Headcount numbers were only recorded at an organisational (Jemena) level.	The employee numbers reported under this template were sourced from Template 2.11 Labour. Please refer to the basis of preparation for template 2.11 Labour for details.	None.	Please refer to the basis of preparation for template 2.11 Labour for details.
User Numbers **CY09 – CY13**	User numbers were not recorded by JEN. Note: Jemena cannot distinguish the number of employees in a shared environment between standard control services and non-standard control services as required by the AER definition below. *"Active IT system log in accounts used for standard control services work scaled for standard control services use (i.e. an account used 50% of the time for standard control services work equals 0.5 active IT log in accounts)".*	Overall user numbers are estimated based on the number of full time equivalent employees working on JEN assigned work.	JEN assumes that the user numbers are equal to the employee numbers reported above.	As every employee is allocated an account, JEN believes this is the best estimate.
Number of Devices **CY09 – CY13**	Number of devices was not recorded by JEN.	***CY13:*** Prior to Feb13, the number of devices for JEN were not recorded and therefore required to be estimated.	The ratio between user numbers and the number of devices for CY13 is assumed to be constant for the preceding years.	As the number of devices was not recorded prior to Feb13, JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		The total number of devices includes desktops, laptops, phones as well as hand held devices. The number of phones and hand held devices were calculated as follows: • The monthly client devices report (which excludes laptops and desktops) was sourced. • This report provides the allocation of client devices to JEN and its cost. • The average number of these devices during the 11 month period was calculated and included in the number of devices reported for CY13. The number of desktops and laptops in operation at any one time is determined by an automated tool that does an electronic stocktake to arrive at the number of devices. This stocktake was conducted in July13. The stocktake was conducted as part of preparing annual budgets for 2014. The data was then matched to the annual costs as at the end of the Australian financial year 2012/13. The reported figure from this point of time was added to the number of phones and hand held devices above to derive the total		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		CY13 number of devices. ***CY09-CY12:*** The number of devices was not captured by JEN and therefore required to be estimated. It was estimated by using the ratio of user numbers to the number of devices reported in CY13 and was calculated as follows: ***Calculation of the percentage used for allocation:*** Total client device numbers for CY13 divided by the user numbers for CY13. ***Application of the percentage:*** This ratio calculated above is then applied to JEN's user numbers for each calendar year in CY09-12. The resulting figure is reported in this template as the number of devices.		

2.6.3 ANNUAL DESCRIPTOR METRICS – MOTOR VEHICLES

Actual information

Variable	Source and why actual	Methodology	Assumptions
2.6.3 **CAR** **Average Kilometres Travelled** CY09 - CY13	A Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena. Note: The Fleet Management Companies contracted by Jemena during this period: • Interleasing - Jan09-Dec12. • Toyota Fleet Management - Jan13-Dec13.	Data was 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 kilometres reading at 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. Annual kilometres were derived by subtracting the January reading from the December reading for each vehicle, then dividing the total kilometres by the number of vehicles for the car category. Therefore, the average kilometres for this category were derived directly from this report.	No assumptions have been made in providing this information.
2.6.3 **CAR** **Number Purchased** CY09 - CY13	The information is sourced from SAP, the ERP system that JEN uses to capture its financial and some operational information.	The number of cars purchased was sourced from SAP. 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 date and asset descriptions and therefore was used to calculate the number of cars purchased.	All assets area categorised by their physical and operational characteristics.
2.6.3 **CAR** **Number Leased** CY09 - CY13	n/a Jemena fleet is owned, not leased.	n/a	n/a
2.6.3	A Monthly Fuel Usage Report provided by the	The number in fleet was calculated by referring to the	'Active' vehicles are assumed to be in service.

Variable	Source and why actual	Methodology	Assumptions
CAR **Number in Fleet** CY09 - CY13	Fleet Management Company contracted by Jemena. Note: The Fleet Management Companies contracted by Jemena during this period: • Interleasing - Jan09-Dec12 • Toyota Fleet Management - Jan13-Dec13.	"Summary of vehicles" identified as 'Active' on the monthly fuel card usage report.	
2.6.3 **CAR** **Proportion of Total Fleet Expenditure** CY09 - CY13	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 Kilometres Travelled** CY09 - CY13	A Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena. Note: The Fleet Management Companies contracted by Jemena during this period: • Interleasing - Jan09-Dec12 • Toyota Fleet Management - Jan13-Dec13.	Data was 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 kilometres reading at 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. Annual kilometres were derived by subtracting the January reading from the December reading for each vehicle, 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.	No assumptions have been made in providing this information.
2.6.3 **LIGHT COMMERCIAL VEHICLE**	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 was sourced from SAP. 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	All assets area categorised by their physical and operational characteristics.

Variable	Source and why actual	Methodology	Assumptions
Number Purchased CY09 - CY13		year. This report details the asset numbers, acquisition amounts, and acquisition date and asset descriptions and therefore was used to calculate the number of Light Commercial Vehicles purchased.	
2.6.3 **LIGHT COMMERCIAL VEHICLE** **Number Leased** CY09 - CY13	n/a Jemena fleet is owned, not leased.	n/a	n/a
2.6.3 **LIGHT COMMERCIAL VEHICLE** **Number in Fleet** CY09 - CY13	A Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena. Note: The Fleet Management Companies contracted by Jemena during this period: • Interleasing - Jan09-Dec12 • Toyota Fleet Management - Jan13-Dec13.	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 service.
2.6.3 **LIGHT COMMERCIAL VEHICLE** **Proportion of Total Fleet Expenditure** CY09 - CY13	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**	This is not a category used by JEN.	n/a	n/a

Variable	Source and why actual	Methodology	Assumptions
Kilometres Travelled CY09 - CY13			
2.6.3 **ELEVATED WORK PLATFORM (LCV)** **Number Purchased** CY09 - CY13	This is not a category used by JEN.	n/a	n/a
2.6.3 **ELEVATED WORK PLATFORM (LCV)** **Number Leased** CY09 - CY13	This is not a category used by JEN.	n/a	n/a
2.6.3 **ELEVATED WORK PLATFORM (LCV)** **Number in Fleet** CY09 - CY13	This is not a category used by JEN.	n/a	n/a
2.6.3 **ELEVATED WORK PLATFORM (LCV)** **Proportion of Total Fleet Expenditure** CY09 - CY13	This is not a category used by JEN.	n/a	n/a
2.6.3 **ELEVATED WORK PLATFORM (HCV)**	A Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena.	Data was sourced from the Fleet Management company fuel data reports - based on fuel card usage. This report identifies each vehicle by registration number and	No assumptions have been made in providing this information.

Variable	Source and why actual	Methodology	Assumptions
Average Kilometres Travelled CY09 - CY13	Note: The Fleet Management Companies contracted by Jemena during this period: • Interleasing - Jan09-Dec12 • Toyota Fleet Management - Jan13-Dec13.	records the kilometres reading at 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. Annual kilometres were derived by subtracting the January reading from the December reading for each vehicle, then dividing the total kilometres by the number of vehicles for the Elevated Work Platform (HCV) category. Therefore, the average kilometres for this category were derived directly from this report.	
2.6.3 **ELEVATED WORK PLATFORM (HCV)** **Number Purchased** CY09 - CY13	The information is sourced from SAP, the ERP system that JEN uses to capture its financial and some operational information.	The number of Elevated Work Platforms (HCV) purchased was sourced from SAP. 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 date and asset descriptions and therefore was used to calculate the number of HCV's purchased.	All assets area categorised by their physical and operational characteristics, in accord with the Fleet Management Strategy JEM ST0051.
2.6.3 **ELEVATED WORK PLATFORM (HCV)** **Number Leased** CY09 - CY13	n/a Jemena fleet is owned, not leased.	n/a	n/a
2.6.3 **ELEVATED WORK PLATFORM (HCV)** **Number in Fleet**	A Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena. Note: The Fleet Management Companies	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 service.

Variable	Source and why actual	Methodology	Assumptions
CY09 - CY13	contracted by Jemena during this period: • Interleasing - Jan09-Dec12 • Toyota Fleet Management - Jan13-Dec13.		
2.6.3 **ELEVATED WORK PLATFORM (HCV)** **Proportion of Total Fleet Expenditure** CY09 - CY13	All fleet expenditure is allocated as regulatory expenditure, and therefore the proportion of total fleet expenditure is 100%.	n/a	None
2.6.3 **HEAVY COMMERCIAL VEHICLE** **Average Kilometres Travelled** CY09 - CY13	A Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena. Note: The Fleet Management Companies contracted by Jemena during this period: • Interleasing - Jan09-Dec12 • Toyota Fleet Management - Jan13-Dec13.	Data was 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 kilometres reading at 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. Annual kilometres were derived by subtracting the January reading from the December reading for each vehicle, then dividing the total kilometres by the number of vehicles for the Heavy Commercial Vehicle category. Therefore, the average kilometres for this category were derived directly from this report.	No assumptions have been made in providing this information.

Variable	Source and why actual	Methodology	Assumptions
2.6.3 **HEAVY COMMERCIAL VEHICLE** **Number Purchased** CY09 - CY13	The information is sourced from SAP, the ERP system that JEN uses to capture its financial and some operational information.	The number of Heavy Commercial Vehicles purchased was sourced from SAP. 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 date and asset descriptions and therefore was used to calculate the number of Heavy Commercial Vehicles purchased.	All assets area categorised by their physical and operational characteristics, in accord with the Fleet Management Strategy JEM ST0051.
2.6.3 **HEAVY COMMERCIAL VEHICLE** **Number Leased** CY09 - CY13	n/a Jemena fleet is owned, not leased.	n/a	n/a
2.6.3 **HEAVY COMMERCIAL VEHICLE** **Number in Fleet** CY09 - CY13	A Monthly Fuel Usage Report provided by the Fleet Management Company contracted by Jemena. Note: The Fleet Management Companies contracted by Jemena during this period: • Interleasing - Jan09-Dec12 • Toyota Fleet Management - Jan13-Dec13.	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 service.
2.6.3 **HEAVY COMMERCIAL VEHICLE** **Proportion of Total Fleet Expenditure** CY09 - CY13	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
Zone 1 and Zone 2, Number of maintenance spans (0's) for "Urban and CBD" and "Rural" feeders	This variable is an actual for all years. The source of the information is 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. Reports are run directly from the VMS.	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), the whether the span is in a Hazardous Bushfire Risk Area (HBRA) or Low Bushfire Risk Area (LBRA).	No assumptions have been made in providing this information.
Zone 1 and Zone 2, Length of vegetation corridors (km) for "Urban and CBD" and "Rural" feeders	This variable is an actual for all years. JEN have no vegetation corridors recorded..	If JEN had any vegetation corridors they would be recorded in the vegetation management company's VMS.	No assumptions have been made in providing this information.
Zone 1 and Zone 2, Average frequency of cutting cycle (years) for "Urban and CBD" and "Rural" feeders	This variable is an actual for all years. The source of the information is the annual Jemena Electric Line Clearance Management Plans for these years.	There is no methodology to be applied to this response. It is a simple response.	No assumptions have been made in providing this information.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Zone 1 and Zone 2, Route line	This variable is an estimate for	Computer code is written to extract six files, they are: 1) List of all LV overhead mains	Only overhead conductor route length was to be considered, that is,	

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
length within zone (km) for “Urban and CBD” and “Rural” feeders	2013. For the 2013 CY this information was extracted from the JEN GIS. The JEN GIS represents the current state of the network and is therefore considered “actual”. For RIN B this value was calculated as a single figure in GIS using GIS data. In RIN C it was required for this figure to be divided into 2 zones and 2 feeder categories for each of the 5 years. Although the same base data was used (for RIN B and RIN C) it was required that the calculations be performed outside of GIS. This introduced minor discrepancies. To remove this discrepancy the RIN C figures were reduced proportionally so that the total equalled the RIN B figure.	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. 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 feeders. The GIS records information against every pole enabling the split between Zone 1 (LBRA) and Zone 2 (HBRA). To remove the discrepancy between the RIN B and RIN C figures (RIN B was a slightly smaller number) the RIN C figures were reduced proportionally so that the total equalled the RINB figure. As specified in the RIN, service lines are not included in this variable. The length of any underground cable is also not included here.	underground cable route length was excluded. Length of overhead services from poles to premises was excluded from the route length calculation. All conductor recorded as Usage “service” is not included in this variable.	
Zone 1 and Zone 2, Route line length within zone (km) for “Urban and CBD” and	This variable was estimated for 2009 to 2012 inclusive. Jemena’s Geographical	The GIS is the single source of the network connectivity model. A program has been developed within the	Only overhead conductor route length was to be considered, that is underground cable route length was excluded.	This is the best estimate because it has been calculated using a programmed methodology that is able to be repeated and is considered to

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
"Rural" feeders	Information (GIS) is the single source of actual data for route line length. The data is extracted directly from the GIS. The GIS is a live model of the network and represents that network at the current point in time. This means that a snap shot of the GIS network model or data is not made at the end of each year. Therefore it is not possible to report the route line length historically. The route line length has however been determined from the GIS at the end of 2013.	GIS to determine the route length of the network. 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 spans length of the single circuits has then been added to determine the total route length. Since this data (for prior years, 2009 to 2012 inclusive) is not available in the GIS it has been estimated based on known snapshots of "line length" for these years. These snapshots were sourced from internal reports. A ratio for the 2013 year between the Route Length and the Line Length was calculated and then proportioned by the same ratio across the Line length for prior years, 2009 to 2012 inclusive.	Length of overhead services from poles to premises was excluded from the route length calculation. All conductor recorded as Usage "service" is not included in this variable.	provide an accurate result.
Zone 1 and Zone 2, Total length of maintenance spans (km) for "Urban and CBD" and "Rural" feeders	This variable was estimated for all years. The Vegetation Management System (VMS) does not record the length of spans. The VMS records the pole number which represents the span closer to the zone substation from that pole. This variable is also not recorded	Using the Route length data the average route span length was calculated. The average route span length was multiplied by the number of Maintenance Spans reported from the VMS.	All voltages are cleared in the same single visit – known not always to be the case.	This is the best estimate because it has been calculated using a programmed methodology that is able to be repeated and is considered to provide an accurate result.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	in the GIS as a characteristic against each span and therefore required to be estimated.			
Zone 1 and Zone 2, Average number of trees per maintenance span (0's) for "Urban and CBD" and "Rural" feeders	This variable was estimated for all years. 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.	Average number of trees obtained from a physical survey of 400 spans conducted in Mar 2014. The 400 spans were divided in to four (4) categories and each had 100 spans surveyed, the categories are: – LBRA, urban feeder, – LBRA, rural feeder, – HBRA, urban feeder and, – HBRA, rural feeder. The survey scope was as follows: – 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	Based on local knowledge the spans selected for survey are considered to be representative in each of the four (4) categories.	The estimate is JEN's best estimate because the methodology is representative and provides reasonable accuracy. Other photographic data sources such as NDVI and NVIS do not lend themselves to accurate estimations numbers of trees per maintenance span. Also these systems require significant resource and time allocation to apply.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		cutting or no trees were not included in the survey.		

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);	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)
(b) a list of self-imposed standards from JEN's vegetation management program which apply to that zone; and	JEN Electric Line Clearance Management Plan JEN Bushfire Mitigation Plan JEN Customer Complaints Procedure VEM 20-50 Assessment Procedure (Jemena)

Requirement	Response
	VEM 10-05 Safety Observer/Offsider, Emergency Response & Single Person Work Procedure VEM 10-09 Guidelines for Conforming to Electrical Safety Requirements VEM 10-08 EWP Procedure VEM 10-06 Tree Climbing Procedure HSP 05-13 Working at Heights VEM 21-03 Management of Threatened Flora and Fauna VEM 20-02 Hazardous Tree and 56M Management Procedure
(c) an explanation of the cost impact of regulations and self-imposed standards on performing vegetation management work.	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; **Literal compliance** 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 the 31 March the following year). This required a change to our program from annual in the HBRA and 3 years 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. **Habitat Trees** The 2010 Regulations also added the requirement for DBs 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. **Consultation** 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.

Requirement	Response
	Vegetation program management costs are also increasing due to increasing customer expectations. This has resulted in additional consultation with customers, community groups and councils. **Service Lines** 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. 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. **Other Responsible Person (ORP) Follow Up** 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. 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. 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. **HSE** In order to comply with the Occupational Health and Safety Act JEN is constantly reviewing all components of their operations and

Requirement	Response
	investing time and resources into equipment, training, auditing and monitoring all crews to ensure that we have a safe workforce and community.

The response provided in the table above applies to both zone 1 and zone 2 that is, LBRA and HBRA respectively.

Actual information

Variable	Source and why actual	Methodology	Assumptions
Zone 1 Hazard tree cutting ($000's)	This variable is an actual for all years. 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 provided by the vegetation management company using reports from the VMS. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	No assumptions have been made in providing this information.
Zone 1 and Zone 2, Ground clearance ($000's)	This variable is an actual for all years. JEN has not initiated any ground clearance programs. This data is captured by the vegetation management company.	This information was provided by the vegetation management company using reports from the VMS. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	No assumptions have been made in providing this information.
Zone 1 and Zone 2, Vegetation corridor clearance ($000's)	This variable is an actual for all years. JEN has not initiated any vegetation corridor clearance programs. This data is captured by the vegetation management company.	This information was provided by the vegetation management company using reports from the VMS. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	No assumptions have been made in providing this information.
Zone 1 and Zone 2, Tree replacement program costs ($000's)	This variable is an actual for all years. JEN has not initiated any tree replacement programs. Any trees replaced are on a case by	This information was provided by the vegetation management company using reports from the VMS. These costs are inclusive of any related party margins for the period April 2010 to March 2012.	No assumptions have been made in providing this information.

Variable	Source and why actual	Methodology	Assumptions
	case basis negotiated with the customer.		

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
General Comments; Table 2.7.2 Expenditure Metrics by Zone.	Information is sourced from SAP, the ERP system that JEN uses to capture its financial information. As, expenditure is incurred, it is captured by activity (cost collectors). Activity codes can be used to identify various maintenance activities. Some overheads re applied to the direct costs that needs to be removed for this template, as the requirement is to disclose direct costs only. 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. The activities are allocated (% based) into categories e.g. routine, condition based and emergency.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Vegetation Management items disclosed in the RIN's template are sourced from SAP, the ERP system that JEN uses to capture its financial and some operational information. Conceptually, JEN's cost collection process uses a combination of cost and profit centres to collect costs at the macro level. Activities or networks 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 e.g. Faults, Emergencies, and Standards and Procedures. Note that the SAP network codes are also designed to identify the Regulatory category i.e. SCS, Public Lighting, ACS, etc. 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. JEN allocates	The primary purpose of these activities is for Vegetation Management works.	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.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		overheads to these activities based on its internal policies and in accordance with the AER approved Cost Allocation Method (**CAM**) The direct spend in Routine, Condition Based Maintenance and Emergency uses activity costing methodologies to capture of cost. Overhead percentages calculated for – Materials overheads (Store) – Non Labour (Tools, Training) – Regional and Property – Contract administration. and is deducted from the activity cost collectors. Direct Labour, Materials, Contracts & Other are derived from General Ledger account groupings, with network Overheads adjusted from respective account grouping. Itemised costing of vegetation management activities was provided by our vegetation management company. These itemised costs were then used to allocate the total annual expenditure across the variables in		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		table 2.7.2.		
Zone 1 and Zone 2, Tree trimming (excluding hazard trees) ($000's) Zone 1 and Zone 2, Inspection ($000's)	As per general comments above.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. The estimate for 2009 and 2010 is based on experience and an understanding of the increased volume of processing / management / liaison / consultation and negotiation that has been required as a result of the 2010 Electric Line Clearance regulations when compared with the 2005 Electric Line Clearance regulations. Therefore the ratio of the tree trimming component of the work in 2009 and 2010 compared with the other management costs is estimated to be higher than in 2011 to 2013. Therefore a ratio was applied: 4/5 for tree trimming and 1/5 for “other costs” (80:20)	There was significantly less “vegetation management” type activity required per vegetation defect processed when comparing the previous regulations to the current regulations.	The ratio 80:20 is considered realistic for tree trimming and other costs respectively based on experience and an understanding of the differences required to implement the Electric Line Clearance Regulations of 2005 and 2010.
Zone 2, Hazard tree cutting ($000's)	As per general comments above.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. This information is based on data provided by the vegetation management company using reports from the VMS.	The annual expenditure for this activity has the same ratio across all the variables in this table as those costs provided from the contractor’s VMS.	This is the best estimate because the actual VMS data provides the best possible ratio to apportion costs between the variables.
Zone 1 and Zone 2, Audit ($000's)	As per general comments above.	These costs are inclusive of any related party margins for the period April 2010 to March 2012.	The proportions of vegetation management audit costs to total vegetation management costs per year are similar.	Jemena and its vegetation management company have always conducted vegetation management audits.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		The Jemena contract coordinator prepared an estimate of the time spent auditing vegetation management services for the 2013 year; The vegetation management company did likewise. A ratio of the JEN audit cost for 2013 and the 2013 contractor liaison expenditure was then applied to all previous years to estimate the audit costs in those years. A ratio of the vegetation management company 2013 audit cost and the 2013 other vegetation management cost was then applied to all previous years to estimate the audit costs in those years. The estimated audit cost is then subtracted from the contributing variable for Jemena and the vegetation management company. The combined Jemena and vegetation management company estimated audit costs form the response to this variable.		The estimates provided by Jemena (contract coordinator) and the vegetation management company are based on current audit programs.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Zone 1 and Zone 2, Other Vegetation Management Costs not specified in sheet ($000's)	As per general comments above.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. The estimate for 2009 and 2010 is based on experience and an understanding of the increased volume of processing / management / liaison / consultation and negotiation that has been required as a result of the 2010 Electric Line Clearance regulations when compared with the 2005 Electric Line Clearance regulations. Therefore the ratio of the tree trimming component of the work in 2009 and 2010 compared with the other management costs is estimated to be higher than in 2011 to 2013. Therefore a ratio was applied to the invoiced amount: 4/5 for tree trimming and 1/5 for "other costs" (80:20)	There was significantly less "vegetation management" type activity required per vegetation defect processed when comparing the previous regulations to the current regulations. Refer also to the "audits" variable above.	The ratio 80:20 is considered realistic for tree trimming and other costs respectively based on experience and an understanding of the differences required to implement the Electric Line Clearance Regulations of 2005 and 2010.

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)	This data was sourced from reports prepared for and audited by the AER in accordance with the F-factor scheme requirements. This data is considered actual because it was prepared in compliance with the requirements	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. With less than 20% of records (typically) remaining the "Fault description" field was read and sorted in to these	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. If the data is unclear who the Responsible Person is

Variable	Source and why actual	Methodology	Assumptions
	of the F-factor scheme.	four (4) fire start variables. For 2011 only: For the 2011 calendar year the fault records in the database table "OAS data consolidated" were identified. The "Remarks" column was filtered for the words *fire* or *burn* and then further filtered for *tree*. The "Remarks" were read from the very few remaining records and then the records were sorted into these four (4) fire start variables.	for electric line clearance then JEN is assumed to be the Responsible Person.
Number of fire starts caused by vegetation blow-ins and fall-ins (NSP responsibility) (0's)	This data was sourced from reports prepared for and audited by the AER in accordance with the F-factor scheme requirements. This data is considered actual because it was prepared in compliance with the requirements of the F-factor scheme.	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. With less than 20% of records (typically) remaining the "Fault description" field was read and sorted in to these four (4) fire start variables. For 2011 only: For the 2011 calendar year the fault records in the database table "OAS data consolidated" were identified. The "Remarks" column was filtered for the words *fire* or *burn* and then further filtered for *tree*. The "Remarks" were read from the very few remaining records and then the records were sorted into these four (4) fire start variables.	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. If the data is unclear who the Responsible Person is for electric line clearance then JEN is assumed to be the Responsible Person.
Number of fire starts caused by vegetation grow-ins (Other Party Responsibility) (0's)	This data was sourced from reports prepared for and audited by the AER in accordance with the F-factor scheme requirements. This data is considered actual because it was prepared in compliance with the requirements	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. With less than 20% of records (typically) remaining the "Fault description" field was read and sorted in to these	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. If the data is unclear who the Responsible Person is

Variable	Source and why actual	Methodology	Assumptions
	of the F-factor scheme.	four (4) fire start variables. For 2011 only: For the 2011 calendar year the fault records in the database table "OAS data consolidated" were identified. The "Remarks" column was filtered for the words *fire* or *burn* and then further filtered for *tree*. The "Remarks" were read from the very few remaining records and then the records were sorted into these four (4) fire start variables.	for electric line clearance then JEN is assumed to be the Responsible Person.
Number of fire starts caused by vegetation blow-ins and fall-ins (Other Party Responsibility) (0's)	This data was sourced from reports prepared for and audited by the AER in accordance with the F-factor scheme requirements. This data is considered actual because it was prepared in compliance with the requirements of the F-factor scheme.	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. With less than 20% of records (typically) remaining the "Fault description" field was read and sorted in to these four (4) fire start variables. For 2011 only: For the 2011 calendar year the fault records in the database table "OAS data consolidated" were identified. The "Remarks" column was filtered for the words *fire* or *burn* and then further filtered for *tree*. The "Remarks" were read from the very few remaining records and then the records were sorted into these four (4) fire start variables.	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. If the data is unclear who the Responsible Person is 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-ROUTUNE MAINTENANCE

Actual information

Variable	Source and why actual	Methodology	Assumptions
ASSET QUANTITY - AT YEAR END	Information is sourced from Ex-Agility SAP and JSAP. All data for 2009, 2011, 2012 and 2013 are captured in Age Profile Section for EDPR and RIN submission for its respective year. This data was able to be provided without estimation due to the completeness of the age profile.	For All Assets: Sum of all assets as per asset category at the respective year end (2009, 2011, 2012 and 2013). For Distribution Transformers within Zone Substations: Zone Substation Equipment Maintenance -> Transformers Distribution -> Number of Distribution Transformers within Zone Substations (000'S) -> this asset category had not been reported in the RIN age profile for these following years: 2011, 2012 and 2013. The methodology taken for 2013 was to sum the total of this asset from the existing single line diagram. For 2012, 2011 and 2010, the approach taken was to identify if there was a new transformer / switchgear installed in a zone substation project upgrade for those years and whether JEN had installed in any additional distribution transformers in those ZSS during the upgrade.	Below are the assumptions made: 1. Pole Top, Overhead Line & Service Line Maintenance –> Service Lines → ONLY the total number of overhead services are reported in this category. 2. Network Underground Cable Maintenance: By Voltage -> LV – 11 to 22kV -> LV Mains, LV UG Services, 6.6kV, 11kV, 22kV are reported in this category.
ASSET QUANTITY - INSPECTED/ MAINTAINED	Information is sourced from Ex-Agility SAP and JSAP. Reference was made to the appropriate SAP Plant Maintenance (PM) Orders that were assigned to the maintenance activity. This information is actual with the	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. JEN added categories in Distribution Substation Maintenance and Property Maintenance and Zone Substation Equipment Maintenance. JEN deems these categories to be a better representation	No assumptions have been made.

Variable	Source and why actual	Methodology	Assumptions
	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.	of the work and aligned to its asset classes. The number of public lighting maintenance tasks were also analysed.	
AVERAGE AGE OF ASSET GROUP	Information is sourced from Ex Agility SAP and JSAP. All data for 2009, 2011, 2012 and 2013 are captured in Age Profile Section for EDPR and RIN submission for its respective year. This data was able to be provided without estimation due to the completeness of the age profile.	To calculate Average Age of Asset Group: Below is an example of the calculation of the average age of asset group in 2013: Average Age of Asset Group in 2013 = 2013 - [**SUM** (total asset installed in year 2013 * 2013 + total asset installed in year 2012 * 2012….) / Total asset installed from 1910 to year 2013]	No assumptions have been made.
INSPECTION CYCLE / MAINTENANCE CYCLE	Information is sourced from SAP.	All planned maintenance and inspection tasks are documented and managed using the SAP Plant Maintenance (PM) module functionality. 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. Where there are multiple cycles applicable for the same maintenance asset category, the cycle is to reflect the highest cost activity.	Not all asset categories have a maintenance cycle. This is because some 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.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
ASSET QUANTITY - INSPECTED/ MAINTAINED	Information is sourced from SAP. The pole and asset inspection activity involves pole, pole top, overhead conductor, underground cable termination, substation, switchgear and overhead service conductor inspection. The volume of pole top, overhead line and service line maintenance, 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.	**Pole top, overhead line and service line maintenance – pole tops and overhead lines.** 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. The number of pole tops inspected each year was determined by multiplying the number of poles inspected by the average number of crossarms per pole for that year. The average number of crossarms per pole was determined by dividing the total number of crossarms by the total number of poles. **Pole top, overhead line and service line maintenance – service lines.** 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. Given that the inspection of some pole inspection zones spans across years, the decision was made to allocate the inspection zone, and hence the number of services inspected to the year that the majority of pole inspections were completed.	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. 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. 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.	This is the best estimate because it uses the most relevant actual data as the basis of the estimate. The actual number of poles inspected per year and the actual number of pole tops in the network was used to determine the number of pole tops inspected per year. The actual number of circuit km of overhead line and service line within each pole inspection zone was used to determine the route km patrolled per year,

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		Overhead asset inspection – line patrolled. The number of route km of line patrolled was determined from the number of circuit km that were patrolled. The number of circuit km was estimated based on the pole inspection zones that were inspected in each year and the number of circuit km of HV and LV overhead conductor in that zone. Given that the inspection of some pole inspection zones spans across years, the decision was made to allocate the inspection zone, and hence the number of circuit km of overhead HV and LV conductor to the year that the majority of pole inspections were completed. In addition, the number of circuit km of overhead ST (subtransmission) patrolled each year was included. The year that each subtransmission line was patrolled is known by interrogating the pole inspection records in SAP. The circuit length of each line was identified from the Geographical Information System (GIS). Once the total LV, HV and ST circuit km patrolled each year was determined, the route kms were estimated. This was done by multiplying the number of circuit km patrolled each year by the ratio of total route km and the total circuit km.		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
ASSET QUANTITY - AT YEAR END 2010	JEN did not capture its asset age profile at year-end 2010.	JEN did capture its asset age profile at year-end 2011 for RIN A submission and the data from the age profile in 2011 has been used to estimate the asset age profile for year-end 2010. Below is the formula: Asset quantity at year end 2010 = Total assets – asset installed ONLY in year 2011 + assets removed ONLY in year 2011.	Assumptions: 1. Total public lights removed in 2011 were assumed to split as follows: 75% minor road and 25% major road.	This method uses the latest available actual data as the basis for the estimate.

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
General Comment: Table 2.8.2 Cost Metrics for Routine and Non-Routine Maintenance	Information is sourced from SAP, the ERP system that JEN uses to capture its financial information. As, expenditure is incurred, it is captured by activity (cost collectors). Activity codes can be used to identify various maintenance activities. Some overheads re applied to the direct costs that needs to be removed for this template, as the requirement is to disclose direct	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Maintenance items disclosed in the RIN's template are sourced from SAP, the ERP system that JEN uses to capture its financial and some operational information. Conceptually, JEN's cost collection process uses a combination of cost and profit centres to collect costs at the macro level. Activities or networks are set up to collect costs at a micro level. These activities/networks are designed to collect costs based on the activity on	JEN has a comprehensive model which underpins the maintenance costs disclosed in the RIN responses and previous RAS's. This model identifies the Direct Labour, Direct Materials, Contractor, Other Costs and Related Party Margins based on allocations from SAP. Where applicable embedded overheads have been removed from these costs using an agreed	This is the only workable method, other than manually assessing individual activity / network / internal order data for the years 2009 to 2013 and then applying an allocation to each of the years. However, this would be highly time consuming and the allocation % proposed would not be significantly different.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	costs only. As the activities in SAP are not setup to aggregate into the regulatory categories, further work to categorise the data to meet the requirements of the templates has been performed.	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 network codes are also designed to identify the Regulatory category i.e. SCS, Public Lighting, ACS, etc. 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. JEN allocates overheads to these activities based on its internal policies and in accordance with the AER approved Cost Allocation Method (**CAM**) The direct spend in Routine, Condition Based Maintenance and Emergency uses activity costing methodologies to capture of cost. Overhead percentages calculated for – Materials overheads (Store) – Non Labour (Tools, Training) – Fleet – 2009 & 2010 only – Regional and Property – Contract administration and is deducted from the activity cost collectors.	allocation methodology. Costs not recorded in the activities but applicable to the RIN C template where apportioned to the template. The activities were allocated (% based) into these categories (routine, condition based and emergency) based on business experience. This allocation methodology was applied in JEN's RIN C responses for all years.	

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		Direct Labour, Materials, Contracts & Other are derived from General Ledger account groupings, with network Overheads adjusted from respective account grouping. Costs recorded in the Direct Asset Support activities have been treated as direct costs for RIN C purposes and allocated to the Emergency and Maintenance templates. The costs have been allocated to Maintenance and Emergency in line with the split in RIN B. There were apportioned to activities using the direct labour cost as the basis. The following activities make up the Asset Support Costs – 200 Std & Policies Dev & Maint – 202 Asset Strategic Planning – 204 Asset Performance Validation – 206 Maintain Asset Records. These costs have been allocated in all years of the template.		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
POLE TOP, OVERHEAD LINE & SERVICE LINE MAINTENANCE-Non-Routine Maintenance Cost	As per general comment above	These costs are inclusive of any related party margins for the period April 2010 to March 2012. The list of SAP activities include; – 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 – 547 Overhead Line Maintenance	As per general comment above	As per general comment above
POLE INSPECTION AND TREATMENT - Routine	As per general comment above	These costs are inclusive of any related party margins for the period April 2010 to March 2012. The list of SAP activities include; – NOA Overhead Asset Inspection – NPA Pole Inspection – NPD Termite Treatment – 550 Pole and Line Inspection	As per general comment above	As per general comment above

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		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.		
OVERHEAD ASSET INSPECTION - Routine	As per general comment above	These costs are inclusive of any related party margins for the period April 2010 to March 2012. The list of SAP activities include; – MHT Distribution Substation Thermal Survey – NOC Line Switch Minor Adjustment – NOF Subtransmission/Feeder Thermal Surveys – 509 Thermovision	As per general comment above	As per general comment above
NETWORK UNDERGROUND CABLE MAINTENANCE: BY VOLTAGE and BY LOCATION – Non Routine	As per general comment above	These costs are inclusive of any related party margins for the period April 2010 to March 2012. The list of SAP activities include; – MUB Pits Maintained – MUG Pillar Maintenance – MUH Pillar Defects – MUI LV Cable And Joint Repairs – MUJ HV Cable And Joint Repairs	As per general comment above	As per general comment above

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		– 554 UG Cable HV Maintenance – 555 UG Cable LV Maintenance		
NETWORK UNDERGROUND CABLE MAINTENANCE: BY VOLTAGE and BY LOCATION – Non Routine	As per general comment above	These costs are inclusive of any related party margins for the period April 2010 to March 2012. The list of SAP activities include; – MUB Pits Maintained – MUG Pillar Maintenance – MUH Pillar Defects – MUI LV Cable And Joint Repairs – MUJ HV Cable And Joint Repairs – 554 UG Cable HV Maintenance – 555 UG Cable LV Maintenance	As per general comment above	As per general comment above

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
ZONE SUBSTATION PROPERTY MAINTENANCE - Routine	As per general comment above	These costs are inclusive of any related party margins for the period April 2010 to March 2012. The list of SAP activities include; – MPA Zone Substation Property Maintenance – MPB Zone Substation Property Maintenance Defects – MPC Zone Substation Property Maintenance Monthly Minor – 544 Zone & Distribution Substation Property	As per general comment above	As per general comment above
PROTECTION SYSTEMS MAINTENANCE - Routine	As per general comment above	These costs are inclusive of any related party margins for the period April 2010 to March 2012. The list of SAP activities include; – MHC ACR Inspection And Maintenance	As per general comment above	As per general comment above
SCADA & NETWORK CONTROL MAINTENANCE	As per general comment above	These costs are inclusive of any related party margins for the period April 2010 to March 2012. The list of SAP activities include; – 502 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
DISTRIBUTION SUBSTATION EQUIPMENT & PROPERTY MAINTENANCE	As per general comment above	These costs are inclusive of any related party margins for the period April 2010 to March 2012. The list of SAP activities include; – 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 – 549 HV Installation Distribution Maintenance	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	As per general comment above	These costs are inclusive of any related party margins for the period April 2010 to March 2012. The list of SAP activities include; – 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 – 542 Planned Maintenance Zone Subs – 543 Defect Maintenance Zone Subs & Communications	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)	This variable is actual data. There were no major storms (Tropical cyclone of Category 1 or above as classified by the Australian Bureau of Meteorology) in 2009 to 2013 and therefore this is not applicable to Jemena.	Not applicable.	Not applicable.
(C) MAJOR EVENT DAYS O&M EXPENDITURE ($000'S)	Information is sourced from SAP. Jemena Electricity Network (**JEN**) uses Activity Costing for the capture of costs in cost collectors. JEN also used a module in SAP - Plant Maintenance (PM) where cost collectors were assigned to the Emergency activity for the following event days is the basis for the actual information. The major event days were; – 28 January 2009 – 29 January 2009 – 14 March 2009 – 25 December 2011 and – 1 October 2013	These costs are inclusive of any related party margins for the period April 2010 to March 2012. The methodology included analysing all of the SAP Plant Maintenance (PM) cost collectors that were assigned to the Emergency activity code for the major event days. This is a standard SAP report. The MED threshold has been calculated for the 2013 Regulatory Year in accordance with the requirements in the STPIS. The MED threshold calculated for 2013 has then been applied as the MED threshold for Regulatory Years between 2009 and 2013 for the purpose of consistency in the criteria of determining MED similar to RIN B. The application of 2013 SAIDI MED threshold for previous years also considered the fact that 2009 and 2010 actual MED were determined by SAIFI threshold and inclusive of load shedding historically where the MED determination principle was significantly different from the current principle.	Only the cost assigned on the actual major event day has been reported. The RIN template makes the assumption that the works are carried out on the actual day and don't overflow in the next day (after 12:00am), which is not always the case.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
(A) TOTAL EMERGENCY RESPONSE EXPENDITURE ($000'S)	Information is sourced from SAP, the ERP system that JEN uses to capture its financial information. As, expenditure is incurred, it is captured by activity (cost collectors). Activity codes can be used to identify various maintenance activities. Some overheads re applied to the direct costs that needs to be removed for this template, as the requirement is to disclose direct costs only. 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. The activities are allocated (% based) into categories e.g. routine, condition based and emergency.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Maintenance items disclosed in the RIN's template are sourced from SAP, the ERP system that JEN uses to capture its financial and some operational information. Conceptually, JEN's cost collection process uses a combination of cost and profit centres to collect costs at the macro level. Activities or networks 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 e.g. Faults, Emergencies, and Standards and Procedures. Note that the SAP network codes are also designed to identify the Regulatory category i.e. SCS, Public Lighting, ACS, etc. 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. JEN allocates overheads to these activities based on its internal policies and in accordance with the AER approved Cost Allocation	The primary purpose of these activities is for maintenance and emergency works. It has also been assumed that all of the costs captured on the Major Event Days relate to that major event.	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.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		Method (**CAM**) The direct spend in Routine, Condition Based Maintenance and Emergency uses activity costing methodologies to capture of cost. Overhead percentages calculated for – Materials overheads (Store) – Non Labour (Tools, Training) – Fleet – 2009 & 2010 only) – Regional and Property – Contract administration. and is deducted from the activity cost collectors. Direct Labour, Materials, Contracts & Other are derived from General Ledger account groupings, with network Overheads adjusted from respective account grouping. Costs recorded in the Direct Asset Support activities have been treated as direct costs for RIN C purposes and allocated to the Emergency and Maintenance templates. The costs have been allocated to Maintenance and Emergency in line with the split in RIN		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		B. There were apportioned to activities using the direct labour cost as the basis. The following activities make up the Asset Support Costs – 200 Std & Policies Dev & Maint – 202 Asset Strategic Planning – 204 Asset Performance Validation – 206 Maintain Asset Records. These costs have been allocated in all years of the template.		

2.10 OVERHEADS

2.10.1 NETWORK OVERHEADS EXPENDITURE

Actual information

Variable	Source and why actual	Methodology	Assumptions
2.10.1 Network Overheads Actual	– The following items is disclosed as actual as it is sourced from RIN B *(see AER defined variable codes in the RIN B template, Refer to variables DOPEX0112A to DOPEX0123A)* or a GL account. – Advertising /Marketing	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Activity costs are sourced from SAP, the Enterprise Resource Planning (**ERP**) system that JEN uses to capture its financial and some operational information.	As JEN uses a high degree of time writing data into various activity codes, JEN assumes that the data collected is accurate. Note that JEN did not include Feed in Tariff costs as it treats these as a pass through and not as overheads.

Variable	Source and why actual	Methodology	Assumptions
	– Licence fee – GSL payments – Land Tax	Conceptually, JEN's cost collection process uses a combination of cost and profit centres to collect costs at the macro level. Activities or networks 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 e.g. Faults, Emergencies, and Standards and Procedures. Note that the SAP network codes are also designed to identify the Regulatory category i.e. SCS, Regulatory, ACS, etc. 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 an activity/network 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 CAM. These costs are inclusive of any related party margins where applicable.	

Variable	Source and why actual	Methodology	Assumptions
Metering	Information is sourced from SAP, the ERP system that JEN uses to capture its financial information. 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. Metering incurs costs that are not directly associated with the delivery of the AMI program. These Metering indirect costs include Customer Contact & Back Office, Management, Finance & HR, Service Delivery & Contract Management, Premises and a Corporate Cost Allocation from the Jemena group cost allocation methodology.	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. The methodology includes analysing all of the SAP cost codes that were assigned to the Metering indirect costs by our finance and operational staff. For CY 2009, 2010, 2012 and 2013, 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.	Nil assumptions

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
2.10. Network Overheads Estimated 2009 to 2013	Although JEN was able to source some data as required in the template from its ERP systems, JEN does not collect costs at the 6 mandatory levels for network overheads as required by the notice. JEN provided its best estimate for these categories by the developing allocators to allocate costs into these categories. Other expenditure category also	These costs are inclusive of any related party margins for the period April 2010 to March 2012. JEN uses its Enterprise Resource Planning (**ERP**) system, SAP to collect costs. These can be in the form of GL accounts and other functionalities such as Work Break Down Structures (**WBS**) and **Networks**/**Activities**. WBS and Networks are used to collect to costs a lower level. Essentially JEN uses various functions within its ERP system to collect costs.	Time writing data that is directly costed to Network Overhead Activities has been used as the primary allocator to split data into the six mandatory RIN categories. As time writing has been in place for more than 10 years, this form of allocation was assessed as being reliable for the period CY09 to March 12. An average of this period was used to complete the remainder of CY12 to CY13. The use of the underlying data in JEN's	As JEN does not collect costs according to the six mandatory RIN categories it used the methodology previously described. JEN is not aware of a superior estimate technique to disclose the costs into these categories.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	includes RIN B categories of Billing & Revenue, Customer Services & Other Standard Control Services.	External supplier costs are captured into its ERP system by receipting costs against JEN issued purchase orders. The Network Overheads treated as Estimated costs are due to the application of allocators derived from time writing in order to fulfil the mandatory requirements of RIN C. Overhead Expenditure Before Allocation – Standard Control Services (Gross including capitalised overheads) JEN records its operational overhead costs in cost centres which align to the JEN network. From these costs centres JEN capitalises of these costs, in accordance with accounting standards principles and internal policies or charge some to opex and maintenance activities, with the residual costs allocated over the regulatory categories. For the purposes of RIN C , RIN B categories such as Billing & Revenue, Customer Services and Other Standard Control Services have been combined within Other as one of the six mandatory Network Overhead categories. Capitalised Overheads JEN does capitalise some of its overheads, sourced from the network type activities	costs collectors is reasonable correct. Other overheads which are not network-related are sourced from the RIN B submission. (see AER defined variable code DOPEX0123A) An employee or business unit remains constant throughout the year. There are few line items disclosed in template 2.10 – Overheads which do not directly agree with those disclosed in RIN A & B because JEN took the view that the requirements of RIN C are more prescriptive than RIN B and RIN A, therefore it took a more functional perspective i.e. at a cost centre level rather than the allocation method used in in RIN A . An example in RIN A is the allocation of IT costs which are smeared across the various “Activities” in templates 12a & b. This means that some of the activities in in RIN A have an IT component but in RIN C, JEN disclosed the functional costs of IT that were allocated to it. However, JEN reconciled the total overheads disclosed in RIN C to the total disclosed in RIN B for both SCS & ACS.	

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		(generally Operational and Asset Management in nature) and corporate type activities (generally IT and Health and Safety activities). Over the years JEN, like any other business, will always look to improve its methodology of overhead allocation. These improvements are generated from enhancements to its time writing systems and surveys. Operational allocations are usually driven by the uses of direct time writing to an activity and can take the shape of allocation. (Described below under DSA activities) JEN's ERP system is designed to apply a level of overheads to its capex activities (WBS/Networks) JEN applies this by calculating a % overhead to be applied over the capex spend for the year. The calculation used is: *Direct Budget Overheads ÷ Total Budget Capex Program = Applied Overhead %* Examples of these are: – Direct Support Activities – capex nature (**DSA**) – It is not practical for, Program Managers and Snr Management to record time against a multitude of specific cost collectors. They time write to catch all cost collectors, which is then distributed over the specific cost collectors usually based on the underlying direct costs of the respective cost		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		collectors. – Asset Management – Residual costs (costs not cleared in cost centres) are similarly allocated to regulatory defined categories, using surveys or underlying allocators. As defined by the RIN, JEN must allocate its network overheads into six mandatory categories. However, because JEN does not collect costs at the level required by the notice, it interrogated data from its ERP systems and worked out various allocators to enable the allocation of the overheads into the prescribed categories. JEN sourced a monetary amount from time writing data (hours multiplied by a labour rate) for all years by employee name. JEN was able to apply each employee's monetary amount to the six mandatory categories required by the template e.g. Senior Management data was applied to the "network management" category. The compilation of the data generates a percentage which is used to allocate the network overheads into the 6 mandatory categories. Every year of the RIN is slightly different due the level of data sourced and changes to its systems and processes. Overhead before allocation – alternative		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		control services (Gross including capitalised overheads) These overheads are sourced from those reported in the ACS type templates in this RIN (e.g. Public lighting, Fee and Quoted Services) and split in to the six mandatory RIN categories using the same percentages as described above in the SCS section. Capitalised overheads This is discussed above.		
Metering	The total Metering indirect costs for CY 2011 is an estimate as there is a cost allocation from Customer Contact & Back Office to Meter Data Collection due to Meter Data Collection costs category was unrealistically low whereas Customer Contact & Back Office was unrealistically high in that year.	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. Information is sourced from SAP, the ERP system that JEN uses to capture its financial information. 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. Metering incurs costs that are not directly associated with the delivery of the AMI program. These Metering indirect costs include Customer Contact & Back Office, Management, Finance & HR, Service Delivery & Contract Management, Premises	It is assumed that the cost reallocation between Customer Contact & Back Office and Meter Data Collection closely reflects the actual results based on the best estimated information available.	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		and a Corporate Cost Allocation from the Jemena group cost allocation methodology. The estimate is based on total CY2011 Customer Contact & Back Office being unrealistically high and a cost reallocation of $704K was made taking those costs from Customer Contact & Back Office, to Meter Data Collection. This resulted in maintaining a reasonable unit activity cost rates across the reporting years.		

2.10.2 CORPORATE OVERHEADS EXPENDITURE

Actual information

Variable	Source and why actual	Methodology	Assumptions
Office of the CEO	Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation audited as part of the annual RAS/RIN.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Corporate overheads charged to JEN are recorded at a cost centre level at the source of origination (Jemena Ltd). Corporate overheads from Jemena are recorded in designated cost centres within JEN. Jemena provides a breakdown of the corporate overheads by cost centre. With improvement to systems effective from Nov 2013, each corporate overhead accounting record within JEN in SAP contains the details of the related Jemena cost centre. Costs of cost centres that carryout the functions of an Office of the CEO, such as executive oversight and board liaison on asset and financial management, stakeholder relations, and human resources, have been recorded under this variable.	

Variable	Source and why actual	Methodology	Assumptions
Finance	Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation audited as part of the annual RAS/RIN.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Corporate overheads charged to JEN are recorded at a cost centre level at the source of origination (Jemena Ltd). Each cost centre can be aligned to the variables in RIN C. Cost centres that capture the costs of functions given below have been recorded under this variable: • 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.	
Legal and Secretariat	Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation audited as part of the annual RAS/RIN.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Corporate overheads charged to JEN are recorded at a cost centre level at the source of origination (Jemena Ltd). Corporate overheads from Jemena are recorded in designated cost centres within JEN. Jemena provides a breakdown of the corporate overheads by cost centre. With improvement to systems effective from Nov 2013, each corporate overhead accounting record within JEN in SAP contains the details of the related Jemena cost centre.	

Variable	Source and why actual	Methodology	Assumptions
		Costs of cost centres that carryout Legal and Secretariat activities such as given below have been recorded under this variable: • Management and advice on economic regulation, environmental law, employment law, property law, and company law; and The role of company secretary.	
Human Resources	Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation audited as part of the annual RAS/RIN.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Corporate overheads charged to JEN are recorded at a cost centre level at the source of origination (Jemena Ltd Corporate overheads from Jemena are recorded in designated cost centres within JEN. Jemena provides a breakdown of the corporate overheads by cost centre. With improvement to systems effective from Nov 2013, each corporate overhead accounting record within JEN in SAP contains the details of the related Jemena cost centre. Costs of cost centres that carryout the functions given below have been recorded under this variable: • 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.	
Regulatory	Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation audited as part of the annual RAS/RIN.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Corporate overheads charged to JEN are recorded at a cost centre level at the source of origination (Jemena Ltd). Corporate overheads from Jemena are recorded in designated cost centres within JEN. Jemena provides a breakdown of the corporate overheads by cost centre. With improvement to systems effective from Nov 2013, each corporate overhead accounting record within JEN in SAP contains the details of the related Jemena cost centre. Cost centres that capture the costs of following activities have been recorded under this variable:	

Variable	Source and why actual	Methodology	Assumptions
		• Managing regulatory obligations and price reviews; and Consultations and regulatory relationships with governments, regulators and market operators. For the CY09 and CY10, a component of Regulatory costs was recorded as network overheads. JEN has disclosed this component as Corporate.	
Insurance	Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation audited as part of the annual RAS/RIN.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Corporate overheads charged to JEN are recorded at a cost centre level at the source of origination (Jemena Ltd). Corporate overheads from Jemena are recorded in designated cost centres within JEN. Jemena provides a breakdown of the corporate overheads by cost centre. With improvement to systems effective from Nov 2013, each corporate overhead accounting record within JEN in SAP contains the details of the related Jemena cost centre. Cost centres that capture the costs of activities given below have been recorded under this variable: • Procurement of insurance; and Management of risk, including for bushfire and other natural disasters.	
Information Technology	Corporate overhead are actuals that reconciles with the Enterprise Support Function allocation audited as part of the annual RAS/RIN.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Corporate overheads charged to JEN are recorded at a cost centre level at the source of origination (Jemena Ltd). Corporate overheads from Jemena are recorded in designated cost centres within JEN. Jemena provides a breakdown of the corporate overheads by cost centre. With improvement to systems effective from Nov 2013, each corporate overhead accounting record within JEN in SAP contains the details of the related Jemena cost centre. Cost centres that capture the costs of providing and managing IT infrastructure and services have been recorded under this variable.	

Variable	Source and why actual	Methodology	Assumptions
		For the CY09 and CY10, a component of IT costs was recorded as network overheads. JEN has disclosed this component as Corporate.	

2.11 LABOUR

2.11.1 COST METRICS PER ANNUM

Actual information

Variable	Source and why actual	Methodology	Assumptions
2.11 Labour **(TABLE 2.11.1CY13)**	Jemena (**JEM**) uses its Enterprise Resource Planning (**ERP)** system, SAP to process its payroll transactions. Jemena used its legacy SAP system to process these transactions until the implementation of its upgraded version of SAP (**JSAP**) which went live on 1 Apr 12. JSAP continued to be the system to process payroll transactions. These transactions captures information e.g. hours, rate per hour, various types of leave, overtime, bonus and termination/redundancy payments, payroll tax, etc. Within JEM's SAP system, each employee is assigned to a home cost centre with their costs distributed to a "receiving or distribution" cost centre. JEM uses a payroll reporting tool, "**Spinifex**" to extract most of the data required in the template. The information obtained in the reports is	JEN used an extract of relevant Jemena group employee data by cost centre to identify staff aligned to the JEN business unit. The report captures all employee id's that have charged time to a JEN cost centre at any point during the year. Although there are specific Operational cost centres that align to JEN, JEN used the Jemena group cost allocation methodology to allocate Corporate data to JEN. One of the requirements from the template is to categorise labour into AER defined categories. JEN did this by aligning employees by cost centre that are associated with Corporate, Network and Network Direct categories for the JEN network. JEN is required to further classify the employees into "Labour Classification Levels" i.e. Exec Management, Senior Manager, etc. JEN did this by providing the employee data to the respective Executive General Managers, who categorised their employees as required by the template. To determine the employees associated with the JEN Network, a Spinifex report was run with the following parameters - applicable period (CY13) and for the respective cost centres. To calculate the total $ amount, the Spinifex report was run with the parameters: employee numbers obtained from step 1 and period. This report shows total actual payment, hours and rate per hour for CY13 (ordinary and overtime). All direct network staff is allocated to 100% to JEN.	We used the stand down hours instead of occurrence as we don't have that information in the system. 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's in the corresponding employee category.

Variable	Source and why actual	Methodology	Assumptions
	consistent with the AER's definition of actual information as per National Electricity (Victoria) Law Division 4 of Part 3.	In table 2.11.1 Calculations are done to determine:	
		Average productive work hours per ASL (0's): (TCR hours + base hours-leave hours + overtime hours)* ASL%, • *TCR = Total Cost of Remuneration* • *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.* • For Non-Corporate staff the ASL is the no. of employees that have charged time to a Jemena Cost centre during the year. • For Corporate staff the ASL is the no. of employees in corporate cost centre during the year multiplied by the time writing percentage.	
TABLE 2.11.2 (CY13)	This table requires JEN to provide various metrics for CY13. The source of the information is described above.	JEN provides below, the formulae to calculate the metrics as requires by this template. **Average productive work hours per ASL - ordinary time (0's**): **(TCR** hour + base hour-leave hour)* ASL %) **Average productive work hours hourly rate per ASL - ordinary time (0's):** (TCR rate + base rate-leave rate)/ Average productive work hour per ASL –ordinary time) **Average productive work hours per ASL - overtime (0's):** Overtime hours,(from Spinifex)/employees worked overtime **Average productive work hours hourly rate per ASL - overtime (0's):**	

Variable	Source and why actual	Methodology	Assumptions
		Overtime rate/overtime hours.	

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
2.11 Labour **Table: 2.11.1 (CY09-12)**	JEN has estimated the data for CY09 to CY12 as it is difficult to align staff to cost centres as is done for CY13. This is due to the various reorganisations Jemena had over the years. JEN assumed the group allocation percentages in December 2013 to JEN to be consistent throughout the year, despite organisation structure changes. The schedule has deemed any amounts that have the percentage allocator applied to them are estimates.	The average salary increase provided by the Jemena Compensation and Rewards team was used to deflate the total labour cost from CY12 to CY09. For JEM corporate staff, JEN has used the % of their time allocated to JEN plus a % of their time allocated to the Corporate level, multiplied by the adjusted fair value % relevant to JEN. All direct network staff are allocated 100% to JEN. The allocation to JEN is based on time writing / FTE survey results used for December 2013 only.	JEN assumed the overall average Jemena labour cost increase each year was reflective of the JEN workforce labour increases. JEN tested this assumption on a sample basis against the Enterprise Bargaining Awards EBA increases, the variance is considered immaterial. JEN also assumed the ASL, stand-down occurrences per ASL, average productive work hours per ASL are the same for CY09 to CY13. JEN also assumed that the ASL's remained constant for the prior years (prior to CY13) mainly due to difficulty of obtaining historical data. Management considers that this is a reasonable assumption given that the value increase in the Network does not necessarily result in an increase in ASL's. Peaks in Network expansion is usually resourced by the use of specialised sub-contractors. Management considers that since the value of assets is related to the age of assets, it is not a good measure of the effort required for asset management.	This approach is the most reasonable given the availability of data. JEN is not aware of a superior technique, given the data availability constraints. Although it is difficult to obtain historical information, due to changes in employee cost centres, i.e. employees move from one cost centre to another, unit rates e.g. rate per hour or hours per ASL will not materially change.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
			Newer assets can have the same level of management exertion as older assets, due to failure rates, new connections and load growth. On the basis that all other assumptions are equal, the staff required to manage the assets increases with the volume of assets. If the volume of assets increased by a significant percentage there may be a requirement to increase asset management staffing accordingly. In order to determine whether the increase in volume of assets since 2009 provides a justification for an increase in asset management staff numbers, a comparison of number of assets in 2009 and 2013 (data sourced from asset management plans), identifies that there was an average increase of 5.4% in asset volume which is insufficient to justify an increase in staff. Management considers that the underlying permanent staffing of this division is relatively stable and where there are material peaks in work activity, these are normally resourced by the use of specialised sub-contractors. It is also unlikely that that staff from the Electricity network will work Jemena's Gas Network as there are special skills required to work on the networks. However, staff at the senior management level can work on	

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
			either network. JEN also receives support from Jemena's Corporate functions e.g. HR, Finance, IT, Regulatory and Legal. Management considers that although staffing levels do change, they tend to remain reasonably constant. During the various restructures of the corporate functions there were staff changes but usually between function e.g. Payroll was changed from HR to Finance during this RIN period.	
2.11 Labour **Table: 2.11.2** (CY13)	For Jemena corporate staff, JEN has used the % of their time allocated to JEN plus a % of their time allocated to the Corporate level, multiplied by the adjusted fair value % relevant to JEN.	For JEM corporate staff, JEN has used the % of their time allocated to JEN plus a % of their time allocated to the Corporate level, multiplied by the adjusted fair value % relevant to JEN. All direct network staff are allocated 100% to JEN. The allocation to JEN is based on time writing / FTE survey results used for December 2013 only. JEN provides below, the formulae to calculate the metrics as requires by this template for the corporate overheads internal labour costs Average productive work hours per ASL - ordinary time (0's): (TCR hour + base hour-leave hour)* ASL %) Average productive work hours hourly rate per ASL - ordinary time (0's): (TCR rate + base rate-leave rate)/ Average productive work hour per ASL –ordinary	None	This approach is the most reasonable given the availability of data. JEN is not aware of a superior technique, given the data availability constraints. Although it is difficult to obtain historical information, due to changes in employee cost centres, i.e. employees move from one cost centre to another, unit rates e.g. rate per hour or hours per ASL will not materially change.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		time) Average productive work hours per ASL - overtime (0's): Overtime hours,(from Spinifex)/employees worked overtime Average productive work hours hourly rate per ASL - overtime (0's): Overtime rate/overtime hours.		

2.12 INPUT TABLES

Actual information

Variable	Source and why actual	Methodology	Assumptions
Template 2.12 – Input Tables **EXPENDITURE** (OPEX & CAPEX) Global description for Actual with details contained below	This information 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. JEN's costs are derived from internal and external sources. Internal costs are labour costs and are captured via time writing. Where practical and appropriate, all Jemena employees time write to an activity/network code or client e.g., JEN. These form direct costs together with external costs sourced from	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. The general ledger account and/or activity codes are used to determine the following cost categories: • **Direct Materials** • **Direct labour** • **Direct Contractor** • **Direct Other**	No assumptions have been made in providing this information.

Variable	Source and why actual	Methodology	Assumptions
	receipting against purchase orders. At a macro level, JEN's cost collection process uses a combination of SAP functionality e.g. projects, cost and profit centres. At a micro level, JEN uses activity and network codes which roll up to a project or cost centre to collect costs.	• **Related Party Contract Margin** The figures extracted tie back to prior year's Regulatory Accounts, inclusive of margins for the period Apr10-Mar12. Note: No items exist for **Related Party Contract.** JEN took 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.	
EMERGENCY RESPONSE	Information is sourced from SAP. JEN uses Activity Costing for the capture of costs in cost collectors. JEN also used a module in SAP - Plant Maintenance (PM) where cost collectors were assigned to the Emergency activity for the following event days and is the basis for the actual information. The major event days were: • 28 January 2009 • 29 January 2009 • 14 March 2009 • 25 December 2011; and • 1 October 2013	The methodology included analysing all of the SAP Plant Maintenance (PM) cost collectors that were assigned to the Emergency activity code for the major event days. The costs were validated by engineers who are responsible for the costs against these activities. This is a standard SAP report.	Only the cost assigned on the actual major event day has been reported. The RIN template makes the assumption that the works are carried out on the actual day and don't overflow in the next day (after 12:00am), which is not always the case.

Variable	Source and why actual	Methodology	Assumptions
METERING	Metering costs were allocated to the following cost categories in the Actual Template: ***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. ***Other Cost:*** Other Costs which has been reported represents the capitalised interest incurred by AMI. During CY10 JEN's corporate owner charged JEN with its share of capitalised interest. This data was sourced from the capex reports from JEN's SAP system. ***Related Party Contract Margin:*** The data is sourced from SAP. A related party margin is applied to both capex and opex costs for the Jan-09 to Mar-12 period. This margin is included as part of the total costs in each of the direct cost categories, as well as being disclosed separately in the Related Party Contract Margin section.	The methodology includes analysing all of the SAP cost codes that were assigned to the meter purchases by our finance and operational staff. The cost of meter purchases was sourced from the monthly Financial Model for Type 4 meters. This model derives the cost of meters from a 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. JEN capitalised the interest on the borrowing costs for funding of the AMI program in CY10 as a one off exercise. JEN's corporate owner decided to cease this practice as the eligible borrowing costs were required to be reported on the group level. As above under the variable Template 2.12 – Input Tables Expenditure (Opex & Capex).	An assumption has been made that only meter purchase costs are reported under this direct material cost category.

Variable	Source and why actual	Methodology	Assumptions
NON-NETWORK *Buildings and Property* 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.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Template 2.12 – Input Tables **EXPENDITURE** (OPEX & CAPEX) Global description for Estimate with details contained below	Information is sourced from SAP, the ERP system that JEN uses to capture its financial information. 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. Some overheads are applied to the direct costs that need to be removed for this template, as the requirement is to disclose direct costs only. 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	Conceptually, 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. By extracting the SAP costs the general ledger account and the activity codes can be used to determine the following cost categories: • **Direct Materials** • **Direct labour** • **Direct Contractor** • **Direct Other** • **Related Party Contract Margin** The figures extracted tie back to prior year's Regulatory Accounts, inclusive of margins for the period Apr10-Mar12. No items exist for **Related Party Contract.** JEN took 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.	Where applicable embedded overheads have been removed from these costs using an allocation methodology.	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	the templates. As the Engineers use their judgement in the categorisation, of these costs, they then become an estimate.	The percentage of overhead for each category of cost in each year was calculated. This was then applied to the cost extracted from the system and used to arrive at the total cost stack. During the 5 year period, extraction of the costs differed and noted below: • **2009 to March'10** – The general ledger accounts include the overhead component computed by SAP. To arrive at the direct material, direct labour, direct contractor and direct other cost categories, overheads are excluded from the total cost stack. • **April'10 to Dec'10** –The general ledger accounts include the overhead component computed by SAP as well as intercompany margins. To arrive at the direct material, direct labour, direct contractor and direct other cost categories, overheads are excluded from the total cost stack. The margin included within the direct material, direct labour, direct contractor and direct other has been calculated at [c-i-c[redacted]] of direct costs and is separately disclosed. • **Jan'11 to March'12** – The general ledger accounts include the overhead component computed by SAP as well as intercompany margins. To arrive at the direct material, direct labour, direct contractor and direct other cost categories, overheads are excluded from the total cost stack. The margin included within the direct material, direct labour, direct contractor and direct other has been calculated at [c-i-c[redacted]] (for both capex and opex).		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		• **April'12 to Dec'13** – The cost of direct labour, direct material, direct contract and direct others are based on the general ledger accounts used in SAP and there were no intercompany margins. This basis of estimation is applicable to Vegetation Management, Routine Maintenance, Non-Routine Maintenance, Augmentation, Connections, Emergency Response, Public Lighting and Replacement Expenditure.		
VEGETATION MANAGEMENT	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). Refer to Template 2.7 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).
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). Refer 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). Refer 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 was 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 & CAPEX), for items where JEN	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. *Capitalised Overheads:* JEN applies overheads to capex activities that by	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
	could not provide actual data it provides its best estimate for these items.	calculating a % overhead to be applied over the capex spend for the year. The calculation used it: *Direct Budget Overheads ÷ Total Budget Capex Program = Applied Overhead %* JEN's ERP system has the functionality to apply the percentage to applicable capex spend. Examples of these are: • Direct Support Activities (***DSA***) – it is not practical for program managers and senior management to record time against a multitude of specific cost collectors. Instead, they time write to a catch-all cost collector, which is then distributed over the specific cost collectors, usually based on the underlying direct costs of the respective cost collectors. • Asset management – residual costs (costs not cleared in cost centres) are similarly allocated to regulatory defined categories, using surveys or underlying allocators. *Opex and Maintenance Overheads:* JEN collects its overheads in cost centres and 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 maintenance type templates, overhead components are captured as part of the Network overhead section of this template.		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		A requirement of this template is that JEN must disclose the overhead costs by 'Network Overheads' and 'Corporate Overheads' in to the following categories: • **Direct Materials** • **Direct labour** • **Direct Contractor** • **Direct Other** • **Related Party Contract Margin** However, as JEN does not collect costs to the level above, it interrogated the data from its ERP system and worked out various allocators to enable the allocation of the overheads into the prescribed categories. ***Network Overheads:*** JEN has specific cost centres and activity codes that charge costs to DSA and residual network cost centre costs. Allocators were established by completing a cost centre analysis of these particular cost centres. The analysis involved categorising the general ledger accounts used into the various materials, labour, contractor etc. cost categories. ***Corporate Overheads:*** 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'.		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
AUGMENTATION	Direct augmentation expenditure data for the five years was sourced from SAP, JEN's ERP system. Although JEN was able to source the data at the asset group level and to some degree at the asset category level from its ERP systems, JEN provided its best estimate for areas within the asset category that is not recorded in its ERP systems. Further work was 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 of Preparation for Template 2.3.	Please see above under the variable Template 2.12 – Input Tables **EXPENDITURE** (OPEX & CAPEX) for global description on the basis for estimate. To further categorise the augmentation expenditure to the requirements of this template, the JEN engineers assigned the costs to the appropriate categories based upon the activity and service codes. In order to populate the relevant sections of the template, categorisation choices for six "Activity Descriptions" were derived from a project master-file data sheet developed by JEN Engineers, outside the ERP system. All expenditure line items were assigned to the appropriate classifications based upon project activity and project description. The engineer's mapped the various Augex projects into the categories listed below, as JEN does not collect the costs to the level required by the template. The six "Activity Descriptions" used were: (1) Subtransmission substations, Switching stations, Zone substations (2) Subtransmission lines (3) HV Feeders (4) Distribution substations (5) LV Feeders (6) Other assets In addition, any land purchases and easements expenditure relating to HV Feeders, Distribution Substations and LV Feeders was identified. The information was analysed and sorted in excel (via v-	JEN assumes data was accurately recorded against augmentation expenditure projects in the SAP system.	JEN is not aware of a superior estimation technique. However, the details reported as an estimate because further work was required to be performed upon the base data. Qualified JEN Engineers categorised the data in the format required to populate this template.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		lookup function and pivot tables) to provide an input sheet for entry of the data into the "Augmenation" section of the RIN C Template Input Table.		
CONNECTIONS	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). Refer to Template 2.5 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).
EMERGENCY RESPONSE	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). Refer to Template 2.9 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).
PUBLIC LIGHTING	As above under the variable Template 2.12 – Input Tables **EXPENDITURE** (OPEX & CAPEX).	Please see above under the variable Template 2.12 – Input Tables **EXPENDITURE** (OPEX & CAPEX) for global description on the basis for estimating public lighting capex. Refer to Template 4.1 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).
METERING	Metering costs relating to Direct Labour and Contract Cost were estimated and discussed individually below: **Direct Labour Costs** The Direct Labour costs are captured in SAP payroll. On a monthly basis, payroll provide the amounts paid by relevant employees from SAP which are	CY13: An allocation method is used to report the direct labour costs for both opex and capex. May-13 was selected as the base for the cost allocation method. The allocation is calculated as follows: Total Direct Labour (Metering) ÷ Total Capex and Opex Cost This percentage calculated was then applied to the total yearly expenditure to derive the calendar year direct labour	An assumption has been made that the May -CY13 AMI team structure is representative of those reporting years from CY12 to CY09.	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	allocated based on services performed. The salary payment allocations have slightly varied across the reporting years, so direct labour costs have been estimated. **Contract Cost:** Contract cost is reported as an estimate as it is the balancing item of the total yearly costs after deducting the Direct Material, Labour and Other costs. As Direct Labour cost is an estimate which makes Contract cost inherently an estimate also.	costs. CY09 to CY12: The derived figure for CY13 was then de-escalated with CPI figures to calculate the prior year's labour costs. The methodology used is to treat the Contract cost as the balance of the total yearly costs after excluding Direct Material, Direct Labour & Other Costs. A related party margin is applied to both capex and opex costs for the Jan-09 to Mar-12 period.		
FEE-BASED SERVICES	CAPEX which is in line with the description above under the variable Template 2.12 – Input Tables **EXPENDITURE** (OPEX & CAPEX). OPEX for the periods CY09-12 was calculated by using the percentage derived from direct materials, labour, costs and other as a percentage of the total cost	A percentage allocation for each cost categories was calculated based on CY13's cost stack (e.g. direct labour as a percentage of total direct costs). This percentage was applied to the total amount of direct costs for CY09-12 to derive the direct cost categories as required in this template. Fee-Based capex for CY09-CY10 was derived based on the average breakdown of cost categories in the CY11-13 period.	CY13 is representative of the costs incurred in CY09-CY12. The average breakdown of cost categories in the CY11-13 period as a proportion of direct costs, is a reasonable approximation of the breakdown of the CY09-10 cost categories for capex.	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	stack in CY13.			
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	Direct replacement expenditure data for the five years was sourced from SAP, JEN's ERP system. Although JEN was able to source the data at the asset group level and to some degree at the asset category level from its ERP systems, JEN provided its best estimate for areas within the asset category that is not recorded in its ERP systems. Further work was 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.	Please see above under the variable Template 2.12 – Input Tables **EXPENDITURE** (OPEX & CAPEX) for global description on the basis for estimate. 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 were assigned the appropriate categorisations. In order to populate the relevant sections of the template, categorisation choices for "Class", "Sub-class" and "Voltage" were derived from a project master-file data sheet developed by JEN Engineers, outside the ERP system. All expenditure line items were assigned to the appropriate classifications based upon project activity and project description. The first (and highest) level category used was "Class" These classes corresponded to the high level data input requirements of this template. The following classes were used: • OH Conductors • Other • Poles • Poletop Structures • Public Lighting	JEN assumes data was 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
		• Service Lines • Switchgear • Transformers • UG Cables The second level category used was “Sub-class” These sub-classes corresponded to more detailed level data input requirements for this template. The following sub-classes were used: • Bus • Capacitor Bank • Circuit Brakers • Connectors • 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 The third (and lowest) level category used was “Voltage” These voltages corresponded to the most detailed level data input requirements of the RIN C Template The		

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		following three voltages were used: • High Voltage • Low Voltage • Sub-transmission The information gathered (by the process described above) was 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. Where JEN's expenditure categories did not precisely match the template classifications, the JEN Engineers further analysed the detailed project data to allocated costs within high level asset categories across the detailed line items contained in this template. In accordance with the instructions for completion of this RIN, public lighting expenditure was included in both the "Replacement" expenditure section and the "Public Lighting" section of this template.		
NON-NETWORK *IT and Communications* Opex	CAPEX which is in line with the description 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. IT capex is considered an estimate because JEN does not directly capture costs in accordance with the cost categories of this template. The	IT costs are attributed using casual drivers, including ownership and use of applications, number of service requests and number of PCs used as a share of total Jemena PC's. The costs have been categorised to the following : ***Direct Labour*** Actual labour by calendar year is available for total	None	JEN is not aware of a superior estimation technique.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Capex	judgement of experienced IT personnel is required to further categorise the data,	corporate costs. The IT labour costs as a percentage of the total labour corporate costs was applied to JEN's total direct opex costs to derive the direct labour costs. ***Other Costs:*** This is the balancing item of IT costs from the general ledger, excluding direct labour noted above. Several methods were used to allocate the costs to the various categories: • Software costs were allocated entirely to direct materials as such costs were incurred for the acquisition of software licenses. • Client Devices were allocated entirely to materials as such costs were incurred for the purchase of device items. • For all other projects, the business cases were used to allocate the cost to the various categories. The business case provided 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) was used and was determined by experienced IT personnel.	Jemena only maintain 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. JEN has made the assumption that motor vehicle expenditure incurred by JEN is entirely direct materials.	JEN is not aware of a superior estimation technique.
Motor Vehicles 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.	Motor vehicle operating expenditure was 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 has made the assumption	JEN is not aware of a superior estimation technique JEN is not aware of a superior estimation technique

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Capex			that the majority of building and property expenditure should be classified to the 'Other' cost category.	
	.	The cost for motor vehicles is arrived at from purchases made directly to the asset using SAP purchase orders. As such, the costs were entirely allocated to the direct materials category.		JEN is not aware of a superior estimation technique
Buildings and Property 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 expenditure was allocated between Direct Labour, Contract Cost and Other Costs. Where the costs of a site were derived from a general ledger extract, the costs were allocated to the cost categories of this template based on the general ledger account description. For all other sites, the entire cost was allocated to the "Other" cost category.	JEN has made the assumption that 'Other' capital expenditure incurred by JEN is entirely direct materials.	JEN is not aware of a superior estimation technique
Other Capex	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.	'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 such, the costs were entirely allocated to the direct materials category.		

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	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. The GIS represents the current state of the network and is therefore considered "actual".	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. 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.	No assumptions have been made in providing this information.

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	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. In this case, only a small percentage of the lights installed between 2009 and 2013 had an unknown installation date, therefore this data is considered to be an actual.	The GIS is the single source of the public lighting physical inventory, therefore we are able to count the number of lights. To determine the volume of major road and minor road installations in each year, one of two data fields against each light was used. These two data fields are "date installed" and "estimated date installed"	No assumptions have been made in providing this information, however where the date installed for the light is unknown the estimated date installed has been used. The estimated date has been populated in the GIS based on a documented methodology. In this case, only a small percentage of the lights installed between 2009 and 2013 have an unknown installation date.
Light Installation – Volume of Works and Expenditure – Number of Poles Installed	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. In this case, only a small percentage of the poles installed between 2009 and 2013 had an unknown installation date, therefore this data is considered to be an actual.	The GIS is the single source of the public lighting physical inventory, therefore we are able to count the number of public lighting poles. To determine the volume of public lighting poles installed in each year, one of two data fields against each public lighting pole was used. These two data fields are "date installed" and "estimated date installed"	No assumptions have been made in providing this information. The estimated date has been populated in the GIS based on a documented methodology. In this case, only a small percentage of the poles installed between 2009 and 2013 have an unknown installation date.

Variable	Source and why actual	Methodology	Assumptions
Light Installation – Volume of Works and Expenditure – Total Cost	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.
Light Replacement Volume of Works and Expenditure – Major Road Light Replacement & Minor Road Light Replacement	Light replacement work is recorded using SAP Notifications. The notification is created against the specific light that requires replacement. The other source of data is the monthly reports from the public lighting prime contractor. 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.	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. The SAP Public Lighting Codes (MAQ) were; RLJ (Replace Single Light on Main Road) – All notifications with activity code RLJ relate to “Major Road Light Replacement”. RLM (Replace Single Light Minor Road) – All notifications with activity code RLM relate to “Minor Road Light Replacement”. The public lighting notifications were extracted from SAP for the period 2009 to 2013 and analysed.	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. Note that prior to June 2012, public lighting notifications were generated in SAP (now known as Legacy SAP). The system was transitioned from Legacy SAP to JSAP. Therefore 2012 public lighting notification data is a combination of Legacy SAP and JSAP. Data for previous years (2009 to 2011) has been sourced from Legacy SAP. It has been assumed that the words “MAJOR ROAD LIGHT INSTALLATION VOLUME (000'S)”, and “MINOR ROAD LIGHT INSTALLATION VOLUME (000'S)” means “REPLACEMENT” rather than “INSTALLATION”

Variable	Source and why actual	Methodology	Assumptions
Light Replacement Volume of Works and Expenditure – Number of Poles Installed	Pole replacement work is recorded using SAP Notifications. The notification is created against the specific pole that requires replacement. The other source of data is the monthly reports from the public lighting prime contractor.	By extracting the SAP notifications related to specific SAP Public Lighting Codes and using monthly pole replacement quantities supplied to us by our prime public lighting contractor, we can determine the quantity of public light pole replacement activities. The SAP Public Lighting Codes (MAQ) were; RPA (Public Lighting Pole Replacement on Main Road) – All notifications with activity code RPA relate to “Major Road Light Pole Replacement”. RPB (Public Lighting Pole Replacement on Minor Road) – All notifications with activity code RPB relate to “Minor Road Light Pole Replacement”.	Although not impacting the total number of pole installed, it is worth noting that in instances where the public lighting pole is of a non-standard type (such as that supplied by Vic Roads or Councils) our prime contractor for public lighting services arranges for the supply and installation of the pole. The quantity of standard and non-standard pole replacement performed by our prime public lighting contractor is provided to us on a monthly basis. Note that Jemena supplies standard public lighting poles to our prime public lighting contractor. Note that prior to June 2012, public lighting notifications were generated in SAP (now known as Legacy SAP). The system was transitioned from Legacy SAP to JSAP. Therefore 2012 public lighting notification data is a combination of Legacy SAP and JSAP. Data for previous years (2009 to 2011) has been sourced from Legacy SAP. It has been assumed that the words “NUMBER OF POLES INSTALLED (000'S)” means “REPLACEMENT” rather than “INSTALLATION”

Variable	Source and why actual	Methodology	Assumptions
Light Maintenance Volume of Works and Expenditure – Major Road Light Maintenance & Minor Road Light Maintenance	Light maintenance works is recorded using SAP Notifications. The other source of data is the monthly reports from the public lighting prime contractor. The majority of the notifications are created by the 24x7 call centre which takes calls from the public regarding lights that require maintenance. 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. 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.	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. The SAP Public Lighting Codes (MAQ) were; MLF (Main Road Public Lighting Fault) – All notifications with activity code MLF relate to “Major Road Light Maintenance”. MRB (Bulk Lamp Replacement – Minor Roads) – All bulk lamp replacements are considered a maintenance activity performed on Minor Roads. MRC (Removal of Security Beam) – All notifications with activity code MRC relate to “Removal of Security Beam” and are considered a maintenance activity performed on Minor Roads. MRF (Minor Road Public Lighting Fault) – All notifications with activity code MRF relate to “Minor Road Light Faults”. MRW (Maintenance of a Security Beam) – All notifications with activity code MRW relate to “Maintenance of a Security Beam” and are a maintenance activity performed on Minor Roads. The public lighting notifications were extracted from SAP for the period 2009 to 2013 and analysed.	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. Note that prior to June 2012, public lighting notifications were generated in SAP (now known as Legacy SAP). The system was transitioned from Legacy SAP to JSAP. Therefore 2012 public lighting notification data is a combination of Legacy SAP and JSAP. Data for previous years (2009 to 2011) has been sourced from Legacy SAP. It has been assumed that the words “MAJOR ROAD LIGHT INSTALLATION VOLUME (000'S)”, and “MINOR ROAD LIGHT INSTALLATION VOLUME (000'S)” means “MAINTENANCE” rather than “INSTALLATION”

Variable	Source and why actual	Methodology	Assumptions
Light Maintenance Volume of Works and Expenditure – Number of Poles Installed	Light maintenance works is recorded using SAP Notifications. The other source of data is the monthly reports from the public lighting prime contractor. The majority of the notifications are created by the 24x7 call centre which takes calls from the public regarding lights that require maintenance. 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 on.	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. The SAP Public Lighting Codes (MAQ) were; 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. MOL (Pole Straightening) – All notifications with activity code MOL relate to “Maintenance of a Public Light Pole”. 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. The public lighting notifications were extracted from SAP for the period 2009 to 2013 and analysed.	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. Note that prior to June 2012, public lighting notifications were generated in SAP (now known as Legacy SAP). The system was transitioned from Legacy SAP to JSAP. Therefore 2012 public lighting notification data is a combination of Legacy SAP and JSAP. Data for previous years (2009 to 2011) has been sourced from Legacy SAP. It has been assumed that the words “NUMBER OF POLES INSTALLED (000'S)” means “MAINTAINED” rather than “INSTALLED”

Variable	Source and why actual	Methodology	Assumptions
Quality of Supply – Mean Days to Rectify or Replace Public Lighting Assets (days) & Volume of GSL Breaches & GSL Payments	Light maintenance works is recorded using SAP Notifications. The majority of the notifications are created by the 24x7 call centre which takes calls from the public regarding lights that require maintenance. 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 on.	The methodology is documented in Jemena Document No. **JEN PR 0500** - JEN AER Public Lighting Reporting Procedure. By extracting the SAP notifications related to specific SAP Public Lighting Codes we can determine the required quality of supply variables. Each SAP notification has the following information associated with it; - 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 The public lighting notifications were extracted from SAP for the period 2009 to 2013 and analysed.	No assumptions have been made in providing this information.

Variable	Source and why actual	Methodology	Assumptions
Quality of Supply – Volume of Customer Complaints	Customer complaints are managed by Stakeholder Relations. Stakeholder Relations may receive complaints through the following means: - Phone call to our Call Centre - Email - Phone call direct to Jemena - Internal referral of an email or phone call Stakeholder Relations stores and maintains all customer complaints in the "Claims Database".	Customer complaints can be classified into two categories: 1. 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. 2. 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. Both categories of complaints are considered legitimate complaints and are stored in the Claims Database with relevant detail.	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.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Light Replacement Volume of Works and Expenditure Total Direct Expenditure	This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. As, expenditure is incurred, it is captured in such a fashion that activity (cost collectors) codes can be used to identify lighting replacement expenditure. The information contains the network overheads, corporate overhead and other overheads that need to be subtracted for this template, as the requirement is to disclose direct costs only.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. By extracting the SAP costs related to specific SAP Public Lighting Activities we can determine the total direct expenditure of light replacement activities. Calculated percentages are used to isolate the Network Overhead component from JEN's total cost stack. The public lighting costs were extracted from SAP for the period 2009 to 2013 and analysed. Direct Expenditure consists of; - Direct Material expenditure - Direct Labour expenditure - Direct Contractors expenditure - Direct Other expenditure Direct Overheads and Corporate Overheads have been removed according to the calculated percentages.	No assumptions have been made.	The Light Replacement Expenditure includes various overheads. These need to be subtracted from the financial information to obtain Direct Expenditure. If, it was not for this fact, the information would have been classified as actual expenditure rather than estimated expenditure.
Light Maintenance Volume of Works and Expenditure	This information is sourced from SAP, the ERP system that JEN uses to capture its financial information. As, expenditure is incurred, it is captured in such a fashion that	These costs are inclusive of any related party margins for the period April 2010 to March 2012. By extracting the SAP costs related to	No assumptions have been made.	The Light Replacement Expenditure includes various overheads. These need to be subtracted from the financial information to obtain Direct Expenditure. If, it was not for

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Total Expenditure	activity (cost collectors) codes can be used to identify lighting replacement expenditure. The information contains the network overheads, corporate overhead and other overheads that need to be subtracted for this template, as the requirement is to disclose direct costs only.	specific SAP Public Lighting Activities we can determine the total direct expenditure of light replacement activities. Calculated percentages are used to isolate the Network Overhead component from JEN's total cost stack. The public lighting costs were extracted from SAP for the period 2009 to 2013 and analysed. Direct Expenditure consists of; - Direct Material expenditure - Direct Labour expenditure - Direct Contractors expenditure - Direct Other expenditure Direct Overheads and Corporate Overheads have been removed according to the calculated percentages.		this fact, the information would have been classified as actual expenditure rather than estimated expenditure.

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.

Variable	Source and why actual	Methodology	Assumptions
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 **&** **Minor Road Light Replacement**	Light Replacement works is recorded using SAP Notifications. The expenditure associated with performing this work is recorded against SAP projects. Each SAP project is associated with an SAP Activity Code.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. 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. By extracting the SAP costs related to specific SAP Public Lighting Activities we can determine the total direct expenditure of light replacement activities. The SAP Public Lighting Codes (MAQ) were; RLJ (Replace Single Light on Main Road) RLM (Replace Single Light Minor Road) Therefore the unit cost for a major and minor	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. For example, replacements performed on lights on minor roads are set to the same cost per unit rate regardless of light type.	This is the best estimate because it uses the best available information. Future enhancements to asset management IT systems will be required to be able to provide the required level of detail in the future.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		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. Jemena is unable to calculate a separate unit rate for major and minor roads or for each light type within each category.		
Major Road Light Maintenance **&** **Minor Road Light Maintenance**	Light Maintenance works is recorded using SAP Notifications. The expenditure associated with performing this work is recorded against SAP projects. Each SAP project is associated with an SAP Activity Code.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. 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. By extracting the SAP costs related to specific SAP Public Lighting Activities we can determine the total direct expenditure of light maintenance activities. The SAP Public Lighting Codes (MAQ) were; MLF (Main Road Public Lighting Fault) MRB (Bulk Lamp Replacement – Minor Roads)	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. For example, maintenance performed on lights on minor roads is set to the same cost per unit rate regardless of light type.	This is the best estimate because it uses the best available information. Future enhancements to asset management IT systems will be required to be able to provide the required level of detail in the future.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		MRC (Removal of Security Beam) MRF (Minor Road Public Lighting Fault) MRW (Maintenance of a Security Beam) 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. Jemena is unable to calculate a separate unit rate for major and minor roads or for each light type within each category.		

4.2 METERING

4.2.1 METERING DESCRIPTOR METRIC

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Meter volume	Accurate actuals required interrogation of the Asset Data Base on the specified dates.	Estimates are determined by linear interpolation of actuals. Actuals are available for: - End December 2008, 2010, 2011, 2012,	Meter growth is linear Meter classification Type 4 = AMI (<160MWh)	The alternate approach of retrospective Data Base interrogation requires tracking install & removal dates. This is

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	The meter volume data is retrieved at the end of each year from SAP-ISU for Type 4 meters and CIS+ for Type 5 and Type 6 meters	& 2013 - End April 2009 Estimation for Dec 2009 = Apr 2009 + 8/20 x (Dec 2010 – Apr 2009) AMI meters installed from Sept 2009 were manual read and appear as single phase Type 6 in this year and later transitioned to type 4. Consequently these meters are not accounted for in the estimate so the install quantity, 11730 is added to the estimated single phase value in Dec 2009. Estimation for year average = (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	Type 5 = Non AMI interval Type 6 Accumulation - Peak & Off Peak Numbers for 2011, 2012 & 2013 are taken from RIN A. The same methodology is used for years 2009 & 2010.	less accurate, particularly for Type 5&6 meters which are tracked in an older IT system.

4.2.2 COST METRICS (VOLUME & COST)

Under RIN C 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 eg. Meter purchase and contractor costs. The indirect costs are those related to staff who manages 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	Type 4- JEN AMI MRO team was responsible for the purchase of AMI	None

Variable	Source and why actual	Methodology	Assumptions
	Jemena	meters. The AMI Finance team has got the relevant PO's from 2009 to 2013. Type 5 and Type 6- The JEN Broadmeadows store was responsible for the purchase of these meters. PO's from 2009 to March 2012 are stored in the decommissioned Legacy SAP system. PO's from April 2012 to 2013 is in JSAP.	
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 Mass Rollout (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.	Year 2010-2013 Data was retrieved from end of year RIN A submissions 2011 to 2013 RIN A - inclusive of prior year (2010) in the 2011 RIN A.	Year of Install is determined based on the date when it became active in the market.
Meter Replacement Volume	N/A As a result of the AMI MRO program, all Type 5 & 6 meters are being replaced by Type 4 meters and as a consequence end of life family replacement of these meters was stopped.	N/A Volume = 0	
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.	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. The meter purchase costs are classified into remote read interval meters and transformers (Type 4), manually read	None

Variable	Source and why actual	Methodology	Assumptions
		interval meters (Type 5) and accumulation meters (Type 6). All of which are included under the CAPEX section in the RIN and Charges Application reporting. JEN AMI MRO team is responsible for the purchase of Type 4 meters. The JEN Broadmeadows store was responsible for the purchase of Type 5 and Type 6 meters. Expenditure information is obtained from the decommissioned Legacy SAP system for the period from January 2009 to March 2012 and from JSAP system for the period from April 2012 to December 2013.	
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
New Meter Installation Costs	The New Meter Installation costs are included as part of the CAPEX program and Opex - AMI Transitional Business Activities 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 Jemena's Finance AMI team.	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. The actual costs for New Meter installation costs are captured under Jemena's financial systems and reported under our monthly CMS CAPEX reports under the following categories: • Installation (Mass Rollout) – Type 4 • Type 5 meters installation cost is derived from the total manually read interval meter	None

Variable	Source and why actual	Methodology	Assumptions
		with installation cost less the meter purchases expenditure. • Type 6 meters installation cost is derived from the total accumulation meters with installation cost less the meter purchases expenditure.	
Meter Replacement Costs	N/A As a result of the AMI MRO program all Type 5 & 6 meters are being replaced by Type 4 meters and as such no Meter Replacement cost has been incurred under this metering category.	N/A	N/A
Other Metering Costs	The Other Metering costs are recognised as CAPEX Other expenditure under the AMI program. Capitalised interest less corporate overheads are also included, together with the costs of OPEX traditional business activities and Asset Strategy & Planning costs.	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. These actual costs are captured and reported under the AMI CAPEX program.	The Majority of Other costs are for type 4 meters as the primary objective of the AMI program is to roll out the type 4 meter installations. There are no separate cost codes to capture costs incurred under Type 5 and 6 meters in this category.
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 Jemena's Finance AMI team.	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. These actual costs are 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 Jemena's Finance AMI team.	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. These actual costs are captured and reported under the OPEX - IT section of a financial model including the following	None

Variable	Source and why actual	Methodology	Assumptions
		cost categories: • IT Level 2&3 Application Support: CY 2010 - 2013 • IT Hardware & Infrastructure Support: CY 2010 - 2013 • IT Software Application Maintenance: CY 2010 - 2011 • Base Non AMI IT Maintenance & Support: CY 2009	
Communications Infrastructure CAPEX Costs	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 Jemena's Finance AMI team.	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. These actual costs are captured and reported under the CAPEX - Communications section of a financial model based on the AER reporting category.	None
Communications Infrastructure OPEX Costs	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 forecasting information maintained by Jemena's Finance AMI team.	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. These actual costs are captured and reported under the OPEX – AMI Network Operations and AMI Backhaul Communications sections of a financial model based on the AER reporting category.	None

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 Invoice from Formway – The invoice was used to identify the volume of Meter Investigation carried out by Formway in order for JEN to meet the regulatory compliance SAP Report- Customer raised investigation which wasn't charged to the customer. SAP report available from 2010-2013 Service Notification- Meter Investigation raised by MRO, AMI field tech and back office. Service Notifications are available in SAP from 2010-2013	Type 4- Meter investigation volumes obtained from Formway Invoice, SAP report and Service Notification are summed to get the count for Type 4 meter investigation from 2010 to 2013. The value is 0 for 2009 as there was no AMI meters installed in the JEN network. Type 5 and 6- Meter investigation volumes obtained from Formway Invoice is used to get the count for Type 5 and 6 meter investigation.	The Formway invoice does not clearly classify the investigation Job performed based on the meter type. Hence Meter investigation Volume was proportionally divided among the three meter types based on the Volume of each type of meter installed in the network. i.e. for year 2012 Formway carried out 442 meter investigations. At the end of this year there were 42% AMI meters, 3% Interval meters and 55% Accumulation meters on the network. Hence Meter investigation for 2012 is: Type 4= 0.42*442 Type 5=0.03*442 Type 6= 0.55*442	Proportional estimate was considered the most accurate method of determining this breakdown in the absence of actual data.
Scheduled Meter Reading	Actual cumulative meter read data is available from 2009 to 2013. However the data does not show us the split between type 5 and type 6 meter read. Hence we had to estimate the split between the two categories.	Scheduled meter reading is only required for type 5 and 6 meters. Actual cumulative meter (Type 5+Type 6) read is available from 2009 to 2013. To get the meter read volume for each meter type the total cumulative data was multiplied by the percentage of meter type in the network. For e.g. if 1000000 reads were completed in 2009 and 3% of meters are type 5. Then,	Monthly and Quarterly reads are spread evenly between type 5 and type 6 meters. All Type 4 AMI meters are read remotely	Proportional estimate was considered the most accurate method of determining the split between type 5 and type 6 meter reads.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		Scheduled meter read for Type 5 meter = 0.03*1000000 = 30000 Scheduled meter read for Type 6 meter = 0.97 * 1000000 = 970000 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. Meter read volumes are actuals however as the data is aggregated for type 5 & 6 meters Jemena have apportioned meter read volumes proportionally to type 5 & 6 meter volumes.		
Remote Meter Reading	Applies to Type 4 meters only. Daily numbers of Active meters (in the market) are not tracked. Remote reading is not a distinguishable part of the AMI system	Type 4 AMI meters readings are delivered to the market daily. The AMI meters are read every 4 hours. Remote read volume is calculated based on retailer billing cycle. Hence for this table the remote read count is obtained by multiplying the AMI meter volume by 12.	Number of meter read is equivalent to the average number of meters installed over the year.	
New Meter Installation	The new connection report does not keep track of the type of meters (Type4, 5 or 6) installed.	Year 2009 Excel spread sheet used by the AMI MRO team and the JEN monthly new connection records managed by new connections team were used to track the new meter installation for year 2009.	The new connection record does not provide any information regarding the proportion of type 5 and type 6 meters installed. Hence new meter installation was proportionally divided among type 5 and type 6 meters based on the Volume of installed meter (Type 5 and 6) in the network.	Proportional estimate was considered the most accurate method of determining the split between type 5 and type 6 meter reads.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Meter Testing	Meter Testing volumes were obtained by reviewing the Purchase Orders submitted by formway and also by looking at the AMI sample testing plan submitted by Jemena to the contractor. Testing is planned and contracts are issued for each year.	Meter test volumes were identified by reviewing invoices submitted by our sub-contractor (Formway) for the period 2009 to 2013. Sample testing of newly installed AMI meters started from 2012 and the volume of meters tested was obtained from the AMI sample test plan.	The purchase order submitted by formway 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 Type 5 Non-AMI Interval meters. Hence this sub-classification was estimated based on the sample test plan submitted by Jemena to the contractor	
Meter Maintenance	This task is estimated because tracking is spread over different cost centre. Formway Invoice- The invoice was used to identify the volume of Meter maintenance carried out by Formway in order for JEN to meet the regulatory compliance SAP Report- Provides information about the faulty AMI meter replacements from 2010 to 2013	Type 4- Meter maintenance volumes obtained from Formway Invoice and SAP report are summed to get the count for Type 4 meter maintenance from 2010 to 2013. The value is 0 for 2009 as there was no AMI meters installed in the JEN network. Type 5 and 6- Meter maintenance volumes obtained from Formway Invoice is used to get the count for Type 5 and 6 meter investigation.	The Formway invoice does not clearly classify certain meter maintenance job performed based on the meter type. For e.g. Meter Control - Meters & Time switches Scrapped does not tell you whether they are Type 5 or Type 6 meters. Hence meter maintenance job that fall into these category (where we are not clearly able to identify the type) was proportionally divided among the two meter types based on the volume of each type of meter installed in the network.	Proportional estimate was considered the most accurate method of determining this breakdown in the absence of actual data.
Remote Meter Reconfiguration	Applies to Type 4 meters only. The remote configuration includes the software and meter configuration update. The AMI NOC team keeps record of the software and tariff configuration completed for each year. However this data is only	The AMI Network Operations Centre team keeps track of the entire meter configuration performed in an excel spreadsheet. For this analysis we have included the software and tariff updates. Calculation Method	The amount of remote configuration completed by the NOC team is proportional to the meter volume.	Proportional estimate was considered the most accurate method of determining this breakdown in the absence of actual data.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	available for 2013. Hence the value for 2010, 2011 and 2012 where estimated based on the 2013 data. The meter configuration value is 0 for year 2009 Fee based reconfigurations such as solar are covered in section 4.3	An average monthly configuration volume was determined for meter software and tariff update based on the 2013 data (Excluding Outlier months). Outliers are when we do a complete population upgrade to the next tariff/Software version. This value was used to identify the average monthly configuration for 2010, 2011 and 2012 based on the AMI meter population. i.e. W = Average monthly NIC Configuration for 2012 X = Average AMI population 2012 Y = Average AMI population 2013 Z = Average NIC monthly configuration 2013. $W = \left(\frac{X}{Y}\right) * Z$ T = Total NIC configuration for the Year $T = W * 12$ The same formula is used to find the Total configuration volume for CLEM and tariff. All the three volumes are added to get the total remote configuration for the year.		

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 Jemena's Finance AMI team.	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. 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 & Meter Maintenance in each of the reporting calendar years.	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 & 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.
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 Jemena's Finance AMI team.	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. The methodology of applying the costs to Meter Investigation 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.	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 & 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.
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	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. The methodology of applying the Scheduled Meter Reading costs is based on the number of activity volume by meter types 5 & 6 times the average unit cost which is derived from	Assumptions have been made that an average unit rate per Scheduled Meter Read on meter types 5 & 6 based on CY 2009 actual costs would be applicable across the five reporting calendar years and all AMI meters are read remotely and therefore not reported under this meter	This is the best estimate as we believe the average activity unit price in CY 2009 will be in line with those in future Calendar years.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	forecasting information maintained by Jemena's Finance AMI team.	total Meter Data Collection costs divided by the total number type 5 & 6 meter readings in CY 2009. This average unit price is then applied across the following years from CY 2010 to CY 2013.	reporting category.	
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 Jemena's Finance AMI team	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. 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.	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 & 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.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
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 Jemena's Finance AMI team.	These costs are inclusive of any related party margins for the period Jan-09 to Mar-12. The methodology of applying the Remote Meter Reading costs for CY 2011 is based on the average costs of CY 2009 and 2012 in order to form a reasonable unit activity cost in line with reporting years as there seems to be a cost allocation issue in the total CY 2011 Meter Data Collection costs category which is unrealistically low. Therefore, the CY 2011 allocation includes a cost reallocation from Customer Contact & Back Office to Meter Data Collection due to bundling of actuals into this category.	This applies to type 4 meters only and no such cost was incurred in CY 2009 as the type 4 meter program was rolled out in 2010.	This is the best estimate as we believe the average activity unit cost in CY 2011 should be in line with those in CY 2009, 2010, 2012 and 2013.
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. These costs are inclusive of any related party margins for the period Jan-09 to Mar-12.	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.

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	Volume data for jobs completed in the month was compiled from CIS+ and SAP ISU. These services are:- 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 Remote de-energisation Remote re-energisation Routine Connections -customers <100 amps Exception - Reserve Feeder data was based on actual KW billed	Actual Billing information has been used. For the years 2009 and 2010, JEN's system did not capture volume data for "Fault Response –not DNSP Fault". The cost to investigate the volume for 2009 and 2010 exceeds the benefit in doing so, given the spend captured (less than $35k) against these years is immaterial.	Billing lags by a month and so does cost data on completed jobs; therefore resultant unit cost is reflective of actual cost

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Expenditure data CY 2009 & 2010	In 2009 and 2010 Fee based and quoted services were treated as a single group of "excluded services". Furthermore, there was no breakdown required or available for each type of excluded service. RIN reporting started in 2012 for the 2011 year. For these years, JEN also had to remove direct overheads to report this expenditure as direct cost only, as required by the RIN The services are the same as the ones described above	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Used the total direct cost reported in RAS 2009 & 2010 for excluded services and applied pro rata ratio to determine expenditure for each type of excluded service. The pro rata ratio for the above services (except routine connections) is derived from CY2011 direct costs. The pro-rata ratio for routine connections is derived from CY2013 to CY2011 direct costs. The amount derived from the pro rata is then adjusted to exclude direct overheads to arrive at direct costs	Assumed that 2011 cost data reflects the activities and cost in CY09 and CY10. For example, there were no Remote energisation activities in 2009 and 2010	The basis used enables audit trail and consistency with the reporting done under the RAS system. We are unaware of a better way for estimating these figures.
Expenditure data CY 2011 to 2013	Dollar data for CY11 to CY 13 reported in JEN's annual RIN A Template 19 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.	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Compilation by reported service in Template 19 – Fee based Services of the Annual RIN, adjusted by excluding the component of those reported costs that is a direct overhead amount. JEN's system did not capture expenditure information for Remote meter reconfiguration, remote de-energisation and remote re energisation The cost to investigate or estimate the expenditure for 2011 to 2013 exceeds the benefit in doing so, given the expected spend for these years would be immaterial (less than $15K)	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. We are unaware of a better way for estimating these amounts.

4.4 ANCILLARY SERVICES – QUOTED SERVICES

4.4.1 COST METRICS FOR QUOTED SERVICES

Actual information

Variable	Source and why actual	Methodology	Assumptions
Volume - Supply abolishment CY09 to CY13	Actual numbers as per New Connections Monthly Reports	Compilation of data from monthly reports	New connections report is accurate
Volume - Emergency Recoverable works CY12 & CY13	Actual invoices raised	Sum of invoices raised	Volume of invoices raised reflects volume of work completed
Volume – After hours truck by appointment CY11 to CY13	Based on invoices raised by specified product code	Sum of invoices	Volume of invoices raised reflects volume of work completed

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Volume - Emergency Recoverable works CY09 to CY11	Actual data not available.	Simple average of CY12 & CY 13 volumes	CY12 and CY13 volumes are representative of volumes for CY09-11	Most recent known volume data is the best estimate. Volumes and value for this item are not significant and therefore does not warrant a more complicated methodology.
Volume – After Hours truck by	Data not available.	Same volume as 2011.	CY11 volumes are representative of volumes for CY09-10	Most recent known volume data is the best estimate for CY10 and CY09.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
appointment CY09 and CY10				
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	Each Recoverable work item requires the creation of a new job number in SAP. This basis is reflective of the current recording process for this type of work. We are unaware of a better way to estimate these volumes.
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 that was estimated.	Actual billing information has been used for routine connections and estimates for elective undergrounding based on CY 2013 job count data	Billing lags by a month	The capture of the volume for elective undergrounding job data started around March 2013 for CY 2013. JEN has used the most recent available actual data as the basis for the estimate. We are not aware of a better way to estimate these amounts.
Expenditure data CY09 & CY10	In 2009 and 2010 Fee based and quoted services were treated as single group of “excluded services”. Furthermore, there was no breakdown required or available for each type of excluded service. RIN reporting started in 2012 for the 2011 year. The services are:- Supply abolishment Emergency recoverable works (that is, emergency works where customer is at fault and immediate action needs to be taken by the DNSP) After hours truck by appointment Customer recoverable works Routine Connections -customers >100 amps including	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Used the total direct cost reported in RAS 2009 & 2010 for excluded services and applied pro rata ratio to determine expenditure for each type of excluded service. The pro rata ratio for all services is derived from CY2011 direct costs. The pro-rata ratio for	Assumed that 2011 cost data reflects the activities and cost in CY09 and CY10.	The basis used enables audit trail and consistency with the reporting done under the RAS system. We are unaware of a better way to estimate these figures.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	Elective undergrounding work For these years, JEN also had to remove direct overheads to report this expenditure as direct cost only, as required by the RIN	routine connections is derived from CY2013 to CY2011 direct costs. The amount derived from the pro rata is then adjusted to exclude direct overheads to arrive at direct costs 'After hours truck by appointment' in CY2009 to CY2010 includes the quoted service 'Covering of low voltage mains for safety reasons' embedded in the expenditure disclosures for those years.		
Expenditure data CY11 to CY13	Dollar data for CY11 to CY 13 reported in JEN's annual RIN A Template 19 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	These costs are inclusive of any related party margins for the period April 2010 to March 2012. Compilation by reported service in Template 19 – Quoted Services of the Annual RIN, adjusted by excluding the component of those reported costs that are a direct overhead amount. 'After hours truck by appointment' in CY2011 includes the quoted service 'Covering of low voltage mains for safety reasons' embedded in the expenditure disclosures for the year.	The difference in the capture of lag cost is immaterial on a yearly basis.	We are 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 - HV	The GIS 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.	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.
Zone Substation Equipment – Cap Banks, CT/VT, Buildings, DC Battery, DC Battery Chargers, Ground Outdoor / Indoor Chamber Mounted <=15 MVA and Ground Outdoor / Indoor Chamber Mounted >15 & <= 40 MVA and NER.	SAP 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.	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.	No assumptions were made.

Variable	Source and why actual	Methodology	Assumptions
Public Lighting - Lamps	The GIS is the single source of the network asset data. This data was able to be provided without estimation due to the completeness of the public lighting lamps installation dates within GIS.	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.	No assumptions were made.
Field Devices - Relay	SAP 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 relay installation dates.	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.	No assumptions were made.
Field Devices - RTU	SAP 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 RTU installation dates.	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.	No assumptions were made.
Communication Network Assets – Supervisory Cable (Fiber, Underground and Aerial)	SAP 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 Supervisory Cable installation dates.	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.	No assumptions were made.

Variable	Source and why actual	Methodology	Assumptions
PQ Meters	SAP 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 PQ Meters installation dates.	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.	No assumptions were made.
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	SAP is the source of data to calculate mean and standard deviation for the assets below: – 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 Services – Relays – CT/VT 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.	In order to obtain a mean replacement life and associated standard deviation the following data for each asset type was used; - 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.	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; - Date of installation - Date of retirement - A sample size large enough to make the calculation of Standard Deviation meaningful. Insufficient installation and replacement data is available for a number of asset groups. JEN has therefore intentionally left the related input cells (as listed below) '0'. – Poles: > 22 kV & < = 66 kV; WOOD – Poles: > 11 kV & < = 22 kV; STEEL – OH Conductor > 1kV & <= 11kV – OH Conductor > 11kV & <= 22kV, Single Phase – OH Conductor > 11kV & <= 22kV, Multiple Phase – Transformers KIOSK MOUNTED: < = 22kV ; > 600 kVA ; MULTIPLE PHASE – SWITCH: < = 11 kV ; SWITCH (RMU) – SWITCH: > 11 kV & <= 22kV ; SWITCH (RMU) – Field Devices – Relay – Field Devices – RTU – Communication Network Assets – Supervisory Cable	Below assets are assumed to have the same mean and standard deviation (due to not enough data sample). – <=11kV fuses and >11kV and <=22kV fuses – <=11kV switch and >11kV and <=22kV switch (Air Break Switch and Isolators) – <=11kV switch and >11kV and <=22kV switch (Gas Switch) – <=11kV ACR and >11kV and <=22kV ACR	This is the best estimation method because it uses date of installation and date of retirement which is readily available. However the required data is unavailable for all asset classes at the required level of detail. 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.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		– PQ Meters – Cap Bank – ZSS Building and Civil Works. – DC Battery – DC Battery chargers – NER – Lamps		
Poles - ST	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	ST poles 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 ST poles are installed in an entire pole line at one time in order to complete the sub-transmission loop.	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.
Poles – HV	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	HV poles with an unknown date of installation were estimated using the average date of installation for poles within a 1km square area around the pole.	There is an assumption that the HV Poles were installed at a similar time to the poles surrounding them.	This is the best estimate because it uses other known data to make a medium confidence estimation based on the assumptions outlined. 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.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Poles – LV	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Step 1: LV Poles were dated from the distribution substation feeding the conductors on them. Step 2: LV poles with unknown dates were estimated off the average age of poles within a 1km square around them.	Step 1: There is an assumption that the LV poles were installed at the same time the Distribution Substation was installed. Step 2: There is an assumption that the LV poles were installed at a similar time to the poles surrounding them.	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. Step 2: This is the best estimate because it uses other known data to make a medium confidence estimation based on the assumptions outlined. 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.
Public Lighting - Poles	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	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. This included assessing poles with similar lantern types to estimate an era of installation and the dates of installation on surrounding assets.	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. There is an assumption that Public Lighting Lanterns were introduced and retired from standards in eras. There is an assumption that public lighting poles that are not classified to be major nor minor roads are included in the minor roads.	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. The volume of unknown assets in the class was low enough to make manual assessment and assignments feasible.
Public Lighting - Luminaires	Dates for asset installation were not known for all assets. Actual	Public Lighting lanterns with an unknown or date of installation that was considered too	There is an assumption that the Public Lighting poles are likely to be installed	This is the best estimate because it uses knowledge of the design of

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	installed dates were combined with estimates to produce age profiles.	old were manually assed to look for patterns in the installation date of poles surrounding them. This included looking at poles with similar lantern types to estimate an era of installation and the dates of installation on surrounding assets.	in a localised area at the same time in order to meet the lighting code. There is an assumption that Public Lighting Lanterns were introduced and retired from standards in eras.	public lighting systems and lighting code to determine dates where very little associated asset data exists. The volume of unknown assets in the class was low enough to make manual assessment and assignments feasible.
Public Lighting - Brackets	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.	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. This is the best estimate because it uses other known data about the luminaire installed on the bracket where no other asset data is available in order to make an estimation based on the assumptions outlined. 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.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Pole Tops - ST	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Step 1: ST Crossarms were given the date of attached assets such as insulators where a clear association could be made. Step 2: ST crossarms were assigned the date of the pole supporting them as long as the material was used at that time and the crossarm was not greater than 45 years old.	Step 1: There is an assumption that the insulators were installed at the same time as the crossarm and a replacement of one would also involve the replacement of the other. Step 2: There is an assumption that the crossarm was installed at the same time as the pole supporting it and that a pole that is more than 45 years old will be likely to have had its original crossarm replaced already.	Step 1: This is the best estimate because it uses known insulator installation dates to make a high confidence estimation based on the assumptions outlined. Step 2: This is the best estimate because it uses known pole installation dates and knowledge of when different materials of crossarms were used to make a medium confidence estimation based on the assumptions outlined. 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.
Pole Tops - HV	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Step 1: HV Crossarms were given the date of attached assets such as insulators where a clear association could be made. Step 2: HV crossarms were assigned the date of the pole supporting them as long as the material was used at that time and the crossarm was not greater than 45 years old.	Step 1: There is an assumption that the insulators were installed at the same time as the crossarm and a replacement of one would also involve the replacement of the other. Step 2: There is an assumption that the crossarm was installed at the same time as the pole supporting it and that a pole that is more than 45 years old will	Step 1: This is the best estimate because it uses known insulator installation dates to make a high confidence estimation based on the assumptions outlined. Step 2: This is the best estimate because it uses known pole installation dates and knowledge of when different materials of

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
			be likely to have had its original crossarm replaced already.	crossarms were used to make a medium confidence estimation based on the assumptions outlined. 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.
Pole Tops - LV	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Step 1: LV Crossarms were given the date of attached assets such as insulators where a clear association could be made. Step 2: LV crossarms were assigned the date of the pole supporting them as long as the material was used at that time and the crossarm was not greater than 45 years old. Step 3: LV crossarms supporting Aerial Bundled Cables were assigned the installation date of the connected Aerial Bundled Cables.	Step 1: There is an assumption that the insulators were installed at the same time as the crossarm and a replacement of one would also involve the replacement of the other. Step 2: There is an assumption that the crossarm was installed at the same time as the pole supporting it and that a pole that is more than 45 years old will be likely to have had its original crossarm replaced already. Step 3: There is an assumption that the crossarm was installed at the same time as the Aerial Bundled Cables that they are supporting.	Step 1: This is the best estimate because it uses known insulator installation dates to make a high confidence estimation based on the assumptions outlined. Step 2: This is the best estimate because it uses known pole installation dates and knowledge of when different materials of crossarms were used to make a medium confidence estimation based on the assumptions outlined. Step 3: This is the best estimate because it uses known Aerial Bundled Cable installation dates to make a medium-high confidence estimation based on

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
				the assumptions outlined. 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.
Overhead Conductor - ST	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	ST conductors 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.	There is an assumption that ST conductors are installed in an entire line at one time in order to complete the sub-transmission loop. There is an assumption that the replacement of the ST conductors has been minimal.	This is the best estimate because it uses other known data to make a medium-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.
Overhead Conductor - HV	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	The date of the substation downstream from the conductor was used to populate the HV conductor dates.	There is an assumption that the HV conductors were required to be installed before the downstream substation could be commissioned. There is also an assumption that the network configuration has not changed significantly since the installation of the HV conductors.	This is the best estimate because it uses other known data to make a medium confidence estimation based on the assumptions outlined. 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.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Overhead Conductor - LV	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	LV conductors were dated using the date of the distribution substation feeding the conductors on them.	There is an assumption that the LV conductors were installed at the same time as the distribution substation feeding them. There is also an assumption that the LV network configuration has not changed significantly since the installation of the LV conductors.	This is the best estimate because it uses other known data to make a moderately high confidence estimated based on the assumption outlined. 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.
Underground Cables - ST	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	ST underground cables 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 ST cable failures are rare, the estimate that the cable installation date is the same as the installation date of the cable head will give a high level of confidence. The volume of unknown assets in the class was low enough to make manual assessment and assignments feasible.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Underground Cables – LV	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Step 1: LV underground cables were estimated based on construction drawings provided at the time of installation. Step 2: LV underground cables were estimated based on known associated assets such as cable heads, joints, pillars and pits.	Step 1: There is an assumption that the cable was installed at the time the construction drawing was created. Step 2: There is an assumption that the associated LV assets were installed at the same time as the LV cable.	Step 1: This is the best estimate because it uses other known data to make a high confidence estimated based on the assumption outlined. Manual assessment and assignment was used here as the number of construction drawings was low enough to be feasible. 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. 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.
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.	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. The connectivity in the GIS between the	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.	This is the best estimate because it uses other known data to make a medium confidence estimation based on the assumptions outlined.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		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.	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.	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.
Service Lines < 11 kV (Complex Type) and Service Lines >11 kV	JEN does not have service lines that operate at voltages >11kV. Therefore the value of zero has been entered for these line items. 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.			
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.	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 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.
Service Lines - Pillars	Dates for asset installation were not known for all assets. Actual	Service Pillars with an unknown installation date were estimated using the known dates	There is an assumption that the Service Pillar was installed at the same time as	This is the best estimate because it uses other known

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
	installed dates were combined with estimates to produce age profiles.	of attached equipment such as underground services and service tee joints.	the underground service cable and the service tee joint.	data to make a high confidence estimation based on the assumptions outlined. 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.
Service Lines – Pits	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Service Pits with an unknown installation date were estimated using the known dates of attached equipment such as underground services and service tee joints.	There is an assumption that the Service Pit was installed at the same time as the underground service cable and the service tee joint.	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 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.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
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.	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 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.
Surge Diverters	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	Knowledge of replacement programs of certain types on certain feeders allowed estimation of replacement dates. Other surge diverters were required to be proportionally allocated on the age profile.	There is an assumption that the replacement program replaced all the surge diverters of a certain type on certain feeders. The proportional allocation assumes that the known date of installation profile is a representative sample of the overall population, allowing an extrapolation to be made.	This is the best estimation available as it takes into account previous projects to apply dates of installation in some cases. In the remaining cases no associated asset data is available and as such, beyond an inspection program, no better estimate can be made. The volume of unknown assets in the class was too high for any form of manual assessment and assignments

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
				to be feasible and as such a programmatic solution provided the most consistent and accurate result.
Switchgear – HV Fuses	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	HV Line Fuses with an unknown installation date were estimated using the installation date from the poles they are mounted on. HV Substation Fuses with an unknown installation date were estimated using the installation date from the substation they are protecting.	There is an assumption that the HV Line Fuse was installed at the same time as the pole on which it is mounted. There is an assumption that the HV Substation Fuse was installed at the same time as the substation that it is protecting.	This is the best estimate because it uses other known data to make a moderately-high confidence estimation based on the assumptions outlined. 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.

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.	This is the best estimate because it uses other known data to make a moderately-high confidence estimation based on the assumptions outlined. 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.
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.	This is the best estimate because it uses other known data to make a moderately-high confidence estimation based on the assumptions outlined. 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.

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: 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.
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: 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.
Switchgear – Switch (RMU)	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	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 assumptions outlined.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
				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.
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.	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 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.
Switchgear – Switch (ACR)	Dates for asset installation were not known for all assets. Actual installed dates were combined with estimates to produce age profiles.	ACRs with unknown dates of installation were manually estimated based on associated assets with the following priority: 1) Surge Diverters 2) Insulators	There is an assumption that the ACR 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.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
		3) Pole Date 4) HV Conductors 5) Crossarms		The volume of unknown assets in the class was low enough to make manual assessment and assignments feasible.

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 Date MD occurred Half hour time period MD occurred Winter/Summer peaking	Source: – \\vtalpwfile07\netmgt\network planning\terminal station forecasts\2013 AEMO Forecasts\JEN TOTAL MW (2013).xls (use equivalent files for each year) The data contained within the above files is 15 minute MW transmission connection point wholesale meter readings 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. The date/time provided is the end time of the 15 minute interval. Times provided are AEST, not AEDT (i.e. not adjusted for daylight savings time).	RIN C column headings are interpreted as follows to align with readily available data recorded in the normal course of business: 2008/09 = 1/12/2008 to 30/11/2009 2009/10 = 1/12/2009 to 30/11/2010 2010/11 = 1/12/2010 to 30/11/2011 2011/12 = 1/12/2011 to 30/11/2012 2012/13 = 1/12/2012 to 31/03/2013 As winter 2013 data is not yet available, 2013 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

Variable	Source and why actual	Methodology	Assumptions
			time when the sum of terminal station connection point MW demand is greatest.
Embedded generation	Source: – \\vtalpwfile07\netmgt\network planning\terminal station forecasts\2013 AEMO Forecasts\Cogen\JEN TOTAL GENERATION MW (2013).xls (use equivalent files for each year) 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.	Only embedded generators above 1MW capacity are included, as follows: – APM Fairfield – Austin Hospital – EDL – Bolinda Landfill – EDL – Brooklyn Landfill – Preston Mini Hydro – Somerton Power Station – Visy The total MW value corresponding to the date and time of maximum MW demand (as above) is copied directly to the RIN C template.	Bioscience Research Centre not included as it does not export power. LaTrobe University cogen is not included at subtransmission level as it is connected via the SPIE network.

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
Weather corrected (10%	Source:	The 10% POE and 50% POE average daily temperatures and MD temperature	It is assumed that the 10% POE and 50% POE average daily temperatures and MD	This is the established method for MD temperature

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
PoE) network coincident MD Weather corrected (50% PoE) network coincident MD	– 2013 Maximum Demand Forecast Analysis \\vtalpwfile07\netmgt\network planning\feeder forecasts & MDs\2013 Forecasts\Management briefing\2013 Maximum Demand Forecast analysis.xls This data is estimated as it is calculated based on assumptions rather than extracted directly from metered data.	sensitivity relationship is based upon observed historical data. Adjusted MW MD is calculated as follows: $MD_b = MD_a \times \frac{-1.524{t_b}^2 + 108.5t_b - 925.2}{-1.524{t_a}^2 + 108.5t_a - 925.2}$ Where: MD_b = MW MD after temperature adjustment MD_a = actual unadjusted MW MD t_b = average daily temperature to adjust to (32.9℃ for 10% POE or 29.4℃ for 50% POE) t_a = average daily temperature on day of actual unadjusted MW MD Average daily temperature is calculated as follows: $t = \frac{(t_{max} - t_{min})}{2}$ Where: t = average daily temperature t_{max} = maximum temperature of the day (24 hour period) (data sourced from PI) t_{min} = minimum temperature of the day (24 hour period) (data sourced from PI)	temperature sensitivity relationship is consistent over the period 2009-2013.	adjustment.

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 Subtransmission Substation – Date MD Occurred Subtransmission Substation – Time MD Occurred Subtransmission Substation – Winter/Summer Peaking	Source: – vtalpwfile07\netmgt\network planning\terminal station forecasts\2013 AEMO Forecasts (use relevant file for each terminal station bus group; use equivalent files for each year) 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.	Non-coincident data: The maximum total MW demand and corresponding MVAr, date and time for summer and winter is recorded in the data source file. 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 RIN C template. Coincident data: Date, time and season of MD are as per RIN C template 5.3. The MW demand values and MVA (calculated from MW and MVAr) corresponding to these times are copied directly to the RIN C template. The date/time provided is the end time of the 15 minute interval. 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 abnormals is to visually inspect the demand data graphed using PI Processbook, The methodology to adjust for	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. RIN C column headings are interpreted as follows to align with readily available data recorded in the normal course of business: 2008/09 = 1/12/2008 to 30/11/2009 2009/10 = 1/12/2009 to 30/11/2010 2010/11 = 1/12/2010 to 30/11/2011 2011/12 = 1/12/2011 to 30/11/2012 2012/13 = 1/12/2012 to 31/03/2013 “Coincident” is assumed to be at the time of JEN network coincident MD, as per template 5.3.

Variable	Source and why actual	Methodology	Assumptions
		abnormals is as follows: • Non-coincident data: Demand during abnormal conditions is ignored and the highest demand under system normal conditions is recorded as the MD. • 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.	
Subtransmission Substation – Adjustments – Embedded Generation	Source: – \\vtalpwfile07\netmgt\network planning\terminal station forecasts\2013 AEMO Forecasts\Cogen\JEN TOTAL GENERATION MW (2013).xls (use equivalent files for each year) 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.	Only embedded generators above 1MW capacity are included, as follows: – APM Fairfield – Austin Hospital – EDL – Bolinda Landfill – EDL – Brooklyn Landfill – Preston Mini Hydro – Somerton Power Station – Visy The MW value corresponding to the date and time of maximum MW demand (as above) is copied directly to the RIN C template for each terminal station / bus group.	Bioscience Research Centre not included as it does not export power. LaTrobe University cogen is not included at subtransmission level as it is connected via the SPIE network.

Variable	Source and why actual	Methodology	Assumptions
Subtransmission Substation – Weather Corrected MD	Data not provided (cells shaded black) as it is not readily available.	Not applicable	Not applicable
Zone Substation – Substation Rating	Sources: – 2008-2012: Distribution System Planning Report (DSPR) \\vtalpwfile07\netmgt\network planning\Distribution System Planning Report\2012\Final Report\131212 FINAL JEN 2012 DSPR.pdf (use equivalent files for each year) – 2013: Distribution Annual Planning Report (DAPR) \\vtalpwfile07\netmgt\network planning\Distribution Annual Planning Report\2013 DAPR\DAPR Report\Final\Distribution Annual Planning Report 2013.pdf 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).	Zone substation normal cyclic ratings (MVA) are copied directly from the DSPR / DAPR for each year. Non-coincident and coincident zone substation ratings are equal. The normal cyclic ratings given in the DSPR 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). Zone substation ratings are provided only where the substation is owned by Jemena. Ratings are not provided (cells shaded black) for the following zone substations owned by customers or other distribution network service providers: – APF – MAT – MB – SA – TT	For each year the rating provided is for the season in which the MD occurs.

Variable	Source and why actual	Methodology	Assumptions
		– VCO – WT	
Zone Substation – Raw Adjusted MD – Non-coincident Zone Substation – Date MD Occurred – Non-coincident Zone Substation – Time MD Occurred – Non-coincident Zone Substation – Winter/Summer Peaking – Non-coincident	Sources: – Non-coincident MD 2009-10: EDPR Forecast \\vtalpwfile07\netmgt\network planning\EDPR2010\EDPR (2011-2015)\RESPONSE TO DRAFT DETERMINATION (JULY10)/JEN FORECAST REVISION JULY 2010/6 Zone Substation Actuals and Forecasts_JUNE 2010.xls – 2011-13: Forecast vtalpwfile07\netmgt\network planning\feeder forecasts & MDs\2013 Forecasts\Model - Final\7zone substation forecasts.xlsm (use equivalent files for each year)Date, time, season of non-coincident MD 2009-13: Forecast vtalpwfile07\netmgt\network planning\feeder forecasts & MDs\2013 Forecasts\Model - Final\1forecast inputs & constants.xlsm (use equivalent files for each year)	Historic actual MW and MVA (at the transformer, i.e. with cap bank adjustment) for the season where MW MD is greatest are copied directly from the zone substation actuals forecast spreadsheets for each year. The dates and times corresponding to the actual MW MDs above is copied directly from the forecast inputs and constants spreadsheet. 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 abnormals is to visually inspect the demand data graphed using PI Processbook, Demand during abnormal conditions is ignored and the highest demand under system normal conditions is recorded as the MD.	It is assumed that the 2013 MD occurs in summer as the winter MD data is not extracted in the normal course of business prior to the completion of RIN C. MVA MD is assumed to occur at the time of MW MD. 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. RIN C column headings are interpreted as follows to align with readily available data recorded in the normal course of business: 2008/09 = 1/12/2008 to 30/11/2009 2009/10 = 1/12/2009 to 30/11/2010 2010/11 = 1/12/2010 to 30/11/2011 2011/12 = 1/12/2011 to 30/11/2012 2012/13 = 1/12/2012 to 31/03/2013

Variable	Source and why actual	Methodology	Assumptions
	The data contained within the above source files is extracted from PI and Gabi. This is actual metered MD data.		
Zone Substation – Raw Adjusted MD – Coincident Zone Substation – Date MD Occurred – Coincident Zone Substation – Time MD Occurred – Coincident Zone Substation – Winter/Summer Peaking – Coincident	Sources: – Coincident MD: 2009-13: RIN B vtalpwfile07\netmgt\network planning\2 - Economic Benchmarking RIN (RIN B)\Final RIN B\Working files\JEN 2001-2010 system coincident demand and DF (MW_MVAr).xls – Date, time, season of coincident MD: As per RIN C template 5.3 The data contained within the above source files is extracted from PI and Gabi. This is actual metered MD data.	Historic actual MW and MVA (with cap bank adjustment) are copied directly from the RIN B system coincident demand spreadsheet. Date, time and season of MD are as per RIN C template 5.3. 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 abnormals is to visually inspect the demand data graphed using PI Processbook, If the station is under abnormal conditions at the time of coincident MD, the MD is estimated. Please refer to 'Estimated Information' section below.	MVA MD is assumed to occur at the time of MW MD. 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. "Coincident" is assumed to be at the time of JEN network coincident MD, as per template 5.3.

Variable	Source and why actual	Methodology	Assumptions
Zone Substation – Adjustments – Embedded Generation	Sources: – Cogen folder \\vtalpwfile07\netmgt\network planning\terminal station forecasts\2013 AEMO Forecasts\Cogen (use generator files relevant to each zone substation; use equivalent files for each year) 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.	Only embedded generators above 1MW capacity are included, as follows: – APM Fairfield (ZSS: APF) – Austin Hospital (ZSS: NH) – EDL – Bolinda Landfill (ZSS: BD) – EDL – Brooklyn Landfill (ZSS: TH) – LaTrobe University (ZSS: TT) – Preston Mini Hydro (ZSS: CN) – Visy (ZSS: VCO) The cogen MW value corresponding to the date and time of maximum MW demand (as above) is copied directly to the RIN C template.	Bioscience Research Centre (ZSS: NH) not included as it does not export power.
Zone Substation – Weather Corrected MD	Data not provided (cells shaded black) as it is not readily available.	Not applicable	Not applicable

Estimated information

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
SA zone substation: Zone Substation – Raw Adjusted MD	JEN load at zone substation SA consists of sections of feeders. Metering of the JEN load supplied by SA is not available, 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 1. multiplying the full feeder load by an assumed proportion of JEN load for	It is assumed that both coincident and non-coincident MD occur at the time of network peak, therefore MW, MVA, date and time values are equal for coincident and non-coincident MD.	Combines all available knowledge of JEN load supplied by SA zone substation.

Variable	Why estimate, not actual	Basis for estimate	Assumptions	Why best estimate
– Coincident & Non-coincident Zone Substation – Date MD Occurred – Non-coincident Zone Substation – Time MD Occurred – Non-coincident Zone Substation – Winter/Summer Peaking – Non-coincident		each feeder, 2. applying knowledge of customer growth/new customer loads obtained from customer applications, and 3. trending from previous year's MDs.	It is assumed that JEN load at SA is the following proportion of the SA feeders supplying JEN load: – SA02: 10% – SA06: 25% – SA12: 30%	
Subtransmission Substation – Raw Adjusted MD – Coincident, abnormal conditions Zone Substation – Raw Adjusted MD – Coincident, 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 conditions, the MD must be estimated.	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 station/similar stations.	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. 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.	Estimate is based on actual data.

6. SERVICE & QUALITY

6.3 SUSTAINED INTERRUPTIONS TO SUPPLY

6.3.1 SUSTAINED INTERRUPTIONS TO SUPPLY (FROM 1 JULY 2008)

Actual information

Variable	Source and why actual	Methodology	Assumptions
Sustained interruptions to supply (from 1 January 2009)	Jemena's Customer Information System (CIS) was the repository for all outage information between 1 January 2009 and 18 June 2010. Between 19 June 2010 and 31 December 2013, Jemena's Outage Management System (OMS) was the repository for all outage information. Both systems contain outage dates and times, the number of customer affected, restoration dates, times, restoration stages and cause codes.	The data used to calculate the reliability variables (KPI's) is extracted from CIS and 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. The cause codes in CIS and OMS are JEN cause codes. 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.	With regard to the Detailed reason for interruption, specifically the vegetation responsible party, Jemena has not previously recorded the party responsible for the vegetation. Therefore for a percentage of the vegetation related faults, Jemena has allocated the responsible party to "Other Responsible Party" where it is unknown. For single premise outages where service fuse has blown and no clear identification of which element caused the fuse to operate and was not specified as cause not found, Jemena has allocated the Reason for interruption to Asset failure and Detailed reason for interruption to LV.

Jemena Electricity Networks (Vic) Ltd

Basis of preparation | JEN response to the category analysis RIN for regulatory years 2009-13

Appendix 1

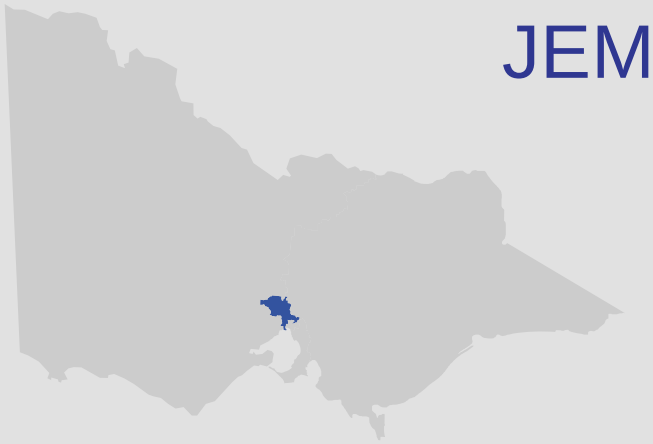
Map of JEN's two vegetation zones

Public

31 May 2014

Jemena
Vital Service. Vital Planet.

JEMENA ELECTRICITY NETWORKS



SP AusNet

GISBORNE

SUNBURY

CRAIGIEBURN

BULLA

BROADMEADOWS

SYDENHAM

RESERVOIR

PRESTON

ESSENDON

BRUNSWICK

SUNSHINE

FOOTSCRAY

COLLINGWOOD

CitiPower

MELBOURNE

MOUNT WAVERLEY

PowerCor

United Energy

Port Philip Bay

CALDER

HUME

WESTERN

WESTERN RING

METROPOLITAN RING

TULLAMARINE

AIRPORT

CITYLINK

EASTERN

WEST GATE

PRINCES

MONASH

Legend

- JEN LBRA 2013
- JEN HBRA 2013
- Distribution Business

5 2.5 0 5 Kilometers

N W E S

Jemena Electricity Networks (Vic) Ltd

Basis of preparation | JEN response to the category analysis RIN for regulatory years 2009-13

Appendix 2

KPMG audit opinion and review reports

Confidential

31 May 2014

Jemena Electricity Networks (Vic) Ltd

Basis of preparation | JEN response to the category analysis RIN for regulatory years 2009-13

Appendix 3

Statutory declaration

Public

31 May 2014

State of Victoria

STATUTORY DECLARATION

I, Paul John Adams of 321 Ferntree Gully Road, Mt Waverley 3149 in the State of Victoria, do solemnly and sincerely declare that:

1. I am an officer, for the purposes of the *National Electricity (Victoria) Law* (**NEL**), of Jemena Electricity Networks (Vic) Limited (ABN 82 064 651 083) (**JEN**), a regulated network service provider for the purposes of section 28D of the NEL. I am authorised by JEN to make this statutory declaration as part of the response of JEN to the Regulatory Information Notice dated 7 March 2014 (**Notice**) served on JEN by the Australian Energy Regulator (**AER**).

2. Having had regard to the Notice, I say that the actual information provided in JEN's response to the Notice is, to the best of my information, knowledge and belief:

   a) in accordance with the requirements of the Notice;

   b) in the case of actual information, is true and an accurate reflection of JEN's internal records used in the normal course of business.

3. Where it is not possible to provide actual information to comply with the Notice, JEN has, to the best of my information, knowledge and belief, for the purposes of complying with the Notice:

   a) provided JEN's best estimate of the information in accordance with the requirements of the Notice; and

   b) provided the basis for each estimate, including assumptions made and reasons why the estimate is the best estimate, given the information sought in the Notice.

I acknowledge that this declaration is true and correct, and I make it with the understanding and belief that a person who makes a false declaration is liable to the penalties of perjury.

Declared at MELBOURNE in the State of Victoria

this 30th day of MAY 2014

_____

Signature of person making declaration

Before me: _____

Signature of authorised witness

JAMES PANAGIOTIS KATSIKAS
of 321 Ferntree Gully Road, Mt. Waverley, VIC 3149
An Australian Legal Practitioner
(within the meaning of the *Legal Profession Act* 2004)

The authorised witness must print or stamp his or her name, address and title under section 107A of the *Evidence (Miscellaneous Provisions) Act 1958* (as if 1 January 2010), (previously Evidence Act 1958), (eg. Justice of the Peace, Pharmacist, Police Officer, Court Registrar, Bank Manager, Medical Practitioner, Dentist)