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Independent Auditor's Report to the Directors of United Energy Distribution Pty Ltd

Opinion

We have audited the Financial Information within tables 2.1, 2.2, 2.3, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11, 2.12, 4.1, 4.2, 4.3 and 4.4 as presented in the data template entitled "United Energy Category Analysis RIN 2016" attached ("the Financial Information") of United Energy Distribution Pty Ltd ("the Company") for the regulatory year ended 31 December 2016, which has been prepared in accordance with United Energy Distribution Pty Ltd's Basis of Preparation (the "Basis of Preparation") in response to the Category Analysis Regulatory Information Notice ("the Notice") issued by the Australian Energy Regulator on 7 March 2014, for the regulatory year ended 31 December 2016. In accordance with the requirements of the Notice, information presented in the Financial Information before this date range has not been subject to audit. The Basis of Preparation is an appendix to the United Energy Category Analysis RIN 2016 data template.

In addition, we have audited the compliance of the Basis of Preparation as it relates to the Financial Information, with the requirements of the Notice and the Principles and Requirements in Appendix D of the Notice, for the regulatory year ended 31 December 2016.

The Australian Energy Regulator requires the Financial Information and the accompanying Basis of Preparation for the performance of a function conferred on it under Division 4 of Part 3 of the *National Electricity (Victoria) Law*, namely conducting various benchmarking exercises as outlined in the Regulatory Information Notice issued to United Energy Distribution Pty Ltd on 7 March 2014.

In our opinion, the Financial Information provided for the regulatory year ended 31 December 2016 is prepared, in all material respects in accordance with the requirements of the Notice and United Energy Distribution Pty Ltd's Basis of Preparation. In addition, the Basis of Preparation as it relates to Financial Information has complied, in all materials respects, with the requirements of the Notice and the Principles and Requirements in Appendix D of the Notice.

Basis for Opinion

We conducted our audit in accordance with Australian Auditing Standards. Our responsibilities under those standards are further described in the *Auditor's Responsibilities for the Audit of the Financial Information* section of our report. We are independent of the Company in accordance with the auditor independence requirements of the *Corporations Act 2001* and the ethical requirements of the Accounting Professional and Ethical Standards Board's APES 110 *Code of Ethics for Professional Accountants* (the Code) that are relevant to our audit of the Financial Information in Australia. We have also fulfilled our other ethical responsibilities in accordance with the Code.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our opinion.

Emphasis of Matter - Basis of Accounting and Restriction on Distribution and Reliance

Our report is intended solely for the Directors and the Australian Energy Regulator and should not be distributed to parties other than the Directors and the Australian Energy Regulator. A party other than the Directors or the Australian Energy Regulator accessing this report does so at their own risk and Ernst & Young expressly disclaims all liability to a party other than the Directors and the Australian Energy Regulator for any costs, loss, damage, injury or other consequence which may arise directly or indirectly from their use of, or reliance on the report. Our opinion is not modified in respect of this matter.

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Responsibility of the Directors for the Financial Information and Basis of Preparation

The Directors are responsible for the preparation of the Financial Information, and have determined that the definition of Financial Information, as presented within tables 2.1, 2.2, 2.3, 2.5, 2.6, 2.7, 2.8, 2.9, 2.10, 2.11, 2.12, 4.1, 4.2, 4.3 and 4.4 of the data template entitled "United Energy Category Analysis RIN 2016" is appropriate to the needs of financial users. This responsibility includes such internal control that the directors determine is necessary to enable the preparation of the Financial Information that is free from material misstatement, whether due to fraud or error.

The Directors are also responsible for the preparation of the Basis of Preparation consistent with the requirements of the Notice and the Principles and Requirements in Appendix D of the Notice.

Auditor's Responsibility for the Audit of the Financial Information and Basis of Preparation

Our objectives are to obtain reasonable assurance about whether the Financial Information is free from material misstatement, whether due to fraud or error, and to issue an auditor's report that includes our opinion. Reasonable assurance is a high level of assurance, but is not a guarantee that an audit conducted in accordance with Australian Auditing Standards will always detect a material misstatement when it exists. Misstatements can arise from fraud or error and are considered material if, individually or in the aggregate, they could reasonably be expected to influence the economic decisions of users taken on the basis of this Financial Information.

As part of an audit in accordance with Australian Auditing Standards, we exercise professional judgement and maintain professional scepticism throughout the audit. We also:

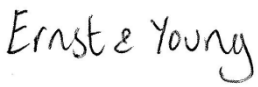
- Identify and assess the risks of material misstatement of the Financial Information whether due to fraud or error, design and perform audit procedures responsive to those risks, and obtain audit evidence that is sufficient and appropriate to provide a basis for our opinion. The risk of not detecting a material misstatement resulting from fraud is higher than for one resulting from error, as fraud may involve collusion, forgery, intentional omissions, misrepresentations, or the override of internal control.

- Obtain an understanding of internal control relevant to the audit in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity's internal control.

- Evaluate the appropriateness of accounting policies used and the reasonableness of accounting estimates, if any, and related disclosures made by the directors.

Our objectives are also to express a conclusion on compliance, in all material respects, of the Basis of Preparation with the requirements of the Notice and the Principles and Requirements in Appendix D of the Notice.

We communicate with the Directors regarding, among other matters, the planned scope and timing of the audit and significant audit findings, including any significant deficiencies in internal control that we identify during our audit.



Ernst & Young
Melbourne
26 April 2017

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Independent Auditor's Report to the Directors of United Energy Distribution Pty Ltd

We have reviewed the Non-financial information within tables 2.1, 2.2, 2.3, 2.5, 2.6, 2.7, 2.8, 2.10, 2.11, 2.12, 4.1, 4.2, 4.3, 4.4, 5.2, 5.3, 5.4 and 6.3 in the data templates entitled "United Energy Category Analysis RIN 2016" attached ("Non-Financial Information") prepared by United Energy Distribution Pty Ltd in response to the Category Analysis Regulatory Information Notice ("the Notice") issued by the Australian Energy Regulator on 7 March 2014, for the regulatory year ended 31 December 2016.

This information has been prepared in accordance with United Energy Distribution Pty Ltd's Basis of Preparation (the "Basis of Preparation") in response to the Notice issued by the Australian Energy Regulator on 7 March 2014, for the regulatory year ended 31 December 2016. In accordance with the requirements of the Notice, information presented in the Non-Financial Information before this date range has not been subject to review.

In addition, we have reviewed the compliance of the Basis of Preparation as it relates to Non-Financial Information with the requirements of the Notice and the Principles and Requirements in Appendix E of the Notice, for the regulatory year ended 31 December 2016.

The Australian Energy Regulator requires the Non-Financial Information and an accompanying Basis of Preparation document for the performance of a function conferred on it under Division 4 of Part 3 of the *National Electricity (Victoria) Law*, namely conducting various benchmarking exercises as outlined in the Regulatory Information Notice issued to United Energy Distribution Pty Ltd on 7 March 2014.

Director's Responsibility for the Non-Financial Information and Basis of Preparation

The directors are responsible for the preparation of the Non-Financial Information and the Basis of Preparation, and have determined that the Basis of Preparation used is appropriate to the needs of the Australian Energy Regulator. The directors are also responsible for such internal controls as the directors determine are necessary to enable the preparation of the Non-Financial Information that is free from material misstatement, whether due to fraud or error.

Auditor's Responsibility

Our responsibility is to express a conclusion on the Non-Financial Information based on our review.

We have conducted our review of the Non-Financial Information in accordance with the Australian Standard on Assurance Engagements ASAE 3000 *Assurance Engagements Other than Audits or Reviews of Historical Financial Information* in order to state whether, on the basis of the procedures described, anything has come to our attention that causes us to believe that the Non-Financial Information is not prepared, in all material respects, in accordance with the Basis of Preparation and the requirements of the Notice.

Our responsibility is also to express a conclusion on compliance, in all material respects, of the Basis of Preparation with the requirements of the Notice that relates to Non-Financial Information. Our review has been conducted in accordance with the Australian Standard on Assurance Engagements ASAE 3100 *Compliance Engagements* to provide limited assurance. These procedures have been undertaken to form a conclusion that nothing has come to our attention that causes us to believe that the Basis of Preparation has not complied, in all material respects, with the Notice.

ASAE 3000 and ASAE 3100 require us to comply with the requirements of the applicable code of professional conduct of a professional accounting body.

A review consists of making enquiries, primarily of persons responsible for financial and accounting matters, and applying analytical and other review procedures. A review is substantially less in scope than an audit conducted in accordance with Australian Auditing Standards and consequently does not enable us to obtain assurance that we would become aware of all significant matters that might be identified in an audit. Accordingly, we do not express an audit opinion.

Independence

In conducting our procedures we have complied with the independence requirements of the Australian professional accounting bodies.

Conclusion

Based on our review, which is not an audit, nothing has come to our attention that causes us to believe that the Non-Financial Information is not prepared, in all material respects, in accordance with the requirements of the Notice or United Energy Distribution Pty Ltd's Basis of Preparation. In addition, nothing has come to our attention that causes us to believe that the Basis of Preparation does not comply, in all material respects, with the Notice.

Basis of Accounting and Restriction on Distribution

The Non-Financial Information is prepared to assist United Energy Distribution Pty Ltd to meet the requirements of the Notice. As a result the Non-Financial Information may not be suitable for another purpose. Our report is intended solely for United Energy Distribution Pty Ltd and the Australian Energy Regulator and should not be distributed to parties other than United Energy Distribution Pty Ltd or the Australian Energy Regulator.

A party other than the Directors or the Australian Energy Regulator accessing this report does so at their own risk and Ernst & Young expressly disclaims all liability to a party other than the Directors and the Australian Energy Regulator for any costs, loss, damage, injury or other consequence which may arise directly or indirectly from their use of, or reliance on the report. Our conclusion is not modified in respect of this matter.

Ernst & Young

Ernst & Young
Melbourne
26 April 2017

State of Victoria

Statutory Declaration

I, **Antonio Narvaez,**

of **Level 3, 6 Nexus Court, Mulgrave, Victoria,**

Chief Executive Officer, do solemnly and sincerely declare that:

1. I am an officer, for the purposes of the *National Electricity (Victoria) Law* (NEL), of United Energy Distribution Pty Limited (ACN 064 651 029) (United Energy), a regulated network service provider for the purposes of section 28D of the NEL. I am authorised by United Energy to make this statutory declaration as part of the response of United Energy to the Regulatory Information Notice dated 7 March 2014 (Notice) served on United Energy by the Australian Energy Regulator (AER).

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

   (a) in accordance with the requirements of the Notice; and

   (b) true and accurate.

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

   (a) provided United Energy'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 Mulgrave

this 28th day of April 2017

.....
Signature of person making this declaration
(to be signed in front of an authorized witness)

Before me,

.....
Signature of Authorised Witness

Niki Hantzis
an Australian legal practitioner
within the meaning of the
Legal Profession Uniform Law (Victoria)

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 of 1 January 2010), (previously *Evidence Act 1958),* (eg Justice of the Peace, Pharmacist, Police Officer, Court Registrar, Bank Manager, Medical Practitioner, Dentist)

Contact: Mathew Abraham
Regulation
United Energy
Phone: 03 8846 9758

April 2017

Category Analysis Basis of Preparation 2016

Overview

United Energy is required to prepare a Basis of Preparation document (this document) which must, for all information:

a) demonstrate how the information provided is consistent with the requirements of the Regulatory Information Notice (RIN);

b) explain the source from which United Energy obtained the information provided;

c) explain the methodology United Energy applied to provide the required information, including any assumptions United Energy made;

d) explain circumstances where United Energy cannot provide input for a variable using actual information, and therefore must provide Estimate information:

   i. why an estimate was required, including why it was not possible for United Energy to use actual information;
   ii. the basis for the estimate, including the approach used, assumptions made and reasons why the estimate is United Energy's best estimate, given the information sought in the Notice.

In accordance with the requirements above, this appendix provides details to support the information provided by United Energy in the Microsoft Excel workbooks titled:

- *'United Energy category analysis data templates – Consolidated Information'*
- *'United Energy category analysis data templates – Actual Information'*
- *'United Energy category analysis data templates – Estimate Information'*

To satisfy the requirements of the Notice, the following information has been provided for each RIN table:

- assessment of data quality;
- data source;
- classification as actual or Estimate information, including appropriate justification if Estimate;
- methodology and assumptions adopted to prepare the information; and
- any additional comments to assist users of the information to understand the basis of preparation.

The table below outlines the classifications used to assess data quality.

Table 1: Data quality and classifications

Colour coding	Availability of data from NSP's Primary System	Assumptions / methodology
Green	Available and verifiable	Simple – no additional work or minor work around (e.g. data sourced from a secondary system)
Light green	Available with some gaps	Moderate – estimated based on statistically significant sample size
Yellow	Little or no data available	Complex – estimate based on formula, standard parameters or other source

Colour coding	Availability of data from NSP's Primary System	Assumptions / methodology
Pink	Little or no data available	Subjective – based on significant estimates, judgements and assumptions
Black	N/A	Not applicable to relevant NSP

The table below provides the AER definitions for actual and estimated information.

Table 2: Definitions – 'Actual and 'Estimate'

Term	Table Heading
Actual information	Information presented in response to the Notice whose presentation is Materially dependent on information recorded in United Energy'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 United Energy'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.
Estimate information	Information presented in response to the Notice whose presentation is not Materially dependent on information recorded in United Energy's historical accounting records or other records used in the normal course of business, and whose presentation for the purposes of the Notice is contingent on judgments and assumptions for which there are valid alternatives, which could lead to a Materially different presentation in the response to the Notice.

The Estimate information is produced using the methodology detailed below. This methodology represents United Energy's best estimate as applied over prior reporting periods and is sourced from United Energy's information systems, audited information (where applicable), internal management reports and subject matter expert professional judgement based on the nature of United Energy's operations. United Energy is unable to provide information with greater accuracy than that provided in its response.

Where estimates have been provided, United Energy is currently considering the feasibility of improvement opportunities to allow actual information to be provided in the future.

Detailed basis of preparation

The following table outlines the basis of preparation of the information provided in all Microsoft Excel Workbooks outlined in the Overview section.

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
2.1	**Expenditure Summary**	2.1.1	Standard Control Services Capex		F	Category Analysis RIN	Replacement expenditure - This is the total expenditure recorded under Table 2.2.1 Repex - Replacement Expenditure by Asset Category Connections - This is the total expenditure recorded under Table 2.5.2 Cost Metrics by Connection Classification Augmentation - This is the total expenditure recorded under Table 2.3.4 - Augex Data - Total Expenditure Non Network - This is the total expenditure recorded under Table 2.6.1 Non - Network Expenditure - Capex The expenditure reconciles to the total Standard Control Services disclosed under Table 8.2.1 Capex by Purpose - Standard Control Services of the UED Annual RIN.		
		2.1.2	Standard Control Services Opex		F	Category Analysis RIN	Vegetation Management - This is the total expenditure recorded under Table 2.7.2 Expenditure Metrics by Zone Maintenance - This is the total Routine and Non Routine expenditure recorded under Table 2.8.2 Cost Metrics for Routine and Non Routine Maintenance, less an adjustment for standard control services opex for SCADA/Network Control recorded under Table 8.4.1 Operating and Maintenance Expenditure by Zone in Opex of UED Annual RIN. Emergency Response - This is the total Emergency Response expenditure recorded under Table 2.9.1 Emergency Response Expenditure (Opex). Non - Network - This is the total expenditure recorded under Table 2.6.1 Non - Network Expenditure - Opex Network Overheads - This is the total Standard Control Services - Network Overheads expenditure recorded under		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							Table 2.10.1 Network Overheads Expenditure. Corporate Overheads - This is the total Standard Control Services - Corporate Overheads expenditure recorded under Table 2.10.2 Corporate Overheads Expenditure. SCADA/Network Control - This is the SCADA/Network Control expenditure recorded under Table 8.4.1 Operating and Maintenance Expenditure by Purpose of the UED Annual RIN. The expenditure reconciles to the total Standard Control Services Maintenance and Operating Expenditure (not including Transmission Connection Fee, Avoided TUoS charges/transmission costs, Premium Feed In Tariff and Transitional Feed In Tariff) disclosed under Table 8.4.1 Operating and Maintenance Expenditure by Purpose of the UED Annual RIN.		
		2.1.3	Alternative Control Services Capex		F	Category Analysis RIN	Connections - This is the Connections Services expenditure recorded under Table 8.2.3 Capex Other of the UED Annual RIN. Metering - This is the cumulative total of the Metering Capex expenditure recorded under Table 4.2.2 Cost Metrics being the New Meter Installation, Meter Replacements, IT Infrastructure Capex, Communications Infrastructure Capex and the installed portion of the Net Meters purchased during the year. Public Lighting - This is the cumulative total of the Public Lighting Capex expenditure recorded under Table 4.1.2 Descriptor Metrics Annually being the Light Installation and Light Replacement expenditure. Ancillary Network Services - This is the Ancillary Network Services expenditure recorded under Table 8.2.3 Capex Other of the UED Annual RIN The expenditure reconciles to the total Public Lighting and		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							Alternative Control Services disclosed under Table 8.2.3 - Capex Other of the UED Annual RIN.		
		2.1.4	Alternative Control Services Opex		F	Category Analysis RIN	Connections - This is the Alternative control - Quoted expenditure - Connection Services recorded under Table 8.4.1 Operating & Maintenance Expenditure - By Purpose of the UED Annual RIN. Network Overheads - This is the total Alternative Control Services - Network Overheads expenditure recorded under Table 2.10.1 Network Overheads Expenditure. Corporate Overheads - This is the total Alternative Control Services - Corporate Overheads expenditure recorded under Table 2.10.2 Corporate Overheads Expenditure, less an adjustment made to reconcile to Table 8.4.1 Operating & Maintenance Expenditure - By Purpose of the UED Annual RIN. Metering - This is the cumulative total of the Metering Opex expenditure recorded under Table 4.2.2 Cost Metrics being the Meter Testing, Meter Investigation, Scheduled Meter Read, Special Meter Reading, Other Metering and the IT Infrastructure Opex and Communications Infrastructure Opex. Public Lighting - This is the total of the Public Lighting Opex expenditure recorded under Table 4.1.2 Descriptor Metrics Annually being the Light Maintenance expenditure. Ancillary network services - This is the Alternative control - Fee Based & Quoted expenditure - Ancillary Network Services recorded under Table 8.4.1 Operating & Maintenance Expenditure - By Purpose of the UED Annual RIN. The expenditure reconciles to the total Alternative Control Services disclosed under Table 8.4.1 Operating and Maintenance Expenditure by Purpose of the UED Annual RIN.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
		2.1.5	Dual Function Assets Capex						Not applicable to UE.
		2.1.6	Dual Function Assets Opex						Not applicable to UE.
2.2	**Repex**		General				UE has produced a number of documents that contain instructions on how the data required for the RIN category is to be obtained and populated. These documents include detailed methodologies to provide both actual data. The basis of preparation against each relevant RIN category is a summary of the methodology detailed within these UE produced documents. For this particular RIN, document UE PR 2330, 2327, 2317 and 2329 were referenced.		UE have no 'long rural' or CBD feeder classification and information is therefore not provided.
		2.2.1	Replacement Expenditure, Volumes and Asset Failures by Asset Category Poles		F/NF	SAP DMS/OMS	Asset Replacement activity is captured in UE's SAP system. Work orders are raised for each replacement activity and actual costs captured. Separate Codes (MAT codes) are used to capture various asset types. The allocation of MAT codes to the RIN categories have been made according to the professional judgement of UED Asset Management according to prior period expenditure recorded and projects undertaken during the calendar year. This is completed via an individual asset model which allocates the cost and then summarises the figures into each RIN category. Work orders are linked to equipment codes and these have been used to split the replacements by classification and voltage.		Expenditure and associated volumes relate to Standard Control Services only. (public lighting not included)

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							The number of asset failures is obtained from monthly reports of outages from the DMS/OMS system which are filtered and sorted into the categories required by the RIN.		
			Poles Top Structures		F/NF	SAP	Asset Replacement activity is captured in UE's SAP system. Work orders are raised for each replacement activity and actual costs captured. Separate Codes (MAT codes) are used to capture various asset types. The allocation of MAT codes to the RIN categories have been made according to the professional judgement of UED Asset Management according to prior period expenditure recorded and projects undertaken during the calendar year. This is completed via an individual asset model which allocates the cost and then summarises the figures into each RIN category. Work orders are linked to equipment codes and these have been used to split the replacements by classification and voltage. The number of asset failures is obtained from monthly reports of outages from the DMS/OMS system which are filtered and sorted into the categories required by the RIN.		
			Conductors		F/NF	SAP	Asset Replacement activity is captured in UE's SAP system. Work orders are raised for each replacement activity and actual costs captured. Separate Codes (MAT codes) are used to capture various asset types. The allocation of MAT codes to the RIN categories have been made according to the professional judgement of UED Asset Management according to prior period expenditure recorded and projects undertaken during the calendar year. This is completed via an individual asset model which allocates the cost and then summarises the figures into each RIN category. Work orders are linked to equipment codes and these have been used to split the replacements by classification and voltage.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							The number of asset failures is obtained from monthly reports of outages from the DMS/OMS system which are filtered and sorted into the categories required by the RIN.		
			Underground cables		F/NF	SAP	Asset Replacement activity is captured in UE's SAP system. Work orders are raised for each replacement activity and actual costs captured. Separate Codes (MAT codes) are used to capture various asset types. The allocation of MAT codes to the RIN categories have been made according to the professional judgement of UED Asset Management according to prior period expenditure recorded and projects undertaken during the calendar year. This is completed via an individual asset model which allocates the cost and then summarises the figures into each RIN category. Work orders are linked to equipment codes and these have been used to split the replacements by classification and voltage. The number of asset failures is obtained from monthly reports of outages from the DMS/OMS system which are filtered and sorted into the categories required by the RIN.		
			Service Lines		F/NF	SAP	Asset Replacement activity is captured in UE's SAP system. Work orders are raised for each replacement activity and actual costs captured. Separate Codes (MAT codes) are used to capture various asset types. The allocation of MAT codes to the RIN categories have been made according to the professional judgement of UED Asset Management according to prior period expenditure recorded and projects undertaken during the calendar year. This is completed via an individual asset model which allocates the cost and then summarises the figures into each RIN category.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							Work orders are linked to equipment codes and these have been used to split the replacements by classification and voltage. The number of asset failures is obtained from monthly reports of outages from the DMS/OMS system which are filtered and sorted into the categories required by the RIN.		
			Transformers		F/NF	SAP	Asset Replacement activity is captured in UE's SAP system. Work orders are raised for each replacement activity and actual costs captured. Separate Codes (MAT codes) are used to capture various asset types. The allocation of MAT codes to the RIN categories have been made according to the professional judgement of UED Asset Management according to prior period expenditure recorded and projects undertaken during the calendar year. This is completed via an individual asset model which allocates the cost and then summarises the figures into each RIN category. Work orders are linked to equipment codes and these have been used to split the replacements by classification and voltage. The number of asset failures is obtained from monthly reports of outages from the DMS/OMS system which are filtered and sorted into the categories required by the RIN.		
			Switchgear		F/NF	SAP	Asset Replacement activity is captured in UE's SAP system. Work orders are raised for each replacement activity and actual costs captured. Separate Codes (MAT codes) are used to capture various asset types. The allocation of MAT codes to the RIN categories have been made according to the professional judgement of UED Asset Management according to prior period expenditure recorded and projects undertaken during the calendar year. This is completed via an individual asset model which allocates the cost and then summarises the figures into each RIN category.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							Work orders are linked to equipment codes and these have been used to split the replacements by classification and voltage. The number of asset failures is obtained from monthly reports of outages from the DMS/OMS system which are filtered and sorted into the categories required by the RIN.		
			Public Lighting		F/NF	SAP	Asset Replacement activity is captured in UE's SAP system. Work orders are raised for each replacement activity and actual costs captured. Separate Codes (MAT codes) are used to capture various asset types. The allocation of MAT codes to the RIN categories have been made according to the professional judgement of UED Asset Management according to prior period expenditure recorded and projects undertaken during the calendar year. This is completed via an individual asset model which allocates the cost and then summarises the figures into each RIN category. Work orders are linked to equipment codes and these have been used to split the replacements by classification and voltage. The number of asset failures is obtained from monthly reports of outages from the DMS/OMS system which are filtered and sorted into the categories required by the RIN.	Brackets are not separately recorded and are replaced with lamps.	Public Lighting Luminaires are run to failure, hence the number of replacements is the same as the number of failures.
			SCADA, Network Control and Protection Systems		F/NF	SAP	Asset Replacement activity is captured in UE's SAP system. Work orders are raised for each replacement activity and actual costs captured. Separate Codes (MAT codes) are used to capture various asset types. The allocation of MAT codes to the RIN categories have been made according to the professional judgement of UED Asset Management according to prior period expenditure recorded and projects undertaken during the calendar year. This is completed via an individual asset model which allocates the cost and then summarises the figures into each RIN category.		Some minor secondary equipment has not been classified into separate categories.

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							Work orders are linked to equipment codes and these have been used to split the replacements by classification and voltage. The number of asset failures is obtained from monthly reports of outages from the DMS/OMS system which are filtered and sorted into the categories required by the RIN.		
		2.2.2	Selected Asset Characteristics Poles by Feeder Type		NF	Tableau	The Tableau extract provides the urban/rural input fields which are then extracted to Excel and summed into each category. UE does not have any CBD or long rural feeders. Any unknown volumes have been allocated pro rata to the categories, according to the known split between feeder type		Note that quantities in Tab 2.2 are only applicable if they lead to replacement, unlike Tab 6.3
			Overhead Conductor by Feeder Type		NF	Tableau	The Tableau extract provides the urban/rural input fields which are then extracted to Excel and summed into each category. Any unknown volumes have been allocated pro rata to the categories, according to the known split between feeder type		Note that quantities in Tab 2.2 are only applicable if they lead to replacement, unlike Tab 6.3
			Conductor by Material Type		NF	Tableau	The Tableau extract provides material type, construction type and voltage which are then extracted to Excel and allocated to the categories specified in the RIN. Any unknown volumes have been allocated pro rata to the categories, according to the known split between the material types.		Note that quantities in Tab 2.2 are only applicable if they lead to replacement, unlike Tab 6.3

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Underground Cable by Feeder Type		NF	Tableau	The HV cable data is obtained from a Tableau extract, which provides the urban/rural classification which is then extracted to excel and summed into categories. The LV cable data is obtained from a Tableau extract, which provides switch zone data but no urban/rural classification. The switch zones are then mapped to each feeder (via a SAP extract), and then categorised into urban/rural classifications and summed. Any unknown volumes have been allocated pro rata to the categories, according to the known split between feeder type		Note that quantities in Tab 2.2 are only applicable if they lead to replacement, unlike Tab 6.3
			Transformers by total MVA		NF	SAP	Transformer rating data is available from SAP. SAP was used to extract data for the items replaced in 2016 and the totals summed.		
2.3	**Augex**		General			AMP Demand Project List. Scope of works. Business Cases.	UE has produced a number of documents that contain instructions on how the data required for the RIN category is to be obtained and populated. These documents include detailed methodologies to provide both actual and Estimate data. The basis of preparation against each relevant RIN category is a summary of the methodology detailed within these UE produced documents. For this particular RIN, document UE PR 2212 was referenced.		Only projects that have been commissioned in there regulatory year are included.
		2.3 (a)	2.3 (a) AUGEX 2.3.1 Sub transmission Substations, Switching Stations and Zone Substations Project			SAP. Service Delivery. Service Providers. Finance.	Zone substation ID and project description information has been obtained from the AMP Project Demand List. All proposed projects are listed and are filtered for the AER categories. The project folders contain business cases, detailed scopes of work and Statement of Work documents. Equipment volumes have been extracted from the detailed scope of work and business case documents. The Project ID is the SAP project Code and is included in the AMP Demand Project List. The project trigger and project		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Description & Plant and Equipment Volumes				type have been selected based on the business case and scope of the project.		
		2.3 (a)	2.3 (a) AUGEX 2.3.1 Sub transmission Substations, Switching Stations and Zone Substations Substation Rating			AMP Demand Project List Project Folders Business Case Documents . SAP Service Providers	Substation ratings are extracted from either Rating Database or Load Forecasting spreadsheet.		
		2.3 (a)	2.3 (a) AUGEX 2.3.1 Sub transmission Substations, Switching Stations and Zone Substations Project Expenditure			SAP	The cost description in SAP and the information provide by the Service Providers have been used to break the total project expenditure (apart from UE overheads) into the RIN categories. The service provider of the project is used to determine whether it is a related party or not. ZNX is a related party and Downer is considered to be a non-related party. The Transformer and switchgear expenditure has been recorded from the Free Issue Materials incurred across the project excluding the installation costs. The Other Plant Item expenditure has been recorded from the costs which have been provided by the Service Providers and any residual material costs incurred by UE. The Installation Hours have been provided by the Service Providers based upon total hours worked. The total labour expenditure charged by the Service Provider has been		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							proportionated based on the on-site/off-site labour cost ratio provide in the SOW to calculate the on-site installation cost. Further, the installation costs for the transformer and switchgear has also been recorded. The Civil Works have been recorded from the costs provided by the Service Provider, based upon their costs incurred for activities designated to be Civil Works. The other direct costs incurred are recorded from the costs provided by the Service Provider including ZSS Subcontract, ZSS Plant & Equipment, ZSS Downer Overheads and ZSS Downer Margin, additional off-site Downer labour cost and any other direct overhead costs which were not incurred by the service provider. There has been no related party costs incurred, as the applicable service provider for the project was Downer.		
		2.3 (a)	2.3 (a) AUGEX 2.3.2 Sub transmission Lines Project Information & Plant and Equipment Volumes			SAP	The allocation of augmentation categories has been made according to projects and volumes to MAT codes. Line ID and project description information has been obtained from the AMP Project Demand List. All proposed projects are listed and are filtered for the AER categories. The project folders contain business cases, detailed scopes of work and Statement of Work documents. Equipment volumes have been extracted from the detailed scope of work and business case documents. The Project ID is the SAP project Code and is included in the AMP Demand Project List. The project trigger and project type have been selected based on the business case and scope of the project.		
		2.3 (a)	2.3 (a) AUGEX 2.3.2 Sub transmission			AMP Demand Project List Project	The cost description in SAP and the information provide by the Service Providers have been used to break the total project expenditure (apart from UE overheads) into the RIN categories. The service provider of the project is used to		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Lines Project Expenditure			Folders Business Case Documents . SAP	determine whether it is a related party or not. ZNX is a related party and Downer is considered to be a non-related party. The number of installation hours has been provided by the Service Providers. The expenditure recorded for labour has been provided from the related labour expenditure data taken from SAP. The Other Direct expenditure has been provided from the contract expenses, the direct overhead, material plant and fleet and sub contractor costs data taken from SAP The Related Party Margins has been provided from the Related Party Margins data taken from SAP. The total Related Party Costs are the totals of the ZNX/Zinfra Direct Overhead, Labour, LIMB 2, material, plant and fleet and sub contractor costs taken from SAP		
		2.3 (a)	2.3 (a) AUGEX 2.3.2 Sub Transmission Lines Land and Easements			AMP Demand Project List Project Folders Business Case Documents . SAP	Land and easement costs associated with each project are obtained from SAP project IDs with activity classifications "GP". Land purchase expenditures are costs associated with the purchase of land for a new line or an upgrade of an existing line. Easement expenditures are costs associated with compensating land owners for easement acquisition.		
		2.3 (b)	2.3 AUGEX 2.3.3 HV/LV Feeders and Distribution Substations Descriptor Metrics			AMP Demand Project List Project Folders Business Case	HV feeder lengths have been taken directly from the Project Scope of Works. LV underground feeder lengths is actual data taken from SAP. LV overhead feeder lengths is estimated data taken from SAP. This length should be the material length (4 conductors are used for an overhead line, therefore the route length is		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
						Documents. SAP	the total material length divided by 4). However sometimes the route length has been entered instead. Therefore the total length can be slightly lower than actual. Distribution substation units added/upgraded is determined for each individual project based on scope of works.		
		2.3 (b)	2.3 AUGEX 2.3.3 HV/LV Feeders and Distribution Substations Cost Metrics			AMP Demand Project List. Scope of works. Business Cases.	The allocation of augmentation categories has been made according to projects and expenditure to MAT codes. The expenditure provided under Table 2.3.3.2 includes expenditure in CY2016, and relevant total HV feeder expenditure for the major projects commissioned during the year, which are reported in table 2.3.1. Material projects are the ones with total cost greater than $500k. The HV feeder expenditure are actual direct cost data taken from SAP. The classification of projects as being HV were made by UE Asset Management based on the scope of works. The apportionment of costs for overhead and under ground works were based on the information available in the settlement rules. LV feeder expenditure is actual direct cost data taken from SAP. All the LV feeder projects are non-material as their respective costs are less than $500k threshold. Distribution substation direct cost expenditure is actual data taken from SAP. The designation of projects as being Pole Mounted, Ground Mounted or Indoor has been made based on the asset data and project scope of works. The expenditure captured in this table is direct cost expenditure, with no overhead expenditure recorded.		
		2.3 (b)	2.3 AUGEX 2.3.4 Augex Data - Total Expenditure			Load Forecast spreadsheet.	The allocation of augmentation categories has been made according to projects and expenditure to MAT codes. Zone substation expenditure is the 2016 component of the commissioned zone substation projects in 2.3.1 plus the actual expenditure of all other zone substation projects from		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
						Ratings Database	SAP in CY2016. Sub transmission line expenditure is the 2016 sub transmission line component of the commissioned zone substation projects in 2.3.1 plus the actual expenditure of all other sub transmission line projects from SAP in CY2016. HV feeder expenditure is the HV feeder expenditure in 2.3.3.2 for CY2016, plus the CY2016 HV feeder component from the zone substation projects reported in 2.3.1. The determination of these costs has been made according to the professional judgement of UED Asset Management according to the prior period expenditure and projects being undertaken during the year. LV feeder expenditure is the LV feeder expenditure in CY2016. The determination of these costs has been made according to the professional judgement of UED Asset Management according to the prior period expenditure and projects being undertaken during the year. Any projects which relate to HV work or Distribution Substations have been reclassified to HV Feeder expenditure and Distribution Substation expenditure. Distribution substation expenditure is the total distribution substation expenditure from CY2016. The determination of these costs has been made according to the professional judgement of UED Asset Management according to the prior period expenditure and projects being undertaken during the year, with the classification made according to whether any kVA has been added associated with the project. Other assets expenditure is actual project expenditure from SAP in CY2016. The determination of these costs has been made according to the prior period expenditure and projects being undertaken during the year, with the MAT codes PDS, PZA, PQA, PDP, PDA, PDQ, GEA, PDD and PRA been recorded as Other Assets during the year.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							The expenditure captured in this table is total cost expenditure including overheads.		
2.5	**Connections**		General				UE has produced a number of documents that contain instructions on how the data required for the RIN category is to be obtained and populated. These documents include detailed methodologies to provide both actual and Estimate data. The BoP against each relevant RIN category is a summary of the methodology detailed within these UE produced documents. For this particular RIN, document UE PR 2211 was referenced.	The following were considered in providing the data for Table 2.5.1: 1) The expenditure related to connecting new end-user customers to the existing UE LV network was excluded. This excluded expenditure involved installation of the customer service line and end-user metering. This expenditure is classified under unitised pricing. 2) Individual LV residential end-use connections are well spread over UE network with a negligible impact on the UE	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
								network as a result of these connections, therefore there were no LV/HV/distribution substation augmentation spend for individual residential connections. 3) In the absence of data related to actual days required to complete a new residential connection (within 10 days), it is assumed it takes 8 days to complete an underground service connection and 5 days to complete an overhead service connection. Actual connections with days over the compliance	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
								period (10 days) are available and used to estimate the actual mean days required to connect a residential customer. 4) Embedded generation data included small-scale embedded generation volumes only. There was no LV/HV/distribution substation augmentation expenditure as a result of installing small-scale embedded generation as this is connected using an automatic connection process.	
		2.5.1	Descriptor Metrics Underground and		NF	Monthly connection reports.	The total number of connections for the residential and commercial/industrial category have been obtained from SAP. New customers data were extracted from and SAP and sorted based on customer class (Residential, Commercial and Industrial). The total number of subdivision connections	The breakdown of residential and commercial/industrial connections is based on the	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Overhead Connections for various sub categories			SAP	is actual data taken from SAP. The number of embedded generations connections is actual data taken from SAP. The allocation of these connections to residential, commercial/industry, subdivision and embedded generation has been according to volumes recorded against MAT codes. The allocation of the MAT codes to the RIN categories has been made in according to the professional judgement of UED Asset Management according to prior period volumes and projects undertaken during the calendar year.	total number of overhead and underground connections as provided in the 'CMS Monthly Report'. The breakdown of residential, commercial/industrial and embedded generation connections into overhead and underground is based on a sample of actual projects. The actual project data is provided from the service provider undertaking the connection work. The breakdown of subdivision connections into overhead/underground is not recorded by UE systems. Therefore, the total kilometres	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
								added of underground cable and overhead line for each subdivision connection project was extracted from SAP. If more overhead line was installed, the connection was assumed to be overhead and vice versa.	
			Distribution substation volume, expenditure and installed capacity		F & non-F	SAP	The distribution substation installations has been obtained from actual data in SAP. The information has been extracted into spreadsheets and has been mapped to their related project. There are no installations of substations for residential connections, only for subdivision and commercial/industrial. The allocation of these connections to residential, commercial/industry, subdivision and embedded generation has been according to expenditure and volumes recorded against MAT codes. The allocation of the MAT codes to the RIN categories has been made in according to the professional judgement of UED Asset Management according to prior period expenditure and volumes and projects undertaken during the calendar year.	We have assumed that each individual project is one substation.	There are no installations of substations for residential connections. There are also no substation installations for embedded generation installations unless a larger project took place in the regulatory year.

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			HV & LV Augmentation volumes and expenditure		F & non-F	SAP	SAP Settlement rules were used to extract data for (HV & LV) conductor lengths. There is no upstream augmentation for residential connections. The allocation of these connections to residential, commercial/industry, subdivision and embedded generation has been according to expenditure and volumes recorded against MAT codes. The allocation of the MAT codes to the RIN categories has been made in according to the professional judgement of UED Asset Management according to prior period expenditure and volumes and projects undertaken during the calendar year.		There is no augmentation data for residential connections. The expenditure related to connecting new end-user customers to the existing UE LV network was excluded. This excluded expenditure involved installing the customer service line and end-user metering. This expenditure is classified under unitised pricing Alternate Control Services.
			GSL breaches		F & non-F	SAP CIS+	SAP/HANA data model were build in accordance to related GSL late connections procedure. These numbers are extracted into the RIN categories from Tableau, with the SAP/HANA data model parameters build in accordance with the requirements of the regulatory RIN category.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Mean Days to connect		F & non-F	SAP	SAP/HANA data model were build in accordance to related GSL late connections procedure. These numbers are extracted into the RIN categories from Tableau, with the SAP/HANA data model parameters build in accordance with the requirements of the regulatory RIN category.	UE does not collect data on time to complete connections unless customers received GSL payments. For these calculations, it has been assumed that underground customers are connected within 8 days and overhead connections in 5 days.	
			Subdivision Cost per Lot		F	SAP Project Scope of Works	SAP/HANA data model were built to determine 'cost per lot' based on SAP and GIS data. These numbers are extracted into the RIN categories from Tableau, with the SAP/HANA data model parameters build in accordance with the requirements of the regulatory RIN category.	The sample is split into three groups of low, medium and high expenditure of roughly equal size. The actual cost per lot is calculated for each of these categories. These averages are used as the cost per lot for all	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
								subdivision projects.	
			Embedded Generators		F/NF	Embedded Generator Register.	SAP/HANA model were built to extract data in relation to embedded generation, refer to RIN Connections Procedure. These numbers are extracted into the RIN categories from Tableau, with the SAP/HANA data model parameters build in accordance with the requirements of the regulatory RIN category.		The majority of the embedded generation connections are small PV installations by the customer. Larger projects are rare, only one or two each year. SAP records the data for larger projects.
		2.5.2	Cost Metrics by Connections Classification		F/NF	SAP CIS+ GIS	Data has been extracted from SAP for financial data, SAP and GIS for volumes. The data is exported to spreadsheets for filtering. Project codes within SAP have been used to allocate assets and costs for each connection category. The allocation of these connections to residential, commercial/industry, subdivision and embedded generation has been according to expenditure and volumes recorded against MAT codes. The allocation of the MAT codes to the RIN categories has been made in according to the professional judgement of UED Asset Management according to prior period expenditure and volumes and projects undertaken during the calendar year.	**Residential** Simple connection LV (vol/spend): - It is assumed that all Residential connections (CIS+ Monthly Connection Report) are established through simple connections LV.	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
								Complex connection LV (vol/spend) & Complex connection HV (vol/spend): - There is no spend to augment LV/HV network to establish residential connections **Commercial/Industrial** **Simple connection LV (vol/spend):** - All projects coded as CBE & CBL, unless it has a total cost exceeding $400,000 Complex connection HV with minor HV works (vol/spend):	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
								- All CB projects with distribution substation installations/modification which are coded as (CBK,CBP,CBG, CBI & CBS), unless it has a total cost exceeding $400,000 **Complex connection HV with upstream asset work (vol/spend):** - Any CB project with the total cost exceeding $400,000 Complex connection HV (customer connected at HV): - Any projects related to connection of HV customers which are coded as (CBH & CBS) and have	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
								a total cost under $400,000 '- Any customer initiated works involving the relocation of assets which are coded as CR (spend only) **Subdivision (CD,CH & CS)** - Complex connections LV (vol/spend): **-** CHL projects are those that require supply provided via an LV extension from existing LV circuit - Complex connection HV (with upstream work): - CH projects are those that requires HV extension works	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
								Complex connections HV (with no upstream work): - Any CH projects remaining from above criteria (>$400,000) - Any CD (multi-unit developments) projects including spend which is SCS only (i.e. excludes ACS) - CD km for LV aug volumes are calculated manually (number of jobs X 5m) - Any CS (rural supply) project **Embedded Generation**	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
								Simple connections LV: - All the PV embedded generations' connections are LV simple connections and have no associated augmentation spend. The volume of simple connections LV can be taken as the total number of embedded generation connections - Complex HV connections (Small capacity) & Complex HV connections (Large capacity) - There is unlikely to be more than a couple of complex connections at	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
								most. These are for larger commercial projects. Check with Network planning to get the number of these projects. The expenditure can be found from SAP or project documentation. How the volume and expenditure is split between the three categories should be determined on a per project basis. The definitions of these categories are found in the CA RIN letter from the AER.	
2.6	**Non-Network**		General				UE has produced a number of documents that contain instructions on how the data required for the RIN category is to be obtained and populated. These documents include detailed methodologies to provide both actual and Estimate		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							data. The basis of preparation against each relevant RIN category is a summary of the methodology detailed within these UE produced documents. For this particular RIN, document UE PR 2305 was referenced.		
			2.6.1 Non-Network Expenditure - IT & Communications Client device expenditure Capex		F	SAP	Data is extracted from SAP based on the AER definition. According to the AER, 'recurrent expenditure' is expenditure that returns time after time with respect to the particular category of expenditure (refer to p.69 of the Category Analysis RIN).		
			Recurrent expenditure Opex		F	SAP	As above		
			Recurrent expenditure Capex		F	SAP	As above		
			Non-recurrent expenditure Opex		F	SAP	As above		
			Non-recurrent		F	SAP	As above		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			expenditure Capex						
			2.6.1 Non-Network Expenditure – Motor vehicles Motor vehicles capex		F	SAP	Extracted a list of statutory capital additions from SAP categorised into the Annual RIN schedule '8.2 Capex' against row 'Non-network - other'. Identified the motor vehicle related capex within this annual RIN category from the SAP description of the capital project manually.		
			Motor vehicles opex		F	Motor Vehicle OPEX was obtained from Service Providers records and fuel card transactions.	The motor vehicles operating expenditure (OPEX) for vehicles operated by UE was actual data and was sourced from the UE GL.		
			Non-Network Expenditure-Buildings, Other, SCADA		F	SAP	The building and property opex figure was extracted from a SAP cost centre report of GL accounts relevant to buildings and property.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Buildings opex						
			Buildings capex		F	SAP	Extracted a list of statutory capital additions from SAP categorised into the Annual RIN schedule '8.2 Capex' against row 'Non-network - other'. Identified the building & property related capex within this annual RIN category from the SAP description of the capital project manually.		
		2.6.1	Non-Network Expenditure – Other (Opex & Capex)		F	CAPEX taken from SAP. OPEX was obtained from Service Providers records	"Extracted a list of statutory capital additions from SAP categorised into the Annual RIN schedule '8.2 Capex' against row 'Non-network - other'. Identified the capex from the SAP description of the capital project. This is the capex that did not fit into the other categories. The Non-Network Other opex figure was extracted from a SAP cost centre report of GL accounts relevant to buildings and property. "		This inclusion/exclusion is based on the following clause in the CA RIN: If United Energy has incurred less than $1,000,000 (nominal dollars) in capital expenditure over the last five regulatory years for which regulatory accounts have been lodged with the AER for a class of assets: (a) report only historic capital expenditure for that class of assets in Other Non-Network

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
									Expenditure; and (b) only record operating expenditure in the relevant operating expenditure category regulatory template.
		2.6.2	Annual Descriptor Metrics - IT & Communications IT and communications Employee Numbers		NF	Identity Asset Management (IAM) System	Limited to those engaged directly by UE and does not include resources engaged by service providers. Based on HR employee listing as at 31 December 2016		
			IT and communications User Numbers		NF	Email accounts with UE from exchange system	Contains active users only and is for users both employed by UE and for external parties accessing UE systems.		
			IT and communications		NF	For Employee Number -	No. of devices was based on a report generated from SCCM. Microsoft System Center Configuration Manager (SCCM) is a product that enables administrators to manage the		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Number of Devices			Payroll data For User Numbers - An internal data base For Number of Devices - Device Warrantee information	deployment and security of devices and applications across an enterprise		
		2.6.3	Annual Descriptor Metrics - Motor Vehicles		NF	Motor Vehicle data was obtained from internal and external (Service Providers) records.	Fleet numbers were determined by counting vehicles listed in OPEX reports, km travelled were determined using odometer readings, leased numbers were provided by Service Providers, purchases were determined using CAPEX reports	UE owned cars were utilised by UE and UE Service Providers. UE utilised their cars for standard control services. However, UE Service Providers did not report on the usage of UE owned vehicles. Thus, it was impossible to separate the usage of cars into regulatory and non-regulatory purposes. However, cars	A weighted average of the number of motor vehicles per month was used for vehicle numbers.

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
								are predominately used for standard control services and hence, it was reasonable to allocate all cars expenses to regulatory expenses. Light commercial vehicles, heavy commercial vehicles and elevated work platforms (HCV) are required for standard control services. Hence, these motor vehicle categories expenditure were all allocated to regulatory expenditures.	
2.7	**Vegetation Management**	2.7.1	Descriptor Metrics by Zone Route line length within zone (KM)		NF	Produced by UE's Asset Management group via GIS Data taken	The Route Line Length variable is calculated as the sum of all SubT, HV, LV, Service (mains only) and Public Lighting span lengths from the respective GIS database reports. The sum of span lengths is divided by 1000 to convert from metres to kilometres and filtered for “urban”.	GIS data extract is taken at a momentary point in time as is constantly being updated.	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Urban and CBD			directly from GIS.			
			Route line length within zone (KM) Rural		NF	Produced by UE's Asset Management group via GIS Data taken directly from GIS.	As above but filtered for "rural"	GIS data extract is taken at a momentary point in time as is constantly being updated.	Sourced from Section 3.7 of EB RIN
			Number of maintenance spans (0's) Urban and CBD		NF	Fortnightly reports produced by VEMCO with data from its Vegetation Management System (VMS) database	"For the period Jan-Nov 2016:	Low Bushfire Risk Area classified as urban.	Sourced from Section 3.7 of EB RIN
			Number of maintenance spans (0's) Rural		NF	Fortnightly reports produced by VEMCO with data from its Vegetation	This information is contained in the spreadsheet titled “Non VMS Maint Spans 2016” and is a summary of data obtained from a variety of spreadsheets from several service providers that were utilised by UE from Jan-Nov 2016 before the introduction of the VMS in September 2016.	High Bushfire Risk Area classified as Rural	Sourced from Section 3.7 of EB RIN

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
						Management System (VMS) database			
			Total length of maintenance spans (KM) Urban and CBD		NF	Produced by UE's Asset Management group via GIS Data taken directly from GIS.	For the period Sept-Dec 2016:		File used Span Tallies
			Total length of maintenance spans (KM) Rural		NF	Produced by UE's Asset Management group via GIS Data taken directly from GIS.	This information is contained in the spreadsheet titled "VMS Maint Spans 2016" With the establishment of UE's new Vegetation Management System (VMS) these records are now available through reports from the VMS.		File used Span Tallies
			Length of vegetation corridors (KM) Urban and CBD		NF	Produced by UE's Asset Management group via GIS Data taken		GIS data extract is taken at a momentary point in time as is constantly being updated.	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
						directly from GIS.			
			Length of vegetation corridors (KM) Rural		NF	Produced by UE's Asset Management group via GIS Data taken directly from GIS.	"	GIS data extract is taken at a momentary point in time as is constantly being updated.	
			Average number of trees per maintenance span (0's) Urban and CBD		NF	Calculation using fortnightly reports data	As described in Section above but for “rural” spans.	There is an even distribution of trees along the entire network length.	Sourced from Section 3.7 of EB RIN
			Average number of trees per maintenance span (0's) Rural		NF	Calculation using fortnightly reports data	The actual length of all spans is extracted from GIS. The length of “maintenance spans” is calculated utilising this base GIS information cross referencing the maintenance spans that have been completed which are extracted from VMS and Non VMS Maintenance Span spreadsheets.	There is an even distribution of trees along the entire network length.	Sourced from Section 3.7 of EB RIN
			Average frequency of cutting cycle		NF	Calculated from fortnightly	As described in Section above but for “rural” spans.		Sourced from Section 3.7 of EB RIN

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			(years) Urban and CBD			reports and total number of spans			
			Average frequency of cutting cycle (years) Rural		NF	Calculated from fortnightly reports and total number of spans	The 'Vegetation Corridor', has been calculated as the combined length of non-maintenance spans where no work was required in that year but vegetation works will likely be required in future years.		Sourced from Section 3.7 of EB RIN
		2.7.2	Expenditure Metrics by Zone		Financial	SAP	As described in Section above but for “rural” spans.		SAP reports were run at activity code level to get the actual for the total veg management spend for the respective region.
		2.7.3	Descriptor Metrics Across All Zones - Unplanned Vegetation Management Number of fire starts caused by		NF	Data is sourced from the F factor submission . This data has been extracted from DMS and has previously	"The RIN definition for acalculating this section states ;		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			vegetation grow-ins (NSP responsibility) (0's)			been audited as part of those submissions.			
			Number of fire starts caused by vegetation blow-ins and fall-ins (NSP responsibility) (0's)		NF	Data is sourced from the F factor submission. This data has been extracted from DMS and has previously been audited as part of those submissions.	""For the purposes of calculating the average number of trees per maintenance span, a tree is a perennial plant (of any species including shrubs) that is:		
			Number of fire starts caused by vegetation grow-ins (other party		NF	Data is sourced from the F factor submission. This data has been	• equal to or greater in height than 3 metres (measured from the ground) in the relevant reporting period; and		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			responsibility) (0's)			extracted from DMS and has previously been audited as part of those submissions.			
			Number of fire starts caused by vegetation blow-ins and fall-ins (other party responsibility) (0's)		NF	Data is sourced from the F factor submission. This data has been extracted from DMS and has previously been audited as part of those submissions.	• of a species which could grow to a height such that it may impinge on the vegetation clearance space of power lines.""		
2.8	**Maintenance**		General				UE has produced a number of documents which contain instructions on how the data required for the RIN category is to be obtained and populated. These documents include detailed methodologies to provide both actual and Estimate		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							data. The BoP against each relevant RIN category is a summary of the methodology detailed within these UE produced documents. For this particular RIN, document UE PR 2325 was referenced.		
		2.8.1	Descriptor Metrics For Routine and Non-Routine Maintenance		NF	SAP Service Providers Life Cycle Management Plan	MAT codes are used to allocate asset categories that are filtered for the RIN categories. Maintenance units are extracted from SAP and compared against Service Providers invoices. When units are compared between the two sources, if there is no difference, SAP is used. If there is a difference between the two sources, the Service Providers invoices are used. The Service Providers invoices take precedence over SAP as they have been verified by the UE Service group.		
		2.8.2	Cost Metrics For Routine and Non-Routine Maintenance		F	SAP Service Providers Life Cycle Management Plan	SAP continues to be the main repository of all field data but in some instances lacks data. MAT codes are used to allocate asset categories that are filtered for the RIN categories. Maintenance costs are extracted from SAP and compared against Service Providers invoices. When costs are compared between the two sources, if there is no difference, SAP is used. If there is a difference between the two sources, the Service Providers invoices are used. The Service Providers invoices take precedence over SAP as they have been verified by the UE Service group.		
2.9	**Emergency Response**	2.9.1	Emergency Response Expenditure (OPEX)		F	SAP	Data is obtained from SAP	Actual cost data is sourced directly from SAP. Any costs which has gone to FE activity has	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			(A) Total emergency response expenditure ($000's)					been classified under this category for OMSA WBS.	
			(B) Major events O&M expenditure ($000's)		F	SAP	Data is obtained from Service Providers or an average daily cost	Based on days we got exclusions for and SP provided the actuals costs spend on these days	
			(C) Major event days O&M expenditure ($000's)		F	SAP	Data obtained from Service Providers or an average daily cost.	Based on days we got exclusions for and SP provided the actuals costs spend on these days	Only based on SAIDI event days as prescribed by the regulator.
2.10	**Overheads**	2.10.1	Network Overheads Expenditure Network management		F	SAP	After allocating the individual cost centres to different functionalities, all the overhead costs fell under these cost centres were allocated accordingly.		
			Network planning		F	SAP	After allocating the individual cost centres to different functionalities, all the overhead costs fell under these cost centres were allocated accordingly.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Network control and operational switching		F	SAP	After allocating the individual cost centres to different functionalities, all the overhead costs fell under these cost centres were allocated accordingly.		
			Quality and standard functions		F	SAP	After allocating the individual cost centres to different functionalities, all the overhead costs fell under these cost centres were allocated accordingly.		
			Project governance and related functions		F	SAP	After allocating the individual cost centres to different functionalities, all the overhead costs fell under these cost centres were allocated accordingly.		
			Total Overhead Expenditure - Negotiated Services		F	SAP	After allocating the individual cost centres to different functionalities, all the overhead costs fell under these cost centres were allocated accordingly.		
			Total Overhead Expenditure - Unregulated Services				After allocating the individual cost centres to different functionalities, all the overhead costs fell under these cost centres were allocated accordingly.		Not applicable – no overhead expenditure for unregulated network services.
			Capitalised Overheads - Standard				After allocating the individual cost centres to different functionalities, all the overhead costs fell under these cost centres were allocated accordingly.		Not applicable – no capitalised overheads for

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Control Services						Standard Control Services
		2.10.2	Corporate Overheads Expenditure Total Overhead Expenditure - Standard Control Services		F	SAP	Total: refer annual RIN 8a. Operating (T) "Billing and revenue collection", "Advertising/marketing", "Customer service", "Regulatory", "Licence fee" and "Other - Standard control services" details: refer Cost Allocation Methodology (CAM) model The allocations to categories not provided in the annual RIN, have been made according to cost centres allocated to costs recorded in the 31 December 2016 financial statements.		
			Total Overhead Expenditure - Alternative Control Services		F	SAP	Total: refer annual RIN 8a. Operating (T) "Billing and revenue collection", "Advertising/marketing", "Customer service", "Regulatory", "Licence fee" and "Other - Standard control services." The allocations to categories not provided in the annual RIN, have been made according to cost centres allocated to costs recorded in the 31 December 2016 financial statements.		
			Total Overhead Expenditure - Negotiated Services		F	SAP	n/a		
			Total Overhead Expenditure -		F	SAP	Refer Cost Allocation Methodology (CAM) model. Doubtful debt expenses for Optus Wire down were classified as unregulated		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Unregulated Services						
			Capitalised Overheads - Standard Control Services				n/a		Not applicable – no capitalised overheads for Standard Control Services
2.11	**Labour**	2.11.1	Cost Metrics Per Annum ASLs, Total Labour Expenditure, Average Productive Work Hours		F and non-F (hours)	ADP Reporting System	Reports run from ADP with Employee level granularity. Relevant data (TCR, Start and Termination dates, hours) included in the report. Information from reports used for totals calculation. For ASL, total labour expenditure and productive work hours, UE FTE portion was applied to employee totals in order to get UE only ASL.	ASLs, Total Labour Expenditure, Average Productive Work Hours	
			Amounts additional to TCR (e.g. bonus, allowances, etc.)		F	SAP reports	Sap report run for relevant remuneration amount types by individual. Information from reports used for totals calculation.	Amounts additional to TCR (e.g. bonus, allowances, etc.)	
			Classification in Organisational hierarchy (e.g.		NF	ADP Reporting System and	Individuals matched to their position in the company structure. Relevant level reported.	Classification in Organisational hierarchy (e.g. Executive, manager, etc)	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Executive, manager, etc)			Company structure			
			Split between Corporate and Network		NF	Cost centre report - SAP	Cost centres represent areas of the business. Hence cost centre information was looked up for each individual in order to determine whether they are employed by the corporate or the network side of it.	Split between Corporate and Network	
		2.11.2	Extra descriptor metrics for current year		F and non-F	Table 2.11.1	Derived from information in table 2.11.1.	All	
2.12	**Input Tables**	2.12	General				UE has produced a number of documents that contain instructions on how the data required for the RIN category is to be obtained and populated. These documents include detailed methodologies to provide both actual and Estimate data. The basis of preparation against each relevant RIN category is a summary of the methodology detailed within these UE produced documents. For this particular RIN, documents UE PR 2325, 2211, 2212 and 2327 were referenced.		
			Vegetation Management			SAP	Data has been extracted from SAP. Direct material, labour and other costs are costs incurred by UE. The contracts costs are service provider costs. The sum of material, labour, other and contract costs is the total cost of the project. Related party margins and related party contract costs are a subset of the contracts costs from the ZNX/Zinfra service provider.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							Due to not all costs being provided by the service provider for these projects, and the lack of details surrounding particular expenditure, there involves estimations in allocating the costs to the categories.		
			Routine Maintenance		F	SAP	Data has been extracted from SAP. Direct material, labour and other costs are costs incurred by UE. The contracts costs are service provider costs. The sum of material, labour, other and contract costs is the total cost of the project. Related party margins and related party contract costs are a subset of the contracts costs.		
			Non-Routine Maintenance		F	SAP	Data has been extracted from SAP. Direct material, labour and other costs are costs incurred by UE. The contracts costs are service provider costs. The sum of material, labour, other and contract costs is the total cost of the project. Related party margins and related party contract costs are a subset of the contracts costs.		
			Network overheads		F	SAP/payroll	Direct labour was from 2.11 Other costs being the difference between 2.10 SCS overhead and Direct labour cost.		
			Corporate overheads		F	SAP/payroll	Direct labour was from 2.11 Other costs being the difference between 2.10 SCS overhead and Direct labour cost.		
			Augmentation		F	SAP	Data has been extracted from SAP. Direct material, labour and other costs are costs incurred by UE. The contracts costs are service provider costs. The sum of material, labour, other and contract costs is the total cost of the project. Related party margins and related party contract costs are a subset of the contracts costs.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Connections		F	SAP	Data has been extracted from SAP. Direct material, labour and other costs are costs incurred by UE. The contracts costs are service provider costs. The sum of material, labour, other and contract costs is the total cost of the project. Related party margins and related party contract costs are a subset of the contracts costs.		
			Emergency Response		F	SPS	Data has been extracted from SAP. Direct material, labour and other costs are costs incurred by UE. The contracts costs are service provider costs. The sum of material, labour, other and contract costs is the total cost of the project. Related party margins and related party contract costs are a subset of the contracts costs.		Emergency response expenditure in Table 2.12 captures expenditure for major event days only and does not represent total emergency response expenditure.
			Public Lighting		F	SAP	Data has been extracted from SAP. Direct material, labour and other costs are costs incurred by UE. The contracts costs are service provider costs. The sum of material, labour, other and contract costs is the total cost of the project. Related party margins and related party contract costs are a subset of the contracts costs.		
			Metering		F	CA RIN Schedule 4.2 Metering	Data has been extracted from SAP. Direct material, labour and other costs are costs incurred by UE. The contracts costs are service provider costs. The sum of material, labour, other and contract costs is the total cost of the project. Related party margins and related party contract costs are a subset of the contracts costs.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Fee-Based Services		F	SAP/service provider costs	SAP data pertaining to ACS costs and revenue billed, including external service providers' unit costs per invoices applied against ACS service orders. refer ACS Cost Model		
			Quoted Services		F	SAP/service provider costs	SAP data pertaining to ACS costs and revenue billed, including external service providers' unit costs per invoices applied against ACS service orders.		
			Replacement		F	SAP	Data has been extracted from SAP. Direct material, labour and other costs are costs incurred by UE. The contracts costs are service provider costs. The sum of material, labour, other and contract costs is the total cost of the project. Related party margins and related party contract costs are a subset of the contracts costs.		
			IT and communications		F	CA RIN Schedule 2.6 Non-network	The methodology is based on the definition in the Category Analysis RIN document provided by AER to UE. Contract Expenditure: Accenture, ASG and MGA master agreement Direct material: software & hardware and the maintenance, data centre Direct Labour: internal resources & contractors		
			Motor vehicles		F	CA RIN Schedule 2.6 Non-network	All expenditure for this category is paid directly to unrelated external suppliers. No material or labour is capitalised.		
			Buildings and property		F	CA RIN Schedule 2.6 Non-network	All expenditure for this category is paid directly to unrelated external suppliers. No material or labour is capitalised.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Other		F	CA RIN Schedule 2.6 Non-network	All expenditure for this category is paid directly to unrelated external suppliers. No material or labour is capitalised.		
4.1	**Public Lighting**		General				UE has produced a number of documents that contain instructions on how the data required for the RIN category is to be obtained and populated. These documents include detailed methodologies to provide both actual and Estimate data. The basis of preparation against each relevant RIN category is a summary of the methodology detailed within these UE produced documents. For this particular RIN, document UE PR 2351 was referenced.		
		4.1.1	Descriptor Metrics Over 2014-15 Light type		NF	GIS	The requested information is held within UE's Geographical Information System (GIS). All Public Lighting asset data stored in GIS has been surfaced in SAP HANA then aggregated and reported through Tableau. The fields required in the Tableau report are lamp type, number of lamps and rating in Watts. The population is filtered to contain all billable public Lights which ensures they are installed and in-service.		
		4.1.2	Descriptor Metrics Annually		F /NF	SAP Customer and Market Services Group	To determine the volume of work for the relevant activity codes, reference is made to the Installation Contractor invoices for works completed during the year. This information is supplied by the Service Delivery team as part of their monthly reporting. Work orders are raised for each activity, where actual costs and quantities are captured. Work Order Maintenance activity types (MAT codes) are used to differentiate between the work order activities and mapped to AER Reporting Categories.		It should be noted that new poles are not considered for the Light Installation category as these are assumed to be installed by local councils or

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							Quality of supply is recorded and populated by the Customer and Market Services team.		other entities outside of UE. CLJ and CLN Volumes were reported from CIC Scope of works
		4.1.3	Cost Metrics		F	GIS SAP	To calculate the average unit cost for each activity code, the activity code expenditure is divided by the activity code volume. Average Unit Cost = Expenditure/Volume		
4.2	**Metering**	4.2.1	Metering Descriptor Metric		NF	CIS+ and SAP/ RIN ANNUAL	The Annual RIN reports of 2016 and 2015 are used to calculate average volumes.	• Two single phase meters and time switch at one installation counted as one meter consistent with Annual RIN reports. • We have included >160 MWh customers where United Energy is Responsible Person. Approximately 600 customers of 650K total population (~ 0.1%) belongs to	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
								>160 MWh category. As we could not separate these customers for all metering services, we have included these customers in scope. • In 2015 RIN Annual report Disconnected meters in CIS were not counted due to query constraint and now in 2016 report this issue is resolved and hence higher customer growth is observed.	
		4.2.2	Cost Metrics Meter purchase ($000'S)		F	SAP & Corporate Finance reports	Actual Purchase order of SECURE meter purchase		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Meter testing ($000'S)		F	Specialist meter testing contract monthly report and invoice	Data obtained from Specialist meter testing contract invoices of below testing activities Sample testing of direct connected meters. 100% testing of CT connected meters. CT inspections & admittance test also carried out as part of CT meter testing. Sample testing of Current Transformers.		• Test costs for CTs almost double during after-hours. Many CT tests are carried out after hours. • Direct connected meter, CT connect meter and CT Testing costs are different and combining all of those may not give full understanding of unit rate testing costs.
			Meter investigations ($000'S)		F	Specialist meter testing contract monthly report and invoice	Metering investigation service orders of below types are included. – Remote communication faults – CT meter faults – Domestic faults – C& I faults – Time Reset and downloads – Revenue protection: police initiated drug raids	Internal investigations done by contractor labour are not included.	Most of the meter investigation activities conducted from internal resources by analysing meter data. AMI meters have events and alarms including metering

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
									tampering/bypass alarms. Condition monitoring alarms/events in the AMI meters used for meter investigation are not counted.
			Scheduled meter reading ($000'S)		F	Specialist meter testing contract monthly report and invoice	We have obtained actual volumes for meter reading activities from monthly report for Type 5 and 6. Type 4 AMI meter reading quantities obtained from the Network Management System-UIQ report.		
			New meter installation ($000'S)		F	Financial RIN Annual 2016	Report prepared by Finance of ACS new connections.		
			Meter replacement ($000'S)		F	SAP & Corporate Finance reports	Data obtained from Formway report and Truck replacement costing reports		
			Meter maintenance ($000'S)		F	Specialist meter testing	Metering assets were not part of preventive/predictive maintenance program.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
						contract monthly report and invoice			
			Remote meter reading ($000'S)		F	N/A	These costs are zero as they are captured in IT costs	Network Management System- UIQ reads meter data for every 4 hours. However we have counted this as 1 read per day.	Only internal labour and IT systems involved in this activity.
			Remote meter re-configuration ($000'S)		F	N/A	These costs are zero as they are captured in IT costs.		Only internal labour and IT systems involved in this activity.
			Other metering ($000'S)		F	SAP & Corporate Finance reports	SAP and Corporate Finance reports available for total Capex & Opex costs. Other metering costs calculated as difference between Total Metering ACS costs and all other CROIC items in table 4.2.	Costs for Type 5 and 6 is given as zero as these meter volumes are low and the same costs included in Type 4 metering costs.	These costs include Meter control, internal labour and back office contracts.
			IT infrastructure		F	SAP & Corporate	SAP & Corporate Finance reports		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			capex ($000'S)			Finance reports			
			IT infrastructure opex ($000'S)		F	SAP & Corporate Finance reports	SAP & Corporate Finance reports		
			Communications infrastructure capex ($000'S)		F	SAP & Corporate Finance reports	SAP & Corporate Finance reports		
			Communications infrastructure opex ($000'S)		F	SAP & Corporate Finance reports	SAP & Corporate Finance reports		
			Volumes Meter purchase (000'S)		NF	SAP & Corporate Finance reports	Report prepared and provided by Finance.		
			Meter testing (000'S)		NF	Specialist meter testing contract	As per AER definition Sample testing of direct connected meters. 100% testing of CT connected meters. CT inspections & admittance test also carried out as part of CT meter testing.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
						monthly report and invoice	Sample testing of Current Transformers.		
			Meter investigations (000'S)		NF	Specialist meter testing contract monthly report and invoice	Metering investigation service orders of below types are included. – Remote communication faults – CT meter faults – Domestic faults – C& I faults – Time Reset and downloads – Revenue protection: police initiated drug raids		• Most of the meter investigation activities conducted from internal resources by analysing meter data. • AMI meters have events and alarms including metering tampering/bypass alarms. • Condition monitoring alarms/events in the AMI meters used for meter investigation are not counted.
			Scheduled meter reading (000'S)		NF	Specialist meter testing contract monthly report and	For Type 5 and 6 metering actual direct contract costs for meter reading activities available in monthly invoices. Meter read costs for Type 4 metering is zero as they are remote read meters. This information is repeated for remote meter reading template.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
						invoice and Network Management System-UIQ report.			
			Special meter reading (000'S)		NF	Specialist meter testing contract monthly report and invoice	For Type 5 and 6 metering actual direct contract costs for meter reading activities available in monthly invoices. Meter read costs for Type 4 metering is zero as they are remote read meters. This information is repeated for remote meter reading template.		
			New meter installation (000'S)		NF	SAP	New meter installation volumes from SAP IQ09 report.		
			Meter replacement (000'S)		NF	SAP	Reports from Formway and Truck meter replacement volumes		Adds & Alts meter replacements are part of ACS- Fee based service orders.
			Meter maintenance (000'S)		NF	Specialist meter testing contract monthly	Metering assets were not part of preventive/predictive maintenance program. There is no expenditure on this category.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
						report and invoice			
			Remote meter reading (000'S)		NF	Network Management System- UIQ report.	Remote Meter reading Volumes obtained from UIQ reports from NOC	Network Management System- UIQ reads meter data every 4 hours. However, this has been counted as 1 read per day.	
			Remote meter re – configuration		NF	Network Management System- UIQ report.	Remote Meter reading Volumes obtained from UIQ reports from NOC		
4.3	**Fee Based Services**	4.3.1	Cost Metrics for Fee-Based Services Expenditure		F	SAP/service provider costs	Refer to Annual RIN. SAP data pertaining to ACS costs and revenue billed, including external service providers' unit costs per invoices applied against ACS service orders.		
			Volumes		NF	SAP/service provider costs	Number of service orders.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
4.4	**Quoted Services**	4.4.1	Cost Metrics for Quoted Services Expenditure		F	SAP/service provider costs	Refer to Annual RIN. SAP data pertaining to ACS costs and revenue billed, including external service providers' unit costs per invoices applied against ACS service orders.		x
			Volumes		F	SAP/service provider costs	Number of service orders.		
5.2	**Asset Age Profile**		General				UE has produced a number of documents which contain instructions for how the data required by the RIN category is to be obtained and populated. These documents include detailed methodologies to provide both actual and Estimate data. The BoP against each relevant RIN category is a summary of the methodology detailed within these UE produced documents. For this particular RIN, documents UE PR 2316, 2318, 2321, 2323, 2324, 2340-2345, 2347, 2349 were referenced.		Data volumes for specific asset age profiles may vary from previously submitted RINs. These differences can me accounted for by improvements in extraction methodologies from UE source systems (SAP/GIS) and a continuous effort to cleanse incorrect data stored in these systems. It should be noted that any changes made are

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
									deemed to be more accurate and complete then previous versions.
		5.2.	5.2 Asset Age Profile Calculation of Economic Life		NF	SAP	The economic life adopted by an asset is the useful life assigned against the fixed asset class held against the asset in the fixed asset module of SAP	Economic life is based on the 2001 Asset Simplification Report or derived from the manufacturer's recommendations and industry best practice.	Refer: -Fixed Asset Policy FAM-022-POL -UE Network Assets review of Accounting useful lives 30 June 2016
			Poles		NF	SAP	All Pole asset data stored in SAP has been surfaced in SAP HANA then aggregated and reported through Tableau. The installation date is held against the Equipment "STARTUP DATE" in the SAP Equipment Record. Equipment records are assigned a RIN code by virtue of characteristics associated with that equipment record. i.e. Voltage, Material and whether or not the pole is reinforced		Refer UE-PR-2345
			Overhead Conductors		NF	GIS	All Conductor asset data stored in GIS has been surfaced in Oracle RTV then aggregated and reported through Tableau. The installation date is held against the Equipment "DATE_INSERTED" or "COND_DATE_CONSTRUCTED" in the GIS Equipment Record. Equipment records are assigned a RIN code by virtue of characteristics associated with that		Refer UE-PR-2345

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							equipment record, i.e. Voltage, Material and whether or not the conductor is multiphase or singlephase		
			Underground Cables HV		NF	SAP GIS	Data for HV Cable is stored in both SAP and GIS, surfaced in SAP HANA and Oracle RTV respectively. Both datasets are joined, aggregated and reported through Tableau The installation date is held against the Equipment "STARTUP DATE" in the SAP Equipment Record. Equipment records are assigned a RIN code by virtue of characteristics associated with that equipment record. i.e. Voltage, Material		Refer UE-PR-2342 In 2016 UE have reported on Station Cable not previously reported.
			Underground Cables LV		NF	SAPGIS	All LV Cable asset data stored in GIS has been surfaced in Oracle RTV then aggregated and reported through Tableau. The installation date is held against the Equipment "DATE_INSERTED" in the GIS Equipment Record. Equipment records are assigned a RIN code by virtue of characteristics associated with that equipment record, i.e. Voltage, Material and whether or not the conductor is multiphase or singlephase		Refer UE-PR-2342
			Service Lines		NF	GIS SAP	All Service Line asset data is stored in both SAP and GIS, surfaced in SAP HANA and Oracle RTV respectively. Both datasets are joined, aggregated and reported through Tableau The installation date is held against the Equipment "DATE_CONSTRUCTED" or "DATE_LAID" in the GIS Equipment Record. Equipment records are assigned a RIN code by virtue of characteristics associated with that equipment record. i.e. "SUPERIOR_TYPE_OF_PREMISE" and "SUPPLY_COMPLEXITY"		Refer UE-PR-2349

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Transformers		NF	SAP	All Transformers asset data stored in SAP has been surfaced in SAP HANA then aggregated and reported through Tableau. The installation date is held against the Equipment "STARTUP DATE" in the SAP Equipment Record. Equipment records are assigned a RIN code by virtue of characteristics associated with that equipment record. i.e. Construction type, kVA Rating and whether or not the transformer is multiphase or singlephase		Refer UE-PR-2347
			Zone Substations & Switchgear		NF	SAP	All Zone Substation and Circuit Breaker assets data stored in SAP has been surfaced in SAP HANA then aggregated and reported through Tableau. The installation date is held against the Equipment "STARTUP DATE" in the SAP Equipment Record. Equipment records are assigned a RIN code by virtue of characteristics associated with that equipment record. i.e. Asset Type, Construction type, Voltage or kVA Rating	Plant is installed in the same year as it is specified.	Refer UE-PR-2321
			Public Lighting		NF	GIS SAP	All PL Pole asset data stored in SAP has been surfaced in SAP HANA then aggregated and reported through Tableau. The installation date is held against the Equipment "STARTUP DATE" in the SAP Equipment Record. Equipment records are assigned a RIN code by virtue of whether or not the pole on a Major or Minor Road All Luminaries and Brackets data stored in GIS has been surfaced in Oracle RTV then aggregated and reported through Tableau.		Refer UE-PR-2324 Public Lighting lamp replacements are categorised as operating expenditure.

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
							The installation date is held against the Equipment "DATE_COMMISSIONED" or "DATE_INSERTED" in the GIS Equipment Record. Equipment records are assigned a RIN code by virtue of whether or not the pole on a Major or Minor Road		
			SCADA, Network Control & Protection		NF	SPAGIS	Data for SCADA, Network Control & Protection is stored in both SAP and GIS, surfaced in SAP HANA and Oracle RTV respectively. Both datasets are aggregated and reported through Tableau The installation date is held against the Equipment "CONSTRUCTION_YEAR" in the SAP Equipment Record. Equipment records are assigned a RIN code by virtue of the assets "EQUIPMENT_TYPE" For Records coming from GIS the installation date is held against the Equipment "DATE INSERTED" or "DATE LAID" in the GIS Equipment Record. Equipment records are assigned a RIN code by virtue of the assets "OBJECT_TYPE"		Refer UE-PR-2323
			Other Assets - Pits and Pillars		NF	GIS	All Pits and Pillar asset data stored in GIS has been surfaced in Oracle RTV then aggregated and reported through Tableau. The installation date is held against the Equipment "DATE_INSTALLED" or "DATE_INSERTED" in the GIS Equipment Record. Equipment records are assigned a RIN code by virtue of the assets "EQUIPMENT_TYPE"		Refer UE-PR-2316

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Other Assets - Line Capacitors		NF	GIS SAP	All Line Capacitor asset data stored in SAP has been surfaced in SAP HANA then aggregated and reported through Tableau. The installation date is held against the Equipment "STARTUP DATE" in the SAP Equipment Record. Equipment records are assigned a RIN code by virtue of the assets "EQUIPMENT_TYPE".		Refer UE-PR-2340
			Other Assets - Fuses		NF	GIS SAP	All Fuse data stored in GIS has been surfaced in Oracle RTV then aggregated and reported through Tableau. The installation date is held against the Equipment "SW_DATE_INSTALLED" or "SW_DATE_INSERTED" in the GIS Equipment Record. Equipment records are assigned a RIN code by virtue of characteristics associated with that equipment record, i.e. Switch Type and Voltage		Refer UE-PR-2341
5.3	**MD - Network Level**		General				UE has produced a number of documents which contain instructions on how the data required for the RIN category is to be obtained and populated. These documents include detailed methodologies to provide both actual and Estimated data. The basis of preparation against each relevant RIN category is a summary of the methodology detailed within these UE produced documents. For this particular RIN, document UE PR 2213 was referenced.		
		5.3.1	5.3 Maximum Demand at Network Level		NF	Metered Data Stored in "UE Actual & Forecast S & W	After each summer, UE Network Planning collects the actual demand data (half-hourly average summations of a set of wholesale boundary load NMI's) and these are used to identify the maximum coincident demand and its date and time.		Peak demands are recorded over a summer period which extends from November to March so that

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Raw Network Coincident demand, Date MD occurred, Half Hour time Period, Winter/Summer peaking			Demand Energy & Customer No" Spreadsheet.			it is possible for a peak demand for a particular calendar year to fall in the previous November or December.
			Embedded generation		NF	Metered Data Stored in "UE Actual & Forecast S & W Demand Energy & Customer No" Spreadsheet.	The embedded generation contribution at the coincident maximum demand is sourced from the annual data provided to NIEIR for forecasting and is obtained from actual half-hourly average summations of a defined set of wholesale boundary load meters at the date and time of MD.		All the embedded generators in the UE network are of non-scheduled category.
			Weather Connected (10% and 50% POE) MD		NF	Metered Data Stored in "UE Actual & Forecast S & W Demand Energy & Customer	The 10% PoE and 50% Demand is generated from actual peak demand data and corrected for temperature. The correction of PoE for temperature is based on historical data; the scaling factor of Load with temperature is based on NIEIR estimates.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
						No" Spreadsheet.			
5.4	**MD & Utilisation-Spatial**		General				UE has produced a number of documents which contain instructions on how the data required for the RIN category is to be obtained and populated. These documents include detailed methodologies to provide both actual and Estimated data. The basis of preparation against each relevant RIN category is a summary of the methodology detailed within these UE produced documents. For this particular RIN, document UE PR 2213 was referenced.		Peak demands are recorded over a summer period which extends from November to March, so that it is possible for a peak demand for a particular calendar year to fall in the previous November or December.
		5.4.1	Non-Coincident & Coincident Maximum Demand Substation Rating		NF	Metered Data Stored in "UE Actual & Forecast S & W Demand Energy & Customer No" Spreadsheet.	The Load forecasting manual contains a record of historical and forecast demands, and historical and forecast ratings, based in capacity added to the system. The manual is updated to reflect change in ratings on the completion of a project. The information has been extracted from it.		There is no difference between coincident and non-coincident ratings.

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
			Maximum Demand Raw adjusted MD MW & MVA, date & time occurred, winter summer peaking		NF	Load Forecast Spreadsheet	Historical maximum demands (MW) at each zone substation were captured and recorded as part of the load forecasting process. These values have been adjusted for any applicable abnormalities which occurred within the period concerned. The reactive power demand in MVAr at each zone substation has also been captured and recorded as part of the load forecasting process. These values have been adjusted for any applicable abnormalities occurred within the period concerned. Those MW and MVAr values can be used to calculate the MVA demand and operating power factor at each zone substation. The recorded information includes date and time (EST) of non-coincident and coincident MD.		
			Maximum Demand Adjustments Embedded Generation		NF	Metered Data Stored in "NIEIR Boundary load Apr14-Mar15-Submission" Spreadsheet.	While extracting non-coincident and coincident maximum demand information as part of the load forecasting process, the embedded generation contributions at the maximum demand are recorded. This is presently applicable at only three zone substations: - Dandenong Zone Sub, Springvale South Zone sub and Sorrento Zone Sub.		Where large generators are connected, the actual transformer maximum demand is less by the amount of generation. The generators are all of a non-scheduled category. The impact of small-scale and solar generation is automatically captured in the process as a negative demand

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
									and no adjustment is required.
			Maximum Demand Weather Correction MD, MW MVA, 10% & 50% PoE.		NF	Metered Data Stored in "UE Actual & Forecast S & W Demand Energy & Customer No" Spreadsheet.	The 10% PoE and 50% demand is generated from actual peak demand data and corrected for temperature. The correction of PoE for temperature is based on historical data; the scaling factor of load with temperature is based on NIEIR estimates.		
6.3	**Sustained Interruptions**	6.3.1	Sustained interruptions to supply (for 2014-15)		NF	OUA.	The data used to calculate reliability is extracted from the OUA database cleansed to remove duplications and adjusted for temporary switching arrangements. The cause codes in the database are mapped into the RIN "Reason for Interruption" and "Detailed Reason For Interruption" categories. The outage data base contains the data required by the RIN including outage dates and time, number of customers affected, restoration data and time and cause codes..	Outages that are excluded due to -load shedding due to generation short fall, auto load shedding or due to system operation -load interruption caused by failure of shared transmission assets - Load interruption caused by failure	Customer Numbers were calculated as the average of the January and December counts for each regulatory year. An interruption starts when first recorded by equipment or, where equipment does not exist, at the time of the first customer call

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Methodology	Assumptions	Additional Comments
								of transmission connection assets except where due to inadequate planning by UE and where UE is responsible for the planning. - Load interruptions caused by exercise of right, obligations or discretion imposed upon to provide under regulation or law.	in relation to the network outage. An interruption ends when supply is restored and available to the customer. Due to differing 'asset failure' classifications, quantities in this tab will not align with those in REPEX 2.2. E.g., fuse operation with a SAIFI impact will count towards a failure in this tab, but is considered normal operation (for a fuse) under Tab 2.2. A project is currently in place to align the difference in reporting of asset failures between the two RIN tabs.