Category Analysis Basis of Preparation 2014

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Category Analysis RIN Basis of Preparation 2014

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 estimated 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 RIN 2014 – Consolidated'*
- *'United Energy Category Analysis RIN 2014 – Actual*
- *'United Energy Category Analysis RIN 2014 – Estimated'*

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 estimated information, including appropriate justification if estimated;
- 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 – estimate 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 'estimated'

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.
Estimated 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 estimated 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	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
2.1	**Expenditure Summary**	2.1.1	Standard Control Services Capex		F	Category Analysis RIN	Actual		Replacement expenditure, connections and augmentation expenditure are calculated based on the sum of the relevant direct material expenditure, direct labour expenditure, contract expenditure and other expenditure amounts in Tab 2.12. Connections. Non-network is the sum of capex amounts in Tab 2.6. The balancing items represents: • Add performance capex – not included in repex. • Add other connections e.g. recoverable works.		
		2.1.2	Standard Control Services Opex		F	Category Analysis RIN	Actual		Vegetation management, maintenance, emergency response, non-network, network overheads, corporate overheads, metering and public lighting opex are calculated by summing the operating expenditure amounts in the relevant tabs. Other maintenance represents maintenance expenditure reported in SAP that was not classified		

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									as vegetation management, asset-related maintenance or emergency response. Buildings and property opex are reported in both non-network and overheads, therefore this amount was removed to avoid double-counting.		
		2.1.3	Alternative Control Services Capex		F	Category Analysis RIN	Estimate	The codes in SAP are not directly attributable to all categories in the Annual RIN template; therefore, assumptions have been developed to allocate expenditure to the appropriate categories.	Metering, public lighting and fee and quoted ACS are calculated by summing the capital expenditure amounts in the relevant tabs.		
		2.1.4	Alternative Control Services Opex		F	Category Analysis RIN	Estimate	The codes in SAP are not directly attributable to all categories in the Annual RIN template; therefore, assumptions have been developed to allocate expenditure to the appropriate categories.	Metering, public lighting and fee and quoted ACS are calculated by summing the operating expenditure amounts in the relevant tabs.		
		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		UE have no 'long rural' or CBD feeder classification

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									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 2330, 2327, 2317 and 2329 were referenced.		and information is therefore not provided.
		2.2.1	Replacement Expenditure, Volumes and Asset Failures by Asset Category Poles		F/NF	SAP DMS/OMS	Actual		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. 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 that are filtered and sorted into the categories required by the RIN.		

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			Poles Top Structures		F/NF	SAP	Actual		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. 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	Actual		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. 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		

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									that are filtered and sorted into the categories required by the RIN.		
			Underground cables		F/NF	SAP	Actual		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. 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 that are filtered and sorted into the categories required by the RIN.		
			Service Lines		F/NF	SAP	Actual		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. Work orders are linked to equipment codes and these have been used to split the replacements by classification and voltage.		

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									The number of asset failures is obtained from monthly reports of outages from the DMS/OMS system that are filtered and sorted into the categories required by the RIN.		
			Transformers		F/NF	SAP	Actual		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. 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 that are filtered and sorted into the categories required by the RIN.		
			Switchgear		F/NF	SAP	Actual		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. Work orders are linked to equipment codes and		

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									these have been used to split the replacements by classification and voltage.		
			Public Lighting		F/NF	SAP	Actual		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 minor and major roads. 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 that 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	Actual		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. Work orders are linked to equipment codes and these have been used to split the replacements by classification and voltage.		Some minor secondary equipment has not been classified into separate categories.

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		2.2.2	Selected Asset Characteristics Poles by Feeder Type			SAP	Actual		Pole Data has been extracted from SAP. The pole number is cross checked with GIS to determine which feeder the pole is on and hence whether it is urban or rural. UE does not have any CBD or long rural feeders.		
			Overhead Conductor by Feeder Type		NF	SAP GIS	Actual		Conductor replacement volumes for 2014 have been extracted from SAP that included the feeder number for each conductor. The feeder number is used to determine if it is rural or urban. Asset Volumes in commission are extracted form GIS. Overhead conductor data is extracted from GIS system into a spreadsheet that contains records of each pole and the conductors attached to it. The data includes class, type and voltage of each conductor, together with installation date. The poles can also be used to categorise the conductor into urban or rural.		
			Conductor by Material Type		NF	SAP GIS	Actual		Where conductor is allocated by material type, this information is available in our GIS system and has been extracted into a spreadsheet that is used to		

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									filter and sort data. SAP was used to extract data for the items replaced in 2014 and the totals summed.		
			Underground Cable by Feeder Type		NF	SAP GIS	Actual		The conductor data has been extracted from SAP which used MAT codes to identify equipment type and included the feeder number for each conductor. The feeder number is used to determine if it is rural or urban.		
			Transformers by total MVA		NF	SAP GIS	Estimate	The information provided is the best available information. GIS and SAP data sources were compared and rules have been established to select the most accurate data of the two.	Transformer rating data is available from SAP and GIS. Where the ratings were different in the two sources, GIS data has been used as it is considered to be more accurate. SAP was used to extract data for the items replaced in 2014 and the totals summed.		
2.3	**Augex**		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 estimated data. The basis of preparation against each relevant RIN category is a		Only projects that have been commissioned in there regulatory year are included.

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									summary of the methodology detailed within these UE produced documents. For this particular RIN, document UE PR 2212 was referenced.		
		2.3.1	2.3.1 Sub transmission Substations, Switching Stations and Zone Substations Project Description & Plant and Equipment Volumes		NF	AMP Demand Project List Project Folders Business Case Documents. SAP	Actual		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 taken 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 has been selected based on the business case and scope of the project.	Where a new switchboard is added that contains a number of breakers, the number of units added will be the number of breakers in the switchboard.	Projects listed are those projects which have been commissioned in this calendar year. Where projects involve more than one voltage level at a zone substation, both will be provided.
			Substation Rating		NF	Load Forecast Spreadsheet	Actual		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		

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									updated to reflect change in ratings on the completion of a project. The information has been extracted from it.		
			Project Expenditure		F	Project Folders Business case Documents SAP	Estimate	Some expenditure is not recorded in the categories required by the RIN and some estimates are required in their allocation. Financial and business case documents have been reviewed to obtain the most accurate estimate.	Transformer expenditure is actual data taken from free issued material (FIM) purchase orders. Related Party margin expenditure is actual data taken from SAP. The Related Party total and Non Related party expenditure is the service provider project expenditure, which is the actual data taken from SAP. The total expenditure for the remaining categories in 2.3.1 is actual, but the breakdown amongst those categories is estimated based on service provider cost breakdowns, FIM purchase orders and project documentation. The only project expenditure not captured in this table is UE overheads attributed to the project.		The range of years for a project is the first and last dates that expenditure is recorded.
			Land and Easement Cost						Land and easement costs associated with each project are obtained from SAP project IDs with activity classifications “GP”. Land purchase expenditures are costs		

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									associated with the purchase of land for a future zone substation or an expansion of an existing zone substation. Easement expenditures are costs associated with compensating land owners for easement acquisition.		
		2.3.2	Augex Asset Data - Sub-transmission Lines Project Information & Plant and Equipment Volumes		NF	AMP Demand Project List Project Folders Business Case Documents. SAP	Actual		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.		Sub-transmission lines in the UE network except some lines ex MTS are 66kV; therefore this will be the entry for all lines aside from those going to SH or BW which are 22kV.
			Project Expenditure		F	Project Folders Business case	Estimate	Some expenditure is not recorded in the categories required by the RIN and some estimates are	Related Party margin expenditure is actual data taken from SAP. The Related Party total and		

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						Documents SAP		required in their allocation. Financial and business case documents have been reviewed to obtain the most accurate estimate.	Non Related party expenditure is the service provider project expenditure, which is actual data taken from SAP. The total expenditure for the remaining categories in 2.3.1 is actual, but the breakdown amongst those categories is estimated based on service provider cost breakdowns, FIM purchase orders and project documentation. The only project expenditure not captured in this table is UE overheads attributed to the project.		
			Land and easements						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.		
		2.3.3	Augex Data - HV/LV Feeders		NF	AMP Demand Project ListProject	Estimate	UE is able to source actual data for most categories in the table. However, UE does not distinguish in SAP	HV feeder lengths have been taken directly from the Project Scope of Works.LV underground		

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			and Distribution Substations 2.3.3.1 Units added			FoldersBusiness Case Documents. SAP		between a distribution substation augmentation and a LV network upgrade. However any project which involves the addition, modification or upgrade of a transformer is considered a distribution substation augmentation. To determine the category the project lists available from the Service Delivery team provide a partial breakdown of all expenditure with respect to the project. Transformers are free issue materials (FIM), so the inclusion of a FIM cost in a project is indicative of a distribution substation augmentation. Following this preliminary classification the project can be reclassed should the project appear as a LV feeder project when reviewing the scope of works. Projects classified as distribution substation works may also include some elements of LV feeder works.	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 the total material length divided by 4). Where more appropriate, the route length has been entered instead. Therefore the total length will be slightly lower than actual.Distribution substation units added/upgraded is determined for each individual project based on the transformer purchases made (taken from SAP), the nameplate rating from UE's internal NLM system from the previous year and this year. If the nameplate rating has not increased significantly, and a purchase has been made, a transformer has been replaced. If the nameplate has been increased significantly, a transformer has been added.		
			2.3.3.2 Total Direct Expenditure		F	AMP Demand Project List Project Folders	Estimate	Generally UE does not distinguish in SAP between a distribution substation augmentation and a LV network upgrade. However	Non-material HV feeder expenditure is actual data taken from SAP. Material HV feeder expenditure is the HV feeder works		

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						Business Case Documents. SAP		any project which involves the addition, modification or upgrade of a transformer is considered a distribution substation augmentation. To determine the category, the project lists available from the Service Delivery team provide a partial breakdown of all expenditure with respect to the project. Transformers are free issue materials(FIM), so the inclusion of a FIM cost in a project is indicative of a distribution substation augmentation. Following this preliminary classification the project can be reclassed should the project appear as a LV feeder project when reviewing the scope of works. Projects classified as distribution substation works may also include some elements of LV feeder works. The line data is available from the detailed scope of works or minor statement of work for the project. SAP settlement rules are used to facilitate populating this field.	component of commissioned zone substation and sub transmission line projects listed in tables 2.3.1 and 2.3.2. It should be noted that this expenditure is not only incurred in one calendar year, but for the life of the project. This is to match with the assets commissioned for the project that occurs in the most recent calendar year of the project. The HV feeder component is estimated. LV feeder expenditure is all non-material and is actual data taken from SAP. Distribution substation expenditure is actual data taken from SAP. The only project expenditure not captured in this table is UE overheads attributed to the project.		
		2.3.4	Augex Data - Total Expenditure		F	AMP Demand Project List Project	Estimate	Generally UE does not distinguish in SAP between a distribution substation augmentation and a LV	Zone substation expenditure is the estimated 2014 component of the commissioned zone		

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						Folders Business Case Documents. SAP		network upgrade. However any project which involves the addition, modification or upgrade of a transformer is considered a distribution substation augmentation. To determine the category, the project lists available from the Service Delivery team provide a partial breakdown of all expenditure with respect to the project. Transformers are free issue materials, so the inclusion of a FIM cost in a project is indicative of a distribution substation augmentation. Following this preliminary classification the project can be reclassed should the project appear as a LV feeder project when reviewing the scope of works. Projects classified as distribution substation works may also include some elements of LV feeder works.	substation projects in 2.3.1 plus the actual expenditure of all other zone substation projects from SAP. Sub transmission line expenditure is the estimated 2014 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. HV feeder expenditure is the non-material HV feeder expenditure in 2.3.3, plus the estimated 2014 HV feeder component from the zone substation projects commissioned in 2.3.1. LV feeder expenditure is the non-material LV feeder expenditure in 2.3.3. Distribution substation expenditure is the total distribution substation expenditure from 2.3.3. Other assets expenditure is actual project expenditure from SAP.		
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	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	

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									detailed methodologies to provide both actual and estimated 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.	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 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 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	

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										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 Overhead Connections for various sub categories		NF	Monthly connection reports. SAP CIS+	Actual		The total number of connections for the residential and commercial/industrial category have been obtained from the monthly connection reports produced by the Customer and Market Service team. New customers data were extract from CIS+ and SAP and sorted based on customer class (Residential, Commercial and Industrial). The total number of subdivision connections is actual data taken from SAP. The number of embedded generation's connections is actual data taken from GIS.	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 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,		F & non-F	SAP	Actual		Project information for distribution substation installations have been	We have assumed that each individual project is one substation.	There are no installations of substations for residential connections.

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			expenditure and installed capacity						obtained from actual data stored in SAP. The information has been extracted into spreadsheets and has been mapped into customer class. There are no installations of substations for residential connections, only for project data sources in subdivision and commercial/industrial and perhaps for embedded generation if any projects exist.		There are also no substation installations for embedded generation installations unless a larger project took place in the regulatory year.
			HV & LV Augmentation volumes and expenditure		F & non-F	SAP	Actual		A series of search routines were run to extract the customer connection project list (CIC projects) and Project Data from SAP. Settlement rules were used to extract data for underground and overhead conductor lengths. There is no augmentation data for residential connections.		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.
			GSL breaches		F & non-F	SAP CIS+	Estimate	UE does not collect statistics on time to complete connections unless customers receive GSL payments.	Historical monthly connection reports are collected from the Customer and Market Services (CMS) team to populate the volume of GSL breaches and total GSL payments. The source	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	

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									documents for the CMS reports are SAP and CIS+. Mean days to connection residential customers were estimated assuming that, for customers who did not receive GSL payments, the connection times were 8 days for underground connection and 5 days for overhead connection. For customer that did receive GSL payments, the number of days to connect is listed along with payment information. This data is provided as absolute and not divided by 10 as implied by the template. This approach has been confirmed by the AER.	within 8 days and overhead connections in 5 days.	
			Subdivision Cost per Lot		F	SAP Project Scope of Works	Estimate	UE does not collect statistics on cost per lot and has therefore made an estimate.	This data has been estimated based on a small sample of projects that incurred low, medium and high expenditure. Only projects that had an expenditure greater than $2,000.00 were included as anything with lower expenditure is assumed to be non-capital. The actual number of lots and expenditure is extracted from Project Scope of Works and SAP respectively.	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 subdivision projects.	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			Embedded Generators		F/NF	Embedded Generator Register.	Actual		Embedded generation connections currently are reported to AEMO and this information is used to source the data. UE keeps registers of embedded generators eligible for automatic access and for larger generators; these have been sourced for the new connection information.		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	Actual / Estimate	It is assumed that all Residential connections (CIS+) are established through simple connections LV.	Data has been extracted from SAP for financial data and CIS+, 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.	**Residential** Simple connection LV (vol/spend). It is assumed that all Residential connections (CIS+) are established through simple connections LV. Complex connection LV (vol/spend) & Complex connection HV (vol/spend). There has been no expenditure incurred to augment LV/HV network to establish residential connections. **Commercial/Industrial** Simple connection LV (vol/spend) includes all projects coded as CBE, & CBL, unless it has a total cost exceeding $400,000.	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
										Complex connection HV with minor HV works (vol/spend) includes all CB projects with distribution substation installations / modification coded as (CBK,CBP,CBG,CBI & CBS), unless the total cost exceeds $400,000 Complex connection HV with upstream asset work (vol/spend) includes any CB project with the total cost exceeding $400,000 Complex connection HV (customer connected at HV) includes any projects related to connection of HV customers which are coded as (CBH) and have a total cost under $400,000 Connection to sub-transmission (vol/spend) – No projects or connections under this category in 2014 Subdivision Complex connections LV (vol/spend) includes CHL projects that require supply provided via an LV extension from existing LV circuit	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
										Complex connection HV (with upstream work) includes CHH projects that require HV extension works Complex connections HV (with no upstream work) includes any CH projects remaining from above criteria (>$400,000) Embedded Generation Simple connections LV includes all the PV embedded generations' connections that 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) – Expenditure is taken from SAP and project documentation and categorised in accordance with AER definitions.	
2.6	**Non-Network**		General						UE has produced a number of documents that		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									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 2305 was referenced.		
			2.6.1 Non-Network Expenditure - IT & Communications Client device expenditure Capex		F	SAP	Actual		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	Actual		As above		
			Recurrent expenditure Capex		F	SAP	Actual		As above		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			Non-recurrent expenditure Opex		F	SAP	Actual		As above		
			Non-recurrent expenditure Capex		F	SAP	Actual		As above		
			2.6.1 Non-Network Expenditure – Motor vehicles Motor vehicles capex		F	SAP	Actual		Motor vehicle CAPEX data was sourced from the SAP and stored in spreadsheets. The vehicle information was manually categorised into asset categories.		
			Motor vehicles opex		F	Motor Vehicle OPEX was obtained from Service Providers or estimated based on Fleet Lifecycle Management Plan document number PL2301. Average Kilometres travelled data is	Estimate	UE Service Providers utilised UE owned vehicles to conduct work on UE's network. Most Motor vehicles expenses incurred by UE Service Providers were grouped with plant costs and captured as part of Service Provider project installation costs. The exception to this is maintenance costs. The operating expenditure provided by one of the service providers is not broken down into different categories. Therefore it is impossible to extract the maintenance component of the operating expenditure. The OPEX expenditure for	The motor vehicles operating expenditure (OPEX) was actual data from the Service Providers where available. If unavailable, the OPEX was estimated based on the average historical costs in the LCMP. Average kilometres travelled data were obtained from the LCMP. The costs have been grouped into the Motor Vehicle categories required by the RIN.		Opex expenditure is defined as motor vehicle maintenance cost only. In addition, UE Service Providers utilised UE owned vehicles to conduct work on UE's network. Motor vehicles expenses incurred by UE Service Providers were grouped with plant costs and captured as part of Service Provider project installation costs limiting UE's ability to segregate motor vehicles fuel, registration and insurance costs. Thus, these have been excluded from the OPEX expenditure.

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
						obtained from LCMP.		these vehicles was based on the maintenance costs data in the LCMP.			
			Non-Network Expenditure- Buildings, Other, SCADA Buildings opex		F	SAP	Actual		Extract from cost centre report for GL accounts relevant to buildings and property.		
			Buildings capex		F	SAP	Actual		Extracted a list of statutory capital additions from SAP categorised into the Annual RIN schedule '3a. Capex (T') against row 'Non network general - other'. Identified the expenditure from the SAP description of the capital project.		
			Other capex		F	SAP	Actual		Extracted a list of statutory capital additions from SAP categorised into the Annual RIN schedule '3a. Capex (T') against row 'Non network general - other'. Identified the expenditure from the SAP description of the capital project. This is the expenditure that did not fit into the other categories.		
		2.6.1	Non-Network Expenditure – Other		F	CAPEX taken from SAP. OPEX was obtained from Service Providers or	Estimate	OPEX was obtained from Service Providers or estimated based on Fleet Lifecycle Management Plan document number PL2301, as UE does not	UE owns forklifts and trailers. Based on AER's definitions and requirements, forklifts and trailers are categorised as non-network other expenditure category (as		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

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
						estimated based on Fleet Lifecycle Management Plan document number PL2301.		track this information in SAP.	they have not incurred more than $1M in the last 5 regulatory years). Forklifts(OPEX) 2014: $6,230.00 Forklifts(CAPEX) 2014: $0.00 Trailers(OPEX) 2014: $58,650.00 Trailers(CAPEX) 2014: $33,940.00		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 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	Actual		Limited to those engaged directly by UE and does not include resources engaged by service providers.		
			IT and communications User Numbers		NF	Email accounts with UE from exchange system	Actual		Contains active users only and is for users both employed by UE and for external parties accessing UE systems.		
			IT and communications Number of Devices		NF	For Employee Number - Payroll data For User	Actual		Employee numbers - based on payroll data for those years. It is limited to those engaged directly by UE and does not include		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
						Numbers - An internal data base For Number of Devices - Device Warrantee information			resources engaged by service providers. User numbers are based on an extract from an internal database. It contains active users only and is for users both employed by UE and for external parties accessing UE systems. Number of devices is based on an internal warranty spread sheet with external provider.		
		2.6.3	Annual Descriptor Metrics - Motor Vehicles		NF	SAP Fleet Lifecycle Management Plan document number PL2301	Estimate	There were some anomalies in the data for distance travelled so the average distance travelled over a number of years has been used.	Data was extracted from SAP and LCMP and manually categorised into asset categories. The average kilometres travelled by each motor vehicle in the RIN category has been based on the distance travelled data in the LCMP. Each motor vehicle has been considered to have travelled the same average distance regardless of age.	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 limiting UE's ability to separate the usage of cars into regulatory and non-regulatory purposes. However, cars 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	A weighted average of the number of motor vehicles per month was used for vehicle numbers. UE does not own any LCV elevated work platform vehicles. UE does not lease any vehicles.

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
										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) Urban and CBD		NF	GIS	Actual		These numbers were derived From GIS.		
			Route line length within zone (KM) Rural		NF	GIS	Actual		These numbers were derived From GIS.		
			Number of maintenance spans (0's) Urban and CBD		NF	Fortnightly reports produced by VEMCO with data from its Vegetation Management System (VMS) database	Estimate	The number of spans is derived from the cutting spans identified in Cyclic Inspections. UE considers this an estimate as it is not definitive that these are the only spans maintained over the 2014 period.	Taken from VEMCO Fortnightly reports R02 for Low Bushfire Risk Area, 2014 calendar year program. Count of spans requiring cutting from 2014 Cyclic Inspections.	Low Bushfire Risk Area classified as urban.	
			Number of maintenance spans (0's) Rural		NF	Fortnightly reports produced by VEMCO with data from its Vegetation Management	Estimate	The number of spans is derived from the cutting spans identified in Cyclic Inspections. UE consider this an estimate as it is not definitive that these are the	Taken from VEMCO Fortnightly reports R02 for High Bushfire Risk Area, 2014 calendar year program. Count of spans requiring cutting from 2014 Cyclic Inspections	High Bushfire Risk Area classified as Rural	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
						System (VMS) database		only spans maintained over the 2014 period.			
			Total length of maintenance spans (KM) Urban and CBD		NF	GIS	Actual		Number was taken by running GIS reports on HV, LV & ST Spans.		
			Total length of maintenance spans (KM) Rural		NF	GIS	Actual		Number was taken by running GIS reports on HV,, LV & ST Spans.		
			Length of vegetation corridors (KM) Urban and CBD		NF	GIS	Estimate	As the information on vegetation corridors is not available, we have used average amount of span length and number of spans to calculate the vegetation corridor.	Number was taken by using GIS reports on HV, LV & ST Spans.		
			Length of vegetation corridors (KM) Rural		NF	GIS	Estimate	As the information on vegetation corridors is not available, we have used average amount of span length and number of spans to calculate the vegetation corridor.	Number was taken by using GIS reports on HV, LV & ST Spans.		
			Average number of trees per maintenance span (0's) Urban and CBD		NF	Calculation using fortnightly reports data	Estimate	This data is not collected.	A Vegetation Management Review was commissioned in 1999 which concluded that UE was responsible for approximately 340,000 trees. The review also determined that approximately 24%	There is an even distribution of trees along the entire network length.	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									(81,600) of trees were in a HBRA (Rural) and approximately 76% (258,400) of trees were in a LBRA (Urban). As UE does not record number of trees per span, the average number of trees per urban and CBD vegetation maintenance span is calculated by taking the average number of trees per span across the urban and CBD network. Average Number of Trees per Urban and CBD Vegetation Maintenance Span = (Number of Trees in LBRA)/(Number of LBRA Spans)		
			Average number of trees per maintenance span (0's) Rural		NF	Calculation using fortnightly reports data	Estimate	This data is not collected.	A Vegetation Management Review was commissioned in 1999 which concluded that UE was responsible for approximately 340,000 trees. The review also determined that approximately 24% (81,600) of trees were in a HBRA (Rural) and approximately 76% (258,400) of trees were in a LBRA (Urban). As UE does not record number of trees per span, the average number of trees per rural vegetation maintenance span is	There is an even distribution of trees along the entire network length.	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									calculated by taking the average number of trees per span across the rural network. Average Number of Trees per Rural Vegetation Maintenance Span= (Number of Trees in HBRA)/(Number of HBRA Spans)		
			Average frequency of cutting cycle (years) Urban and CBD		NF	Calculated from fortnightly reports and total number of spans	Estimate	This data is not collected.	The strategic objective for the Vegetation Maintenance Span Cycle within the Electric Line Clearance Management Plan (ELCMP) is two years. The current Average Urban and CBD Vegetation Maintenance Span Cycle is calculated in two steps: Dividing the sum of the total number of Urban and CBD vegetation maintenance spans from 2013 and 2014 (DOEF0202), by the total number of spans (DOEF0205) to determine the factor of spans inspected to total spans. Factor of Spans Inspected to Total Spans= (Urban and CBD Vegetation Maintenance Spans (2013)+ Urban and CBD Vegetation		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									Maintenance Spans (2014))/(Total Number of Spans) The factor calculated is then used when dividing two (as the proposed cycle length in the ELCMP) by the factor. Average Urban and CBD Vegetation Maintenance Span Cycle=2/(Factor of Spans Inspected to Total Spans)		
			Average frequency of cutting cycle (years) Rural		NF	Calculated from fortnightly reports and total number of spans	Estimate	This data is not collected.	The strategic objective for the Vegetation Maintenance Span Cycle within the Electric Line Clearance Management Plan (ELCMP) is two years. The current Average Rural Vegetation Maintenance Span Cycle is calculated in two steps: Dividing the sum of the total number of Rural CBD vegetation maintenance spans from 2013 and 2014 (DOEF0202), by the total number of spans (DOEF0205) to determine the factor of spans inspected to total spans. Factor of Spans Inspected to Total Spans= (Rural Vegetation Maintenance Spans (2013)+ Rural Vegetation		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									Maintenance Spans (2014))/(Total Number of Spans) The factor calculated is then used when dividing two (as the proposed cycle length in the ELCMP) by the factor. Average Urban and CBD Vegetation Maintenance Span Cycle=2/(Factor of Spans Inspected to Total Spans) The above calculation will provide the expected cycle time required to complete all spans at the current rate of span maintenance.		
		2.7.2	Expenditure Metrics by Zone		Financial	SAP	Actual		Based on SAP reports for relevant vegetation management codes by region (these codes include NGA, NGB, NGC and NGD). UE vegetation management costs are not broken down as per the categories in the AER template; therefore; total costs are reported in 'other'.		
		2.7.3	Descriptor Metrics Across All Zones - Unplanned Vegetation Management		NF	Data is sourced from the F factor submission. This data has been extracted	Actual		This data is extracted from DMS monthly and reviewed for accuracy. Each fire start is reported through F-Factor and investigated to ensure its legitimacy.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			Number of fire starts caused by vegetation grow-ins (NSP responsibility) (0's)			from DMS and has previously 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.	Actual		As above		
			Number of fire starts caused by vegetation grow-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.	Actual		As above		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			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.	Actual		As above		
2.8	**Maintenance**	2.8.1	Descriptor Metrics For Routine and Non-Routine Maintenance		NF	SAP Service Providers Life Cycle Management Plan	Actual		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.		The total number of units does not include inspections of the cross arms undertaken whilst pole top, overhead line and service line maintenance is carried out.
		2.8.2	Cost Metrics For Routine and		F	SAP Service	Estimate	If there is a difference between the two sources,	MAT codes are used to allocate asset categories		In some instances some asset groups will have no

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			Non-Routine Maintenance			Providers Life Cycle Management Plan		the Service Providers invoices are used. The Service Providers invoices take precedence over SAP as they have been verified by the UE Service group.	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.		non-routine expenditure as they have been categorised in other asset groups. This expenditure largely falls into routine expenditure. Calculations are made for the percentage split of each MAT code costs and units into the corresponding asset RIN categories for the calendar year. These percentage splits are to allocate each MAT code costs and units into the corresponding asset RIN categories for the calendar year. The maintained units are rounded to the nearest whole number.
2.9	**Emergency Response**	2.9.1	Emergency Response Expenditure (OPEX) (A) Total emergency response expenditure ($000's)		F	SAP	Actual		The total emergency response expenditure as reported in SAP.		
			(B) Major events O&M expenditure ($000's)		F	SAP	Actual		Calculated by summing the service provider costs on major event days.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			(C) Major event days O&M expenditure ($000's)		F	SAP	Actual		Calculated by summing the service provider costs on major event days.		
2.10	**Overheads**	2.10.1	Network Overheads Expenditure Network management		F	SAP	Actual / Estimate	This information is not tracked in SAP by allocation category. As such, these categories are estimated.	After allocating the overhead to "Network control and operational switching" and "Project governance and related functions", the remaining network overheads were allocated pro-rata to "Network management", "Network planning" and "Quality and standard functions" based on the number of people working on each function derived from organisation structure confirmed by Senior Management Accountant and General Manager Regulations.		
			Network planning		F	SAP	Actual / Estimate	This information is not tracked in SAP by allocation category. As such, these categories are estimated.	After allocating the overhead to "Network control and operational switching" and "Project governance and related functions", the remaining network overheads were allocated pro-rata to "Network management", "Network planning" and "Quality and standard functions" based on the number of people working on each function derived		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									from organisation structure confirmed by Senior Management Accountant and General Manager Regulations.		
			Network control and operational switching		F	SAP	Actual		Total costs for Network Control Centre from cost centre report.		
			Quality and standard functions		F	SAP	Actual / Estimate	This information is not tracked in SAP by allocation category. As such, these categories are estimated.	After allocating the overhead to "Network control and operational switching" and "Project governance and related functions", the remaining network overheads were allocated pro-rata to "Network management", "Network planning" and "Quality and standard functions" based on the number of people working on each function derived from organisation structure confirmed by Senior Management Accountant and General Manager Regulations.		
			Project governance and related functions		F	SAP	Actual		Overhead for Service Delivery from cost centre report.		
			Total Overhead Expenditure -		F	SAP	Actual		Direct allocation of embedded network costs.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			Negotiated Services								
			Total Overhead Expenditure - Unregulated Services								Not applicable – no overhead expenditure for unregulated network services.
			Capitalised Overheads - Standard Control Services								Not applicable – no capitalised overheads for Standard Control Services
		2.10.2	Corporate Overheads Expenditure Total Overhead Expenditure - Standard Control Services		F	SAP	Actual		Total: refer annual RIN 8a. Operating (T) "Billing and revenue collection", "Advertising/marketing", "Customer service", "Regulatory", "Licence fee" and "Other - Standard control services". "Other - Standard control services" is made up of “Office of the CEO”, “Legal and secretariat”, “Human resources”, “Finance” and “Other”. Details refer Cost Allocation Methodology (CAM) model.		
			Total Overhead Expenditure - Alternative Control Services		F	SAP	Actual		Total: refer annual RIN 8a. Operating (T) "Billing and revenue collection", "Advertising/marketing", "Customer service", "Regulatory", "Licence fee" and "Other - Standard		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									control services". "Other - Standard control services" is made up of “Office of the CEO”, “Legal and secretariat”, “Human resources”, “Finance” and “Other”. Details refer Cost Allocation Methodology (CAM) model.		
			Total Overhead Expenditure - Negotiated Services		F	SAP	Actual		Direct allocation of embedded network costs		
			Total Overhead Expenditure - Unregulated Services		F	SAP	Actual		Refer annual RIN 8a. Operating (T) and Cost Allocation Methodology (CAM) model		
			Capitalised Overheads - Standard Control Services								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	Actual		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	ASLs, Total Labour Expenditure, Average Productive Work Hours	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									work hours, UE FTE portion was applied to employee totals in order to get UE only ASL.		
			Amounts additional to TCR (eg bonus, allowances, etc)		F	SAP reports	Actual		Sap report run for relevant remuneration amount types by individual. Information from reports used for totals calculation.	Amounts additional to TCR (eg bonus, allowances, etc)	
			Classification in Organisational hierarchy (eg. Executive, manager, etc)		NF	ADP Reporting System and Company structure	Actual		Individuals matched to their position in the company structure. Relevant level reported.	Classification in Organisational hierarchy (eg. Executive, manager, etc)	
			Split between Corporate and Network		NF	Cost centre report - SAP	Actual		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	Actual		Derived from information in table 2.11.1.		
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		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									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, documents UE PR 2325, 2211, 2212 and 2327 were referenced.		
			Vegetation Management		F	SAP	Actual		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 relating to vegetation management. Allocations were determined based on historical data.		
			Routine Maintenance		F	SAP	Actual / Estimate	This information is derived from 2.8 Maintenance, which contains estimated information.	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	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			Non-Routine Maintenance		F	SAP	Actual / Estimate	This information is derived from 2.8 Maintenance, which contains estimated information.	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	Actual		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	Actual		Direct labour was from 2.11 Other costs being the difference between 2.10 SCS overhead and Direct labour cost.		
			Augmentation		F	SAP	Actual		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		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									subset of the contracts costs.		
			Connections		F	SAP	Actual		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	Actual		Data has been extracted from SPS. 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 emergency response expenditure on major event days.		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	Estimate	The codes in SAP are not directly attributable to all categories in the Annual RIN template; therefore, assumptions have been developed to allocate expenditure to the appropriate categories.	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		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									subset of the contracts costs.		
			Metering		F	CA RIN Schedule 4.2 Metering	Actual / Estimate	This information is derived from 4.2.1 Metering, which contains estimated information.	Direct Material includes meter purchases, Direct Labour includes Direct Installation cost and Other Expenditure includes all other capex and opex cost plus ACS cost. All cost is taken from CA RIN 4.2 metering tab		
			Fee-Based Services		F	SAP/service provider costs	Estimate	The codes in SAP are not directly attributable to all categories in the Annual RIN template; therefore, assumptions have been developed to allocate expenditure to the appropriate categories.	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	Estimate	The codes in SAP are not directly attributable to all categories in the Annual RIN template; therefore, assumptions have been developed to allocate expenditure to the appropriate categories.	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	Actual		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		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									party contract costs are a subset of the contracts costs.		
			IT and communications		F	CA RIN Schedule 2.6 Non-network	Actual		The methodology is based on the definition in the Category Analysis RIN document provided by AER to UE (P52) Contract Expenditure: Accenture & CGI 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	Actual		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	Actual		All expenditure for this category is paid directly to unrelated external suppliers. No material or labour is capitalised.		
			Other		F	CA RIN Schedule 2.6 Non-network	Actual		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		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									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 2351 was referenced.		
		4.1.1	Descriptor Metrics Over 2013-14 Light type		NF	GIS	Actual		The requested information is held within UE's Geographical Information System (GIS). To access this information UE have purpose built reports. The AM/FM reports webpage is a portal to obtain this asset data. Asset data in the AM/FM reports are updated monthly from UE's GIS and presented in user friendly tables. Data is then available to directly match the RIN requirement.		
		4.1.2	Descriptor Metrics Annually		F /NF	GIS SAP Customer and Market Services Group	Actual		Asset Installation, Replacement and Maintenance activities are captured in UE's SAP system. Work orders are raised for each activity and actual costs captured. Separate Codes (MAT codes) are used to capture		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 other entities outside of UE.

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									various asset types. Work orders are linked to equipment codes and these have been used to split assets by classification. Quality of supply is recorded and populated by the Customer and Market Services team.		
		4.1.3	Cost Metrics		F	GIS SAP	Actual		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	Actual		RIN Annual reports of 2013 and 2014 have been used to calculate average volumes.	• Two single phase meters and time switch at one installation counted as one meter – this is consistent with Annual RIN reports. • Included >160 MWh customers where United Energy is the Responsible Person. • AMI Meters in CIS+ are considered as Type 4.	
		4.2.2	Cost Metrics		F	SAP & Corporate	Actual		Meter purchase costs including freight obtained from supplier invoices.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			Meter purchase ($000'S)			Finance reports					
			Meter testing ($000'S)		F	Specialist meter testing contract monthly report and invoice	Estimate	UE does not track meter testing expenditure in regards to the categories required. These categories have been determined using best estimates.	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. • Sample testing of Current Transformers.		Test costs for CTs are almost double after-hours. Many CT tests are carried out after hours.
			Meter investigations ($000'S)		F	Specialist meter testing contract monthly report and invoice	Estimate	The breakdown of different meter types is not available for all meter investigations. Operational teams will be collecting detailed information by meter type from April 2015.	Metering investigation service orders of the following types have been included: • Remote communication faults • CT meter faults Domestic faults C& I faults • Time Reset and downloads • Revenue protection: police initiated drug raids Meter investigation costs distributed between meter types are based on a 60:30:10 split rather than installed volumes as meter investigation requirements are greater for AMI Meters & Interval meters.		Most of the meter investigation activities are conducted by internal resources and involve analysing meter data. AMI meters have events / alarms, including metering tampering/bypass alarms that require monitoring. Monitoring activities are undertaken by internal resources and, therefore, no additional costs are incurred.

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			Scheduled meter reading ($000'S)		F	Specialist meter testing contract monthly report and invoice	Estimate	UE does not track schedule meter reads in regards to the categories required. These categories have been determined using best estimates.	For Type 5 and 6 metering actual direct contract costs for meter reading activities are available in monthly billing files. Meter read costs for Type 4 metering are reported as zero as they are remote read meters.		Manual meter read costs increased with time as the Type 5 & 6 meter volumes decreased. Type 4 Meter reading costs are reported as zero as these costs are captured in IT, Communications and other metering categories.
			New meter installation ($000'S)		F	Financial RIN Annual 2014	Actual		New meter installation costs reported in Annual Financial RIN 2014. Meter control costs included in other metering costs.		All New meter installations part of ACS-Fee based service orders. As per page 77 of better regulation, ACS items are also included in metering Sec 4.2.
			Meter replacement ($000'S)		F	SAP & Corporate Finance reports	Estimate	UE does not track meter replacements in regards to the categories required. These categories have been determined using best estimates.	Service provider billing files for direct labour costs.		Project management costs are included in other metering. Adds & Alts meter replacements are part of ACS-Fee-based service orders..
			Meter maintenance ($000'S)		F	Specialist meter testing contract monthly report and invoice	Estimate	UE does not track meter maintenance in regards to the categories required. These categories have been determined using best estimates.	Metering assets were not part of the preventive/predictive maintenance program. The only maintenance costs were for Type 6 meters relating to time switch adjustments done through specialist meter read contracts.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			Remote meter reading ($000'S)		F	N/A	N/A		Remote Meter reading costs are reported as zero as these costs are captured in IT, Communications and other metering categories.		Only internal labour and IT systems involved in this activity.
			Remote meter re-configuration ($000'S)		F	N/A	N/A		Remote Meter reconfiguration costs are reported as zero as these costs captured in IT, Communications and other metering categories.		Only internal labour and IT systems involved in this activity.
			Other metering ($000'S)		F	SAP & Corporate Finance reports	Estimate	UE does not track Other metering expenditure in regards to the categories required. These categories have been determined using best estimates.	SAP and Corporate Finance reports available for total Capex and Opex costs. Other metering costs are calculated as the difference between Total CROIC costs and all other CROIC items in Table 4.2		These costs include Meter control, internal labour and back office contracts.
			IT infrastructure capex ($000'S)		F	SAP & Corporate Finance reports	Actual		SAP & Corporate Finance reports on IT Capex for CROIC		
			IT infrastructure opex ($000'S)		F	SAP & Corporate Finance reports	Actual		SAP & Corporate Finance reports on IT Opex for CROIC		
			Communications infrastructure capex ($000'S)		F	SAP & Corporate	Actual		SAP & Corporate Finance reports on Communication Capex for CROIC		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
						Finance reports					
			Communications infrastructure opex ($000'S)		F	SAP & Corporate Finance reports	Actual		SAP & Corporate Finance reports on Communication Opex for CROIC		
			Volumes Meter purchase (000'S)		NF	SAP & Corporate Finance reports	Actual		Volumes obtained from meter purchase invoices.		
			Meter testing (000'S)		NF	Specialist meter testing contract monthly report and invoice	Estimate	UE does not track meter testing in regards to the categories required. These categories have been determined using best estimates.	Data obtained from Specialist meter testing contract billing files for the following 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.		
			Meter investigations (000'S)		NF	Specialist meter testing contract monthly report and invoice	Estimate	The breakdown of different meter types is not available for all meter investigations. Operational teams will be collecting detailed information by meter type from April 2015.	Metering investigation service orders of below types are included • Remote communication faults • CT meter faults Domestic faults C& I faults • Time Reset and downloads		Most of the meter investigation activities are conducted by internal resources and involve analysing meter data. AMI meters have events / alarms, including metering tampering/bypass alarms, that require monitoring. Monitoring activities are

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									• Revenue protection: police initiated drug raids Meter investigation costs distributed between meter types are based on a 60:30:10 split rather than installed volumes as meter investigation requirements are greater for AMI Meters & Interval meters.		undertaken by internal resources and, therefore, no additional costs are incurred.
			Scheduled meter reading (000'S)		NF	Specialist meter testing contract monthly report and invoice and Network Management System-UIQ report.	Actual		Actual volumes for meter reading activities have been taken from the monthly report for Type 5 and 6. Type 4 AMI meter reading quantities have been obtained from the Network Management System-UIQ report.		
			Special meter reading (000'S)		NF	Specialist meter testing contract monthly report and invoice	Actual		Type 5 and 6 meter volumes obtained were obtained from specialist meter reading contract monthly reports for 2014. Type 4 metering volumes were reported as zero as these meters read daily.		
			New meter installation (000'S)		NF	SAP	Actual		Data obtained from SAP Service order report (Transaction- ZIAMI007) for New Connection orders (SAP code-ZRNC).		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			Meter replacement (000'S)		NF	SAP	Actual		Data obtained from SAP Service order report (Transaction- ZIAMI007) for New Connection orders (SAP code-ZMRO).		Adds & Alts meter replacements are part of ACS- Fee based service orders.
			Meter maintenance (000'S)		NF	Specialist meter testing contract monthly report and invoice	Actual		Metering assets were not part of the preventive/predictive maintenance program. The only maintenance costs were for Type 6 meters for time switch adjustments done through specialist meter read contracts.		
			Remote meter reading (000'S)		NF	Network Management System-UIQ report.	Actual		Network Management System -UIQ report on number of meters read.	Network Management System- UIQ reads meter data every 4 hours. However, this has been counted as 1 read per day.	
4.3	**Fee Based Services**	4.3.1	Cost Metrics for Fee-Based Services Expenditure		F	SAP/service provider costs	Estimate	The codes in SAP are not directly attributable to all categories in the Annual RIN template; therefore, assumptions have been developed to allocate expenditure to the appropriate categories.	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.		Fee-based services provided are as follows: • Energisation • De-energisation • R-energisation • Meter investigation • Special meter reading • Wasted attendance – not DNSP fault • Service truck visits • Reserve feeder • Routine connections – customer below 100 amps • Temporary supply services

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
											• Remote meter re-configuration
			Volumes		NF	SAP/service provider costs	Actual		Number of service orders.		
4.4	**Quoted Services**	4.4.1	Cost Metrics for Quoted Services Expenditure		F	SAP/service provider costs	Estimate	The codes in SAP are not directly attributable to all categories in the Annual RIN template; therefore, assumptions have been developed to allocate expenditure to the appropriate categories.	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.		Quoted services provided are as follows: • Supply abolishment • Emergency recoverable works • Elective underground service where an existing overhead service exists • Covering of low voltage mains for safety reasons • Routine connections, for customers > 100amps • After hours truck by appointment
			Volumes		NF	SAP/service provider costs	Actual		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 estimated data. The basis of preparation against each relevant RIN category is a		Data volumes submitted for asset age will be slightly different from those submitted in the 2013 RIN Category Analysis. This is due to more rules being applied within SAP and GIS that use multiple methods to determine the asset age.

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									summary of the methodology detailed within these UE produced documents. For this particular RIN, document UE PR 2316, 2318, 2321 to 2324 and 2340 to 2350 were referenced.		
		5.2.1	Raw and Weather Corrected MD at Network Level (Summed at Transmission Connection Point) Calculation of Economic Life		NF	SAP GIS	Estimate	The installation dates of a minority of assets was not recorded has been estimated which means the calculation has been deemed to be estimated. The estimation of the installation date is usually based on the age of related equipment on the assumption that the assets are installed at the same time.	Where possible UE uses actual data to calculate asset life and standard deviation. For the majority of assets replacement dates can be extracted from SAP and installation dates are available either from SAP or GIS. In the calculation process outlying values are identified and removed. As poles, zone substation circuit breakers, zone substation transformers and protection relays are deemed to be critical assets with high replacement costs, their asset failure data have previously been extracted from UE's SAP system and analysed for predictive asset management using a Weibull model. Hence, their historical asset failure data can be extracted from their respective Weibull Model. For some assets such as secondary and		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									communications assets (with the exception of relays) asset failure data has not been collected before 2011. For these assets a nominal life span has been applied based on manufacturer's recommendations. For some assets, the economic life is based on the accounting life base on depreciation model.		
			Poles		NF	SAP GIS	Estimate	Pole installation dates can be obtained from either pole construction year or pole disc data. Procedures have been established to resolve information where they are not the same. For the large majority of poles, the installation date is known.	The 2014 RIN categorisation profile of poles has been developed from the SAP Equipment Master record, the SAP Equipment Master record with characteristics, and GIS data. The following key steps were undertaken: • Extract data from the GIS system for Poles • Extract data from SAP records for Poles • Extract data from SAP for Functional Location records for poles, Switch Zone and Feeder • Develop MS Access database “RIN Reporting Poles.accdb” to determine the RIN Code for each pole. • Export poles data to Excel to complete the analysis to calculate the	Where cross-arms of different voltages are on poles, the pole voltage is assigned to the cross-arm of the highest voltage.	In 1996, a SAP system was introduced. Much of the data imported into the system at that time was given a nominal construction date of 1996. For those assets, the pole disc has been used as the installation date. Where no pole disc data is available, the installation date has been estimated using the average age of equipment in the same switching zone.

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									pole age and create the age profile.		
			Overhead Conductors		NF	GIS	Estimate	If the GIS conductor installation year was post 1996 then it was considered accurate and it was used. Otherwise, the following key rules were implement: • The age of the oldest pole connected to the conductor was found and compared to the conductor material and range of years the material was used: o If within the range, the pole age was assigned to the conductor. o Otherwise, the average age of poles in the switch zone was used • If the age of the conductor, as allocated by GIS and Pole ages, was within the age range of the material and construction type then it was accepted, otherwise, the conductor was marked to be 'smeared' pro-rata across the age profile (of accepted conductors). • The conductor age profile was split into actual data (correct from GIS) and estimated data. • The conductor feeder category (Urban or Rural Short) was also calculated	The 2014 RIN Age profile of Overhead Conductors has been developed using the GIS record of the conductor asset age and the pole age profile. Since a number of conductor records were incomplete and did not contain the installation date of the pole, or an age considered to be incorrect, an estimation process was established based on the type of conductor material, whether the conductor was bare wire or aerial bundled cable, and a set of rules regarding the age of poles to which the conductor was connected.		UE does not own conductors with voltages higher than 66kV.

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								based on the feeder it was connected to.			
			Underground Cables HV		NF	SAP GIS	Actual		All cables are grouped and assigned the following characteristics to each cable id. • RIN code. • Installation year. • Location category (URBAN / RURAL). The key steps undertaken were: • Extract data from GIS using the reports UGD-004 and UGD-006 • Extracting seven tables, based on functional locations and equipment, from SAP using Technical Object Types. • The data sets were loaded into an Access database and queried to develop the final two data sets • The final data sets contained the equipment number and/or GIS ID of the cable and allocated to it the RIN Code, installation date and feeder category (Urban or Rural Short).		Methodologies used to obtain data for LV and HV cables are slightly different. HV cables have less queries as the information is well maintained within GIS.
			Underground Cables LV		NF	SAPGIS	Actual		All conductors are grouped and assigned the following characteristics to each conductor id.• RIN code.• Installation year.• Location		Methodologies used to obtain data for LV and HV cables are slightly different. LV cables have more

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									category (URBAN / RURAL).The key steps undertaken were:• Extract data from GIS using the reports UGD-004 and UGD-006• Extracting seven tables, based on functional locations and equipment, from SAP using Technical Object Types.• The data sets were loaded into an Access database and queried to develop the final two data sets• The final data sets contained the equipment number and/or GIS ID of the cable and allocated to it the RIN Code, installation date and feeder category (Urban or Rural Short).		queries through SAP to determine cable data.
			Service Lines		NF	GIS SAP	Estimate	UE used the Weibull model to estimate the age profile of services on the network for various customer types and connection complexities. Where there was insufficient information to classify the service, they were allocated on a prorata basis.	The 2014 RIN Age profile of services has been developed using both GIS and SAP data. The SAP data was used to extract all closed notifications for assets that required replacement and incorporated both the current UE SAP system as well as the legacy SAP 4.6C system. Since services are not managed on an individual equipment basis, records are not maintained in SAP. As a result the most recent replacement notification	UE has assumed the following definitions to determine the complexity of services. Residential simple service is a low voltage single/multi-phase customer connection service and/or the following: • one span of overhead service wire or standard underground service and/or • an overhead road crossing Residential complex service is a low voltage or	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									record was used to determine when a service on a given pole was replaced. If the services did not have a notification, an estimation process was established based on a set of rules regarding the age of the closest pole to which the conductor was connected. This analysis was completed using an Access database. To calculate the asset age profile, the following was done: • If the service was found to have a closed notification, then the most recent closed notification date was allocated to the service. This was considered Actual Information. • Where the service did not have a notification assigned to it, an estimation approach was undertaken. The age of the pole is assigned to the service and the data is entered into the Weibull model. The model simulates aging of the asset and estimates the current age profile. • The consolidated age profile was calculated as the sum of the Actual and	high voltage single/multi-phase customer connection service, which is not a simple connection, and/or the following: • greater than one span of overhead service wire • extension or augmentation of the LV feeder, overhead and/or underground • road crossing (overhead or underground) • extension or augmentation of the HV feeder, overhead and/or underground; • installation of a distribution substation (pole mounted, ground types) Commercial and Industrial simple service is a low voltage single/multi-phase customer connection service and may involve the following: • one or more spans of overhead service wire • road crossing (overhead or underground) • small LV extension or augmentation of overhead and/or underground mains Commercial and Industrial complex service is a low voltage or high voltage multi-phase customer connection service, which is not a simple connection,	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									Estimated age profiles. Using SAP and GIS data was used to allocate a premise type and connection complexity to each service in United Energy's network. The Type and complexity criteria are set by the RIN. Since the customer information stored in GIS comes from the legacy CIS+ system, the current customer type was sourced primarily from SAP, which holds the data for the current customer management system, with GIS data being used as a secondary source. The following process was used to extract the relevant data: • We obtained the SAP customer supply point (ID) which provided a link to the customer type (ie, residential) for each service. • If multiple customer types were identified, the primary customer was used. • This was compared to the GIS Supply ID to provide the link with complexity. • Where matches were not found, the customer type and complexity stored in GIS was applied.	and/or the following: • the installation of a distribution substation (pole mounted, ground types, or indoor types) • overhead and/or underground HV feeder extension or augmentation associated with the connection of the substation • large extension or augmentations of the HV feeders • installation of LV mains associated with the new substation • installation of a high voltage switching station or switch room	

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									• If any data services did not have data from either SAP or GIS, they were 'smeared' on a pro-rata basis across the known assets when building the age profile.		
			Transformers		NF	SAP GIS	Actual		The reporting of Distribution Transformers has been based on data extracted from the GIS system and SAP. The GIS & SAP data extracts were incorporated into an MS Access database to provide data analysis and reporting capabilities. The GIS information relates to the operational management of the distribution network, the SAP data relates to the maintenance of the distribution network assets. GIS objects are synchronised to SAP objects for specific key data attributes, GIS is only linked to SAP Functional Location objects. The GIS Distribution Transformer record is linked by its Functional Location field to the SAP Functional Location record. The records for Distribution Transformers & Sub-Stations were extracted		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									from GIS. The Sub Stations data is required to cross refer & verify Distribution Transformer data. From SAP the Functional Location and Equipment records were extracted for Distribution Transformers, in SAP there is a United Energy business rule to have 1:1 relationship between the Equipment and Functional Location record, however they hold different attributes. The Functional Location represents the physical location of the Distribution Transformer or Distribution Sub Station. The Equipment represents the currently installed physical asset (distribution transformer). The SAP Functional Location records were also extracted for the Distribution Sub Stations. The Sub Stations data is required to cross refer & verify Distribution Transformer data. A Sub Station may contain one or more Distribution Transformers. The data is manipulated to provide the RIN Asset category code and an age profile as an excel report.		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			Zone Substations & Switchgear		NF	SAP Asset Management Master Spreadsheets Plant Data Sheet Drawings Asset Life Cycle Management Plan	Estimate	The information provided is the best available. Plant data sheet records may not be accurate as they list the dates that plant was specified, not installed. It is possible that this information may be accurate in a year or two.	A simple process was followed to determine the age of Zone Substation Switchgear. For most assets, a direct extract of data from SAP, based on the SAP Object Type, was used and contained all data required for reporting. Where there are gaps in the SAP data the information is sourced from Asset Management Master Spreadsheets or from the equipment specification number listed on the plant data sheet drawing.	Plant is installed in the same year as it is specified.	
			Public Lighting		NF	GIS SAP	Estimate	For most but not all, poles installation dates are available from SAP or from the data on the pole disc, with the pole disc being given preference. For those not in SAP, the pole disc installation date has been used.	The process was completed in two parts. The first part identified the public lighting luminaires and their ages while the second part obtained the public lighting poles age profile: • The public lighting luminaries installation dates are based on the 'Date Commissioned' field extracted from GIS. As luminaires are installed in conjunction with their corresponding bracket, the age profiles of public lighting brackets have been assumed to be the same as the luminaire age profile. • The age profile for poles		Public Lighting lamp replacements are categorised as operating expenditure.

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
									was used for the public light poles. Pole installation data is extracted from SAP and filtered for lighting and road type. The records are cross referenced with GIS data to confirm the road type.		
			SCADA, Network Control & Protection		NF	SPAGIS	Estimate	Actual data is available for the majority of equipment, either from SAP or GIS.Where data does not exist, the data has been estimated by a variety of methods - average age, age of associated equipment or from local knowledge.	There are separate methods to obtain the age profiles of zone substation secondary system assets depending on the asset types listed below.• Microwave radio tower bases• Fibre optic supervisory cables• Metallic (i.e. copper) supervisory cables• All other secondary equipment such as protection relays, controllers, batteries, etc.The different methods are due to incomplete asset records for radio towers and supervisory cables in both UE's GIS and SAP systems whereas all the other secondary system assets have been updated in SAP over the course of the past two years. It is envisaged that the incomplete asset records for radio towers and supervisory cables will be captured in SAP. Thus, it is expected that the		

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									separate methods to obtain the age profiles for secondary system assets will not be required in the future.		
			Other Assets - Pits and Pillars		NF	GIS	Estimate	Estimates were made for the installation dates of approximately 10% of assets. As the cable and switches are required to be installed with pillars and pits, the estimates are regarded as accurate.	Calculating the Age and RIN Category for Pits and Pillars was based on three GIS reports and the LV Cable data. The GIS reports contain the information required to allocate a RIN Category to each Pit and Pillar and the construction date for approximately 90% of the Pits and Pillars. Construction dates were estimated for the remaining 10% based on the date of the oldest connected cable.		
			Other Assets - Line Capacitors		NF	GIS SAP	Estimate	Insufficient information available, therefore, best estimates were developed as outlined in the methodology.	The 2014 RIN Age profile of Line Capacitors has been developed by using Asset Capitalisation date assigned to the Functional Location Master Data record. By taking the capitalisation date of the asset master record assigned to the Line Capacitor Functional Location in SAP, we were able to allocate an age to each specific unit with the actual installed asset dates (1998-2014) of the Line Capacitors.		

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									The following key steps were undertaken: • The Age reporting of Line Capacitors in 2014 has been based on data extracted from the GIS system and SAP. The GIS & SAP data extracts were incorporated into an MS Access database to provide data analysis and reporting capabilities. • From the GIS system a list of “in service” Line Capacitor was extracted. The GIS Line Capacitors record is linked to the SAP record by the “Owning Substation” field in GIS. • The SAP Functional Location record (Object Type: Line Cap) incorporates an Asset Number and can also be linked to the “Owning Substation field in GIS FL numbering commonality. • Line Capacitor individual Equipment record can be linked to the GIS record via the SAP Functional Location record.		
			Other Assets - Fuses		NF	GIS SAP	Estimate	The information provided is the best available. The estimates are reasonable as fuses are installed concurrently with the distribution transformer for protection purposes.	The installation date of the fuses located outside distribution substation were set to the construction year (SAP) of the oldest distribution substation in the same switch zone as		

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									the fuse. Otherwise, it was set to the construction year of the closest pole to the fuse. The distribution transformer age profile was obtained from the Distribution Transformer GIS. The installation year of the fuses located within distribution substations were set to either the pole or the distribution transformer construction year depending on the fuse location.		
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.		

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		5.3.1	5.3 Maximum Demand at Network Level Raw Network Coincident demand, Date MD occurred, Half Hour time Period, Winter/Summer peaking		NF	Metered Data Stored in "UE Actual & Forecast S & W Demand Energy & Customer No" Spreadsheet.	Actual		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 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.	Actual		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 No" Spreadsheet.	Estimate	The PoE corrected demand is calculated and relies on temperature sensitivity information provided by the NIEIR forecast. This information is validated against historical data, an internal estimation procedure and bottom up load estimation.	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.		

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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	Load Forecast Spreadsheet	Actual		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.
			Maximum Demand Raw adjusted MD MW & MVA, date & time occurred,		NF	Load Forecast Spreadsheet	Actual		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		

Tab	Table Name	Table	Table title	Data quality	Fin / Non-fin	Data source	Actual / Estimate	Justification (if estimated)	Methodology (Actual & Estimated)	Assumptions (Actual & Estimated)	Additional Comments
			winter summer peaking						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	Load Forecast Spreadsheet	Actual		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 and no adjustment is required.

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			Maximum Demand Weather Correction MD, MW MVA, 10% & 50% PoE.		NF	Load Forecast Spreadsheet	Estimate	The PoE corrected demand is calculated and relies on temperature sensitivity information provided by the NIEIR forecast. This information is validated against historical data, an internal estimation procedure and bottom up load estimation.	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 2013-14)		NF	There are two sources of data depending on the time period. From 1 January 2008 to 31 December 2013 reliability data was sourced from information previously submitted in the 2013 Category analysis RIN. From 1 January 2014 to 31 January 2014, the data was sourced from the	Actual		The data used to calculate reliability is extracted from the DMS database cleansed to remove duplications and adjusted for temporary switching arrangements. The cause codes in the database are UE cause codes and these 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 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 provided for under regulation or law.	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 in relation to the network outage. An interruption ends when supply is restored and available to the customer.

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						Distribution Management System Database.					