2017 RIN

Basis of Preparation

Economic Benchmarking

Document No: 2017 [UE] [EB] RIN BOP

Revision: 1.0

Overview

United Energy is required to prepare a Basis of Preparation document which must,

a) demonstrate how the information provided is consistent with the requirements of the Notice;

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) advise if the information is actual or estimate;

e) 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 document provides details to support the information provided by United Energy in the Microsoft Excel workbooks titled:

- 2017 [UE] [EB] RIN Template Export - Actual
- 2017 [UE] [EB] RIN Template Export – Estimated
- 2017 [UE] [EB] RIN Template Export - Consolidated

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

- classification of actual or estimated information;
- if estimated, appropriate justification provided;
- data source;
- methodology and assumptions adopted to prepare the information;
- any additional comments to support the basis of preparation.

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.

BOP ID	Tab ID	Tab Name	Table and Rule Allocation	Estimated / Actual	Data Source	Why Estimated?	Methodology	Assumptions	Additional Comments
BMUE3.1BOP1	3.1	Revenue	TABLE 3.1.1 - REVENUE GROUPING BY CHARGEABLE QUANTITY Revenue from Fixed Customer Charges [Standard Control Services] Revenue from Fixed Customer Charges [Alternative Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum fixed revenue components for all tariffs (i.e. Cmp = 'FXD'). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	A high percentage of actual billed data has been used.
BMUE3.1BOP2	3.1	Revenue	TABLE 3.1.1 - REVENUE GROUPING BY CHARGEABLE QUANTITY Revenue from Energy Delivery charges where time of use is not a determinant [Standard Control Services] Revenue from Energy Delivery charges where time of use is not a determinant [Alternative Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum revenue components of single rate tariffs (i.e. S1, M1, L1, S1WET). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	A high percentage of actual billed data has been used.
BMUE3.1BOP3	3.1	Revenue	TABLE 3.1.1 - REVENUE GROUPING BY CHARGEABLE QUANTITY Revenue from On-Peak Energy Delivery charges [Standard Control Services] Revenue from On-Peak Energy Delivery charges [Alternative Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum peak tariff revenue components (excluding S1, M1, L1, S1WET). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	A high percentage of actual billed data has been used. The definition of peak times can vary across different tariffs.
BMUE3.1BOP4	3.1	Revenue	TABLE 3.1.1 - REVENUE GROUPING BY CHARGEABLE QUANTITY Revenue from Shoulder period Energy Delivery Charges [Standard Control Services] Revenue from Shoulder period Energy Delivery Charges [Alternative Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum shoulder revenue components (i.e. Cmp = 'SHD'). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	A high percentage of actual billed data has been used. The definition of peak times can vary across different tariffs.
BMUE3.1BOP5	3.1	Revenue	TABLE 3.1.1 - REVENUE GROUPING BY CHARGEABLE QUANTITY Revenue from Off-Peak Energy Delivery charges [Standard Control Services] Revenue from Off-Peak Energy Delivery charges [Alternative Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum off -peak revenue components (excluding controlled load and unmetered energy). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	A high percentage of actual billed data has been used. The definition of peak times can vary across different tariffs.
BMUE3.1BOP6	3.1	Revenue	TABLE 3.1.1 - REVENUE GROUPING BY CHARGEABLE QUANTITY Revenue from controlled load customer charges [Standard Control Services] Revenue from controlled load customer charges [Alternative Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum controlled load revenue (i.e. Tariff = 'DED'). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	None
BMUE3.1BOP7	3.1	Revenue	TABLE 3.1.1 - REVENUE GROUPING BY CHARGEABLE QUANTITY Revenue from unmetered supplies [Standard Control Services] Revenue from unmetered supplies [Alternative Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum unmetered revenue (i.e. Tariff = 'UNM'). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	A high percentage of actual billed data has been used.
BMUE3.1BOP8	3.1	Revenue	TABLE 3.1.1 - REVENUE GROUPING BY CHARGEABLE QUANTITY Revenue from Measured Maximum Demand charges [Standard Control Services] Revenue from Measured Maximum Demand charges [Alternative Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum revenue of maximum demand related charges (i.e. Cmp = 'DMNRLN', 'DMNSMR'). For accrued components scaling and adjustments may be made based on: - Known billing issues	N/A	A high percentage of actual billed data has been used.
BMUE3.1BOP9	3.1	Revenue	TABLE 3.1.1 - REVENUE GROUPING BY CHARGEABLE QUANTITY Revenue from metering charges [Standard	Actual	SAP Financial accounts	N/A	Extracted from RIN supporting data UE Product Line reporting Dec 17. Based on Services defined as 'Metering Charges'. Includes the following:	N/A	Alternative control services

			Control Services] Revenue from metering charges [Alternative Control Services]				- AMI charges, Special meter reading, Remote meter reconfiguration		
BMUE3.1BOP10	3.1	Revenue	TABLE 3.1.1 - REVENUE GROUPING BY CHARGEABLE QUANTITY Revenue from connection charges [Standard Control Services] Revenue from connection charges [Alternative Control Services]	Actual	SAP Financial accounts	N/A	Extracted from RIN supporting data UE Product Line reporting Dec 17. Based on Services defined as 'Connection Charges'. Includes the following: - Single Phase connections, Three Phase Connections, Disconnections, Reconnections, Remote De-Energise, Remote Re-Energise.	N/A	Alternative control services
BMUE3.1BOP11	3.1	Revenue	TABLE 3.1.1 - REVENUE GROUPING BY CHARGEABLE QUANTITY Revenue from public lighting charges [Standard Control Services] Revenue from public lighting charges [Alternative Control Services]	Actual	SAP Financial accounts	N/A	Extracted from RIN supporting data UE Product Line reporting Dec16. Based on Services defined as 'Public Lighting Charges'. Includes the following: - Public Lighting Operating and Maintenance, Public Lighting Customer Contributions.	N/A	Alternative control services
BMUE3.1BOP12	3.1	Revenue	TABLE 3.1.1 - REVENUE GROUPING BY CHARGEABLE QUANTITY Revenue from other Sources [Standard Control Services]	Actual	SAP Financial accounts	N/A	Extracted from Sheet '2. Demand and Revenue' of FIN RIN. Refer to section 'Table 1 Standard Control Services Revenue - Current Year' Sum the following rows: (NUOS Revenue + Rebates + PFIT Solar Recovery + Grid fees + Unmetered revenue adjustment.	N/A	N/A
BMUE3.1BOP13	3.1	Revenue	TABLE 3.1.1 - REVENUE GROUPING BY CHARGEABLE QUANTITY Revenue from other Sources [Alternative Control Services]	Actual	SAP Financial accounts	N/A	Extracted from RIN supporting data UE Product Line reporting. Based on Services defined as 'Ancillary network services', 'Standard Control Services', 'Negotiated' and 'Unclassified'. Includes the following: Customer Contributions, Temporary Supply Services, HV LV Shutdowns, Service Covering, Service Truck Visits, Reserve feeder, Emergency Recoverable Works, Elective Underground Services, Supply Abolishment's, Facilities Access.	N/A	N/A
BMUE3.1BOP14	3.1	Revenue	TABLE 3.1.2 REVENUE GROUPING BY CUSTOMER TYPE OR CLASS Revenue from residential Customers [Standard Control Services] Revenue from residential Customers [Alternative Control Services]	Actual	Based on reported monthly energy. SAP Billing System	N/A	Sum up revenue components for residential tariffs. (i.e. DED, S1, S1WET, S2, TOD, TOD9, TODFLEX). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	N/A
BMUE3.1BOP15	3.1	Revenue	TABLE 3.1.2 REVENUE GROUPING BY CUSTOMER TYPE OR CLASS Revenue from Non residential customers not on demand tariffs [Standard Control Services] Revenue from Non residential customers not on demand tariffs [Alternative Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum up revenue components for the following non-residential tariffs. (L1, L2, M1, M25, M27). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	N/A
BMUE3.1BOP16	3.1	Revenue	TABLE 3.1.2 REVENUE GROUPING BY CUSTOMER TYPE OR CLASS Revenue from Non-residential low voltage demand tariff customers [Standard Control Services] Revenue from Non-residential low voltage demand tariff customers [Alternative Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum up revenue components for the following LV demand tariffs. (KW-TOU, KW-TOU-H, L2- KVA, L2-KVA-H, TOU). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	N/A
BMUE3.1BOP17	3.1	Revenue	TABLE 3.1.2 REVENUE GROUPING BY CUSTOMER TYPE OR CLASS Revenue from Non-residential high voltage demand tariff customers [Standard Control Services] Revenue from Non-residential high voltage demand tariff customers [Alternative Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum up revenue components for the following HV demand tariffs. (HV-KVA, HV-KVA-H, ST22- KVA). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	N/A
BMUE3.1BOP18	3.1	Revenue	TABLE 3.1.2 REVENUE GROUPING BY CUSTOMER	Actual	Based on reported monthly	N/A	Sum up revenue components for UNM tariff. For accrued	N/A	N/A

			TYPE OR CLASS Revenue from unmetered supplies [Standard Control Services] Revenue from unmetered supplies [Alternative Control Services]		energy SAP Billing System		components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues		
BMUE3.1BOP19	3.1	Revenue	TABLE 3.1.2 REVENUE GROUPING BY CUSTOMER TYPE OR CLASS Revenue from Other Customers [Standard Control Services] Revenue from Other Customers [Alternative Control Services]	Actual	SAP Financial accounts	N/A	As per DREV0113 in Standard Control Services column. (Tab 3.1 Revenue of EB RIN).	N/A	N/A
BMUE3.1BOP20	3.1	Revenue	TABLE 3.1.3 REVENUE (penalties) ALLOWED (deducted) THROUGH INCENTIVE SCHEMES EBSS [Standard Control Services] EBSS [Alternative Control Services]	Estimated	EBSS data is sourced from AER 2016-20 determination PTRM published on the AER website; WACC for 2016-20 sourced from AER 2016-20 determination PTRM published on the AER website; Inflation sourced from the Australian Bureau of Statistics index 6401.0 Tables 1 and 2 All Groups CPI, Australia	N/A	EBSS revenue allowances are set out in final determinations, smoothed over the relevant regulatory period. The smoothed revenue profile over the regulatory period recovers the NPV of the total revenue requirement (before smoothing) over the regulatory period. Therefore, each revenue requirement, including EBSS is smoothed over the regulatory period.	N/A	N/A
BMUE3.1BOP21	3.1	Revenue	TABLE 3.1.3 REVENUE (penalties) ALLOWED (deducted) THROUGH INCENTIVE SCHEMES STPIS [Standard Control Services] STPIS [Alternative Control Services]	Estimated	Based on annual revenue from pricing proposal and S Factor performance from AER STPIS model	N/A	Multiply the annual revenue by the applicable S factor for the year.	N/A	N/A
BMUE3.1BOP22	3.1	Revenue	TABLE 3.1.3 REVENUE (penalties) ALLOWED (deducted) THROUGH INCENTIVE SCHEMES F-Factor [Standard Control Services] F-Factor [Alternative Control Services]	Actual	F Factor report provided AER	N/A	F Factor revenue is derived from the AER approved annual pricing proposal models. Powercor is either rewarded or penalised for performing better or worse than their respective fire start targets.	N/A	N/A
BMUE3.1BOP23	3.1	Revenue	TABLE 3.1.3 REVENUE (penalties) ALLOWED (deducted) THROUGH INCENTIVE SCHEMES S-Factor True up [Standard Control Services] S-Factor True up [Alternative Control Services]	Estimated	2016-20 S factor close out revenue sourced from AER 2016-20 determination PTRM published on the AER website. WACC for 2016-20 sourced from AER 2016-20 determination PTRM published on the AER website. Inflation sourced from the Australian Bureau of Statistics index 6401.0 Tables 1 and 2 All Groups CPI, Australia.	N/A	S factor close out revenue is set out in the AER 2016-20 determination PTRM published on the AER website. Due to the smoothing in the PTRM of annual required revenue, the S factor close out revenue is smoothed over the regulatory period, along with the other building blocks.	N/A	N/A
BMUE3.1BOP24	3.1	Revenue	TABLE 3.1.3 REVENUE (penalties) ALLOWED (deducted) THROUGH INCENTIVE SCHEMES Other [Standard Control Services] Other [Alternative Control Services]	Estimated	Total Shared asset adjustment is sourced from the 2016-20 AER 2016-20 determination PTRM published on the AER website. DMIA from the 2017 annual	N/A	Total 'Other' includes both shared asset adjustment and DMIA. DMIA is set out in the AER 2016-20 determination PTRM published on the AER website. Due to the smoothing in the PTRM of annual required revenue, the Shared asset adjustment is smoothed over the regulatory period, along with the other building blocks.	N/A	N/A

					pricing proposal. WACC for 2016-20 sourced from AER 2016-20 determination PTRM published on the AER website. Inflation sourced from the Australian Bureau of Statistics index 6401.0 Tables 1 and 2 All Groups CPI, Australia.				
BMUE3.2BOP1	3.2	Operating Expenditure	TABLE 3.2.1 Current opex categories and cost allocations	Actual	SAP and Annual RIN Template 8.4 Opex	N/A	Refer Schedule 8.4 of United Energy Annual RIN 2017.	N/A	N/A
BMUE3.2BOP2	3.2	Operating Expenditure	TABLE 3.2.2 - Opex consistency - current cost allocation approach	Actual	SAP and Annual RIN Template 8.4 Opex	N/A	OPEX for network services All maintenance SCS OPEX is related to network services (DOPEX 118 to 126) and has been classified accordingly. ACS classifications have been allocated to appropriate categories based on descriptions OPEX for metering, OPEX for connection services, OPEX for public lighting ACS classifications have been allocated to appropriate categories based on cost descriptions.	N/A	N/A
BMUE3.2BOP3	3.2	Operating Expenditure	TABLE 3.2.4 - OPEX FOR HIGH VOLTAGE CUSTOMERS	Estimated	SAP	MVA installation for HV customers not known. Assumption that Maximum demand is reflective of installed capacity.	1) Obtain Maximum demand from SAP billing info for all HV customers 2) Identify peak demand for each HV customer 3) Obtain total network Opex costs Table 2.8 CA RIN related to distribution substations only 4) Obtain Installed Dist. TX capacity from table 2.2.2 in CA RIN 2.2 6) Divide OPEX cost by sum of peak demand HV customers plus Installed Dist. TX 6) Obtain cost per MVA 7) Multiply each HV customer installed capacity by cost per MVA and sum totals	Maximum demand is reflective of installed capacity per HV customer. OPEX cost per MVA can be averaged across the network and reflective of costs of HV customer installations.	N/A
BMUE3.2.3BOP1	3.2.3	Provisions	TABLE 3.2.3 - PROVISIONS	Actual	SAP Payroll	N/A	SAP data. Bonus paid and leave taken based on payroll reports. Environmental obligation based on third party expert reports. Bonus amounts based on historical KPI achievement. Annual leave & LSL accruals based on payroll data provided. Additional Provisions - OPEX - Management estimate based on maximum BAU claims expected at any point in time. Endorsed by ARC.	N/A	N/A
BMUE3.3BOP1	3.3	Assets (RAB)	TABLE 3.3.1 - REGULATORY ASSET BASE VALUES	Estimated	RIN data within tab	N/A	The data in this table is the sum of the RAB variables.	N/A	N/A
BMUE3.3BOP2	3.3	Assets (RAB)	TABLE 3.3.2 - ASSET VALUE ROLL FORWARD	Estimated	- Annual RIN Tab - Ernst & Young RAB valuation report - CPI from ABS table 6401.0 - Forecast depreciation from 2016-20 Final Determination PTRM - WACC from AER SCS PTRM updated for 2017 debt rate	N/A	The RAB for Standard Control Services has been rolled forward using the AER roll forward model template and the data sources listed. An insurance valuation report prepared by Ernst & Young (2011) itemises UE's assets to a detailed asset class level. The valuation percentages for this report have been used to allocate assets from the regulatory asset categories to the required AER asset categories.	N/A	This BOP covers data in the 'Standard Control Services' column
BMUE3.3BOP3	3.3	Assets (RAB)	TABLE 3.3.2 - ASSET VALUE ROLL FORWARD	Estimated	- Annual RIN Tab - Ernst & Young RAB valuation report	As per AER requirements	The Network Services RAB is equal to the Standard Control Service RAB for except the following two categories. Overhead Network Assets Less Than 33kV and Overhead Network Assets Less Than 33kV only: These categories have been adjusted proportionately to reflect the Standard Control Services RAB less the value of network service lines.	N/A	This BOP covers data in the 'Network Services' column

BMUE3.3BOP4	3.3	Assets (RAB)	TABLE 3.3.3 - TOTAL DISAGGREGATED RAB ASSET VALUES	Estimated	RIN data within tab	N/A	Total disaggregated RAB asset values have been calculated as the average of the opening and closing RAB values for each category, consistent with the AER's standard approach, detailed in 'Economic benchmarking RIN for distribution network service providers - Instructions and Definitions'. According to 'Economic benchmarking RIN for distribution network service providers - Instructions and Definitions' the RAB reported in this tab must include capital contributions. The capex reported in this tab is net capex and only net capex is rolled into the RAB, therefore capital contributions are not reported here.	N/A	N/A
BMUE3.3BOP5	3.3	Assets (RAB)	TABLE 3.3.4 - ASSET LIVES ESTIMATED SERVICE LIFE OF NEW ASSETS	Estimated	RIN data within tab	As per AER requirements	Remaining lives for all asset categories are calculated as the ratio of opening RAB to straight line depreciation.	N/A	N/A
BMUE3.3BOP6	3.3	Assets (RAB)	TABLE 3.3.4 - ASSET LIVES ESTIMATED RESIDUAL SERVICE LIFE	Estimated	- 2016-20 Final Determination PTRM (Standard Control Services) - 2016-20 Final Determination PTRM (Metering) - 2016-20 Final Determination Public Lighting model	As per AER requirements	Assets lives for new assets are taken from the most recent Final Determination models.	N/A	N/A
BMUE3.3BOP7	3.3	Assets (RAB)	TABLE 3.3.2 - ASSET VALUE ROLL FORWARD	Estimated	- Annual RIN data - CPI from ABS table 6401.0 - WACC from AER Metering PTRM updated for 2017 debt rate	N/A	The Metering RAB has been rolled forward using the AER roll forward model template and the data sources listed. The Public Lighting RAB has been rolled forward using the Final Determination Public Lighting model and the data sources listed. Public lighting capex has been allocated between luminaires and poles and brackets based on the proportionate split in the prior year.	N/A	This BOP covers data in the 'Alternative Control Services' column in Table 3.3.2.
BMUE3.4BOP1	3.4	Operational Data	TABLE 3.4.1 - ENERGY DELIVERY Energy Delivery where time of use is not a determinant [Standard Control Services] Energy Delivery at On-peak times [Standard Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum energy components of single rate tariffs (i.e. S1, M1, L1). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	N/A
BMUE3.4BOP2	3.4	Operational Data	TABLE 3.4.1 - ENERGY DELIVERY Energy Delivery at Shoulder times [Standard Control Services] Energy Delivery at Off-peak times [Standard Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum shoulder energy tariff components (i.e. Cmp = SHD). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	N/A
BMUE3.4BOP3	3.4	Operational Data	TABLE 3.4.1 - ENERGY DELIVERY Controlled load energy deliveries [Standard Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum controlled load energy (i.e. Tariff = DED). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	N/A
BMUE3.4BOP4	3.4	Operational Data	TABLE 3.4.1 - ENERGY DELIVERY Energy Delivery to unmetered supplies [Standard Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum unmetered energy (i.e. Tariff = UNM). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	N/A
BMUE3.4BOP5	3.4	Operational Data	TABLE 3.4.1 - ENERGY DELIVERY Energy received from TNSP and other DNSPs not included in the above categories [Standard	Actual	Metering Data	N/A	Given the unavailability of granular data from DOPED0301 to DOPED0303, the total energy received into the UE supply area is presented here. Total UE energy intake is annually calculated as part of the DLF	N/A	N/A

			Control Services]				reporting. Energy received from TNSP and other DNSPs is the summation of 'Energy obtained from transmission connections' and 'Energy obtained from other distributors' in the DLF data. This value is based on the financial year basis and not the calendar year.		
BMUE3.4BOP6	3.4	Operational Data	TABLE 3.4.1 - ENERGY DELIVERY Energy received from embedded generation not included in above categories from non-residential embedded generation [Standard Control Services]	Actual	SAP Billing System via Report.	N/A	Sum up export energy from all non-residential tariffs.	N/A	N/A
BMUE3.4BOP7	3.4	Operational Data	TABLE 3.4.1 - ENERGY DELIVERY Energy received from embedded generation not included in above categories from residential embedded generation [Standard Control Services]	Actual	SAP Billing System via Report.	N/A	Sum up export energy from all residential tariffs.	N/A	N/A
BMUE3.4BOP8	3.4	Operational Data	TABLE 3.4.1 - ENERGY DELIVERY Residential customers energy deliveries [Standard Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum energy components of single rate tariffs (i.e. S1, M1, L1). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	N/A
BMUE3.4BOP9	3.4	Operational Data	TABLE 3.4.1 - ENERGY DELIVERY Non residential customers not on demand tariffs energy deliveries [Standard Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum up all energy components for the following non-residential tariffs. (L1, L2, M1, M25, M27) For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows Embedded generation - Known billing issues	N/A	N/A
BMUE3.4BOP10	3.4	Operational Data	TABLE 3.4.1 - ENERGY DELIVERY Non-residential low voltage demand tariff customers energy deliveries [Standard Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum up all energy components for the following LV demand tariffs. (KW-TOU, KW-TOU-H, L2- KVA, L2-KVA-H, TOU). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	N/A
BMUE3.4BOP11	3.4	Operational Data	TABLE 3.4.1 - ENERGY DELIVERY Non-residential high voltage demand tariff customers energy deliveries [Standard Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum up all energy components for the following HV demand tariffs. (HV-KVA, HV-KVA-H, ST22-KVA). For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	N/A
BMUE3.4BOP12	3.4	Operational Data	TABLE 3.4.1 - ENERGY DELIVERY Other Customer Class Energy Deliveries [Standard Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum up all energy components for UNM tariff. For accrued components scaling and adjustments may be made based on: - Boundary load metered energy and loss factors - Inter DNSP energy flows - Embedded generation - Known billing issues	N/A	N/A
BMUE3.4BOP13	3.4	Operational Data	TABLE 3.4.2 - CUSTOMER NUMBERS Residential customer numbers [Standard Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum all customers on tariffs classified as small	N/A	N/A
BMUE3.4BOP14	3.4	Operational Data	TABLE 3.4.2 - CUSTOMER NUMBERS Non residential customers not on demand tariff customer numbers [Standard Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum all customers on NonTOU tariffs classified as medium.	N/A	N/A
BMUE3.4BOP15	3.4	Operational Data	TABLE 3.4.2 - CUSTOMER NUMBERS Low voltage demand tariff customer numbers [Standard Control Services]	Actual	Based on reported monthly energy SAP Billing System	N/A	Sum all customers on LVTOU tariffs.	N/A	N/A

BMUE3.4BOP16	3.4	Operational Data	TABLE 3.4.2 - CUSTOMER NUMBERS High voltage demand tariff customer numbers [Standard Control Services]	Actual	Based on reported monthly energy. SAP Billing System	N/A	Sum all customers on HVTOU and SUBT tariffs.	N/A	N/A
BMUE3.4BOP17	3.4	Operational Data	TABLE 3.4.2 - CUSTOMER NUMBERS Unmetered Customer Numbers [Standard Control Services]	Actual	Based on reported monthly energy. SAP Billing System	N/A	Sum all customers on an UNMET tariff	N/A	N/A
BMUE3.4BOP18	3.4	Operational Data	TABLE 3.4.2 - CUSTOMER NUMBERS Total customer numbers [Standard Control Services]	Actual	SAP Billing System customer number extracts and reports.	N/A	Sum of DOPCN0101 to DOPCN0106.	N/A	N/A
BMUE3.4BOP19	3.4	Operational Data	TABLE 3.4.2 - CUSTOMER NUMBERS Customers on Urban network [Standard Control Services]	Estimated	Table 3.4.2.1 Distribution customer numbers by customer type or class.	Not stored for all customers in source data systems.	Derived from proportion of urban customers supplied by Asset Management. 2017 customer numbers are based on the historic urban/short rural ratio.	N/A	N/A
BMUE3.4BOP20	3.4	Operational Data	TABLE 3.4.2 - CUSTOMER NUMBERS Customers on Short rural network [Standard Control Services]	Estimated	Table 3.4.2.1 Distribution customer numbers by customer type or class.	Not stored for all customers in source data systems.	Derived from proportion of urban customers supplied by Asset Management. 2017 customer numbers are based on the historic urban/short rural ratio.	N/A	N/A
BMUE3.4BOP21	3.4	Operational Data	TABLE 3.4.2 - CUSTOMER NUMBERS Total customer numbers [Standard Control Services]	Actual	Table 3.4.2.1 Distribution customer numbers by customer type or class.	N/A	Sum of DOPCN0201 to DOPCN0204.	N/A	N/A
BMUE3.4BOP22	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Non-coincident Summated Raw System Annual Maximum Demand [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	Peak demands are recorded at a zone substation level in our SCADA system. The load forecast spreadsheet is updated to include this data. Summation of individual zone substation peak demand provides the requested data.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template
BMUE3.4BOP23	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Non-coincident Summated Weather Adjusted System Annual Maximum Demand 10% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	The 10% PoE demand is generated from actual peak demand data from SCADA and corrected for temperature. The correction of PoE for temperature is based on historical demand and temperature data. The temperature sensitivity of demand at each zone substation is calculated and used in PoE correction. Summation of individual zone substation peak demand provides the requested data.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP24	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Non-coincident Summated Weather Adjusted System Annual Maximum Demand 50% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	The 50% PoE demand is generated from actual peak demand data from SCADA and corrected for temperature. The correction of PoE for temperature is based on historical demand and temperature data. The temperature sensitivity of demand at each zone substation is calculated and used in PoE correction. Summation of individual zone substation peak demand provides the requested data. Calculated as follows: 50%POE MD = 10%POE MD + (T(50%POE) - T(10%POE))*Temperature coefficient of demand*Temperature correction factor	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP25	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Coincident Raw System Annual Maximum Demand [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	Half hourly MW and MVAr data at individual zone substations during summer period are extracted from SCADA and summated to calculate the coincident demand.	It should be noted that these demands exclude (i.e.	N/A

								assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	
BMUE3.4BOP26	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Coincident Weather Adjusted System Annual Maximum Demand 10% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	The ratio between weather corrected 10% POE non-coincident maximum demand in MW and the raw non-coincident maximum demand in MW is calculated. This ratio represents the overall temperature sensitivity of the UE demand at 10% PoE. The actual coincident maximum demand is then multiplied by that ratio to calculate the weather corrected 10% POE coincident maximum demand in MW. Calculated as follows: Weather corrected 10% POE coincident maximum demand = raw coincident maximum demand * (weather corrected 10% POE non coincident maximum demand)/(raw non coincident maximum demand) Summation of 10% POE coincident weather adjusted demand at each zone substation will provide the data required under DOPSD0105.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP27	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Coincident Weather Adjusted System Annual Maximum Demand 50% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	The ratio between weather corrected 50% POE non-coincident maximum demand in MW and the raw non-coincident maximum demand in MW is calculated. This ratio represents the overall temperature sensitivity of the UE demand at 50% PoE. The actual coincident maximum demand is then multiplied by that ratio to calculate the weather corrected 10% POE coincident maximum demand in MW. Weather corrected 50% POE coincident maximum demand = raw coincident maximum demand * (weather corrected 50% POE non coincident maximum demand)/(raw non coincident maximum demand). Summation of 50% POE coincident weather adjusted demand at each zone substation will provide the data required under DOPSD0106.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP28	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Non-coincident Summated Raw System Annual Maximum Demand [Standard Control Services]	Actual	Connection Asset Forecast.	N/A	Boundary metering data captures the UE demand at relevant transmission connection points. As part of 10 Maximum Demand Days calculation and demand forecasting process, half hourly boundary metering data are extracted. These data are used to calculate the non-coincident maximum demand at each transmission connection point (terminal station). Summation of individual maximum demand at each connection point given the non-coincident summated raw system annual peak demand.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP29	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Non-coincident Summated Weather Adjusted System Annual Maximum Demand 10% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	A 10% PoE scaling factor is calculated using the actual and 10% PoE weather corrected coincident demand to scale the non-coincident demand. Weather corrected 10% POE non coincident maximum demand in MW = DOPSD0107 * DOPSD0111 / DOPSD0110	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.

BMUE3.4BOP30	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Non-coincident Summated Weather Adjusted System Annual Maximum Demand 50% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	A 50% PoE scaling factor is calculated using the actual and 50% PoE weather corrected coincident demand to scale the non-coincident demand. Weather corrected 50% POE non coincident maximum demand in MW = DOPSD0107 * DOPSD0112 / DOPSD0110	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP31	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Coincident Raw System Annual Maximum Demand [Standard Control Services]	Actual	UE Actual & Forecast S & W Demand Spreadsheet	N/A	As part of the demand forecasting process, UE annually provides half hourly data at individual terminal stations to NIEIR. This data includes only the UE demand and all the metered cross border flows are adjusted to ascertain the actual UE demand. Based on this data, NIEIR calculates the coincident UE maximum demand. These values are included in the UE's annual demand forecast prepared by NIEIR.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP32	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Coincident Weather Adjusted System Annual Maximum Demand 10% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	As part of the demand forecasting process, NIEIR provides 10%, 50% and 90% PoE forecast for total UE demand. Those will define the overall variability of UE MD due to temperature. That relationship is used to calculate 10% PoE coincident weather adjusted system annual peak demand from actual coincident raw system annual peak demand.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP33	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Coincident Weather Adjusted System Annual Maximum Demand 50% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	As part of the demand forecasting process, NIEIR provides 10%, 50% and 90% PoE forecasts for total UE demand. Those will define the overall variability of UE MD due to temperature. That relationship is used to calculate 50% PoE coincident weather adjusted system annual peak demand from actual coincident raw system annual peak demand.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP34	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Non-coincident Summated Raw System Annual Maximum Demand [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	Actual peak demands (MW and MVAr) at individual zone substations are extracted from SCADA data after each summer as part of demand forecasting process. Based on MW and MVAr values, maximum MVA demand is calculated at each zone substation and this information is readily available from summer 1989/90 in the Load Forecast spread sheet. Summation of individual zone substation peak demands (MVA) provides the requested data.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP35	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Non-coincident Summated Weather Adjusted System Annual Maximum Demand 10% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	The raw non-coincident power factor is used to convert the weather corrected 10% POE non-coincident maximum demands in MW to MVA. The calculation assumes the power factor will not be materially different at raw maximum demand and 10% POE maximum demand conditions.	It should be noted that these demands exclude (i.e. assume out of	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.

							Weather corrected 10% POE non coincident maximum demand in MVA = (Weather corrected 10% POE non coincident maximum demand in MW)/(Power Factor at raw non coincident maximum demand).	service) the embedded generation at Dandenong and Springvale South zone substations.	
BMUE3.4BOP36	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Non-coincident Summated Weather Adjusted System Annual Maximum Demand 50% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	The raw non-coincident power factor is used to convert the weather corrected 50% POE non-coincident maximum demands in MW to MVA assuming the power factor will not be materially different at raw and 50% POE maximum demand conditions. Weather corrected 50% POE non coincident maximum demand in MVA = (Weather corrected 50% POE non coincident maximum demand in MW)/(Power Factor at raw non coincident maximum demand).	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP37	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Coincident Raw System Annual Maximum Demand [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	Half hourly MW and MVAr data at individual zone substations during summer period are extracted from SCADA and summated to calculate the coincident demand MW and MVAr and thereby MVA.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP38	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Coincident Weather Adjusted System Annual Maximum Demand 10% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	The raw coincident power factor is used to convert the weather corrected 10% POE coincident maximum demands in MW to MVA. Weather corrected 10% POE coincident maximum demand in MVA = (Weather corrected 10% POE coincident maximum demand in MW) / (Power Factor at raw coincident maximum demand). Summation of 10% POE coincident weather adjusted demand at each zone substation will provide the data required under DOPSD0205.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP39	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Coincident Weather Adjusted System Annual Maximum Demand 50% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	The raw coincident power factor is used to convert the weather corrected 50% POE coincident maximum demands in MW to MVA. Weather corrected 50% POE coincident maximum demand in MVA = (Weather corrected 50% POE coincident maximum demand in MW) / (Power Factor at raw coincident maximum demand). Summation of 50% POE coincident weather adjusted demand at each zone substation will provide the data required under DOPSD0206.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP40	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Non-coincident Summated Raw System Annual Maximum Demand [Standard Control Services]	Actual	Connection Assets Forecast Spreadsheet.	N/A	The non-coincident maximum demand in MVA is calculated by adding the individual terminal station's peak demands in MVA. The MVA values are calculated based on actual MW and MVAr values extracted from boundary metering data.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.

								South zone substations.	
BMUE3.4BOP41	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Non-coincident Summated Weather Adjusted System Annual Maximum Demand 10% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	A 10% PoE scaling factor is calculated using the actual and 10% PoE weather corrected coincident demand to scale the raw non-coincident demand. Weather corrected 10% PoE non coincident maximum demand in MVA=DOPSD0207*DOPSD0111/DOPSD0110.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP42	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Non-coincident Summated Weather Adjusted System Annual Maximum Demand 50% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	A 50% PoE scaling factor is calculated using the actual and 50% PoE weather corrected coincident demand to scale the raw non-coincident demand. Weather corrected 10% PoE non coincident maximum demand in MVA=DOPSD0207*DOPSD0112/DOPSD0111.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	N/A
BMUE3.4BOP43	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Coincident Raw System Annual Maximum Demand [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	Actual MW and corresponding MVAr values at each transmission connection point are extracted from boundary metring data and those values are used to calculate the MVA. Summation of individual MVA demand at transmission connection points gives the coincident raw system annual peak demand.	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP44	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Coincident Weather Adjusted System Annual Maximum Demand 10% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	The 10% POE coincident weather adjusted system annual maximum MW demand calculated under DOPSD0111 is divided by the system average power factor calculated at coincident maximum demand to calculate the information in this cell. Weather corrected 10% POE coincident maximum demand in MVA=DOPSD0111/((DOPSD0110/DOPSD0210).	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP45	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Coincident Weather Adjusted System Annual Maximum Demand 50% POE [Standard Control Services]	Actual	Load Forecast Spreadsheet.	N/A	The 10% POE coincident weather adjusted system annual maximum MW demand calculated under DOPSD0112 is divided by the system average power factor calculated at coincident maximum demand to calculate the information in this cell. Weather corrected 50% POE coincident maximum demand in MVA=DOPSD0112/((DOPSD0110/DOPSD0210).	It should be noted that these demands exclude (i.e. assume out of service) the embedded generation at Dandenong and Springvale South zone substations.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP46	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Average overall network power factor conversion between MVA and MW [Standard	Actual	Calculated value	N/A	Average overall power factor for the UE network is calculated by dividing Coincident Raw System Annual Maximum Demand in MW by Coincident Raw System Annual Maximum in MVA	N/A	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.

			Control Services]				Average network power factor = (DOPSD0110)/(DOPSDP210).		
BMUE3.4BOP47	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Average power factor conversion for low voltage distribution lines [Standard Control Services]	Actual	Calculated value	N/A	The summated peak kW and kVAr for all distribution substations have been used to calculate the average power factor for low voltage distribution lines.	We have assumed that the LV distribution line power factors are similar to the respective LV distribution substation power factors.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP48	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Average power factor conversion for 6.6 kV lines [Standard Control Services]	Actual	Calculated from Load Forecast Spreadsheet Peak Demand.	N/A	Peak demand for all 6.6kV feeder MW and MVAR values are totalled from actual data in the load forecast spreadsheet and are used to calculate the power factor.	N/A	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP49	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Average power factor conversion for 11 kV lines [Standard Control Services]	Actual	Calculated from Load Forecast Spreadsheet Peak Demand.	N/A	Summation of non-coincident maximum demand in MW for all 11kV zone substations is divided by summation of non-coincident maximum demand in MVA for all 11kV zone substations to calculate the average power factor for 11kV lines.	Zone substation capacitors are excluded in this calculation.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP50	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Average power factor conversion for SWER lines [Standard Control Services]	Actual	Calculated from Load Forecast Spreadsheet Peak Demand.	N/A	The summated peak kW and kVAr for all the SWER substations have been used to calculate the average power factor for low voltage distribution lines.	Assumes that the SWER line power factors are similar to the SWER distribution Substation Power Factor.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP51	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Average power factor conversion for 22 kV lines [Standard Control Services]	Actual	Calculated from Load Forecast Spreadsheet Peak Demand.	N/A	Summation of non-coincident maximum demand in MW for all 22kV zone substations is divided by summation of non-coincident maximum demand in MVA for all 22kV zone substations to calculate the average power factor for 22kV lines.	Zone substation capacitors are excluded in this calculation.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP52	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Average power factor conversion for 66 kV lines [Standard Control Services]	Actual	Calculated from Load Forecast Spreadsheet Peak Demand.	N/A	This is similar to the average overall network power factor calculated for DOPSD0301.	N/A	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.4BOP53	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Summated Chargeable Measured Maximum Demand [Standard Control Services]	Actual	Billing data.	N/A	This is summation of maximum demand for the customers on MW demand tariff.	N/A	Refer to 'Template_201801' from the Revenue team.
BMUE3.4BOP54	3.4	Operational Data	TABLE 3.4.3 - SYSTEM DEMAND Summated Chargeable Measured Maximum Demand [Standard Control Services] Summated Chargeable Measured Maximum Demand [Standard Control Services]	Actual	Billing data.	N/A	This is summation of maximum demand of customers on MVA demand tariff.	N/A	Refer to 'Template_201801' from the Revenue team.
BMUE3.4BOP55	3.4	Operational Data	TABLE 3.4.1 - ENERGY DELIVERY Total energy delivered [Standard Control Services]	Actual	Economic Benchmarking RIN Tab 3.4.	N/A	This value is obtained from Tables 3.4.1.1 to 3.4.1.4.	N/A	N/A
BMUE3.5BOP1	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES	Actual	SAP and GIS	N/A	The requested information is held within UEs SAP and Geographic Information System (GIS). To access this information UE have purpose built reports. The reports are built using Tableau, stored on a server and updated daily.	N/A	Refer to procedure document UE PR 2310. This BOP covers Table 3.5.1.1 - Overhead network length of circuit at each voltage
BMUE3.5BOP2	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES	Actual	GIS and SAP Data	N/A	The requested information is held within UEs SAP and Geographic Information System (GIS). To access this information UE have purpose built reports. The reports are built using Tableau, stored on a server and updated daily.	Streetlight Cable: - Feeding one light treated as a service - Feeding multiple lights treated as distribution	This BOP covers Table 3.5.1.2 - Underground network length of circuit at each voltage.

								cable	
BMUE3.5BOP3	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES Overhead low voltage distribution [Volume in MVA (0's)] (DPA0301)	Estimated	TLM Analysis and Consolidated Project List Consumption and Counts by Customer Type	N/A	The limiting thermal rating is that of the distribution transformer, not the overhead low voltage conductors. The circuit thermal ratings are calculated for each low voltage circuit by dividing the average distribution substation nameplate rating by the average number of distribution circuits.	N/A	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP4	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES Overhead 6.6 kV [Volume in MVA (0's)] (DPA0302)	Estimated	Load Forecast Spreadsheet.	N/A	The weighted average capacity is calculated by dividing the total summer cyclic rating of the 6.6kV feeders by total number of 6.6kV feeders and applying an adjustment factor.	An adjustment factor of 0.98 is introduced to cater for relatively lower rating of the standard overhead conductor compared to the standard underground cable used for feeder exists.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP5	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES Overhead 11 kV [Volume in MVA (0's)] (DPA0304)	Estimated	Load Forecast Spreadsheet.	N/A	The weighted average capacity is calculated by dividing the total summer cyclic rating of the 11kV feeders by total number of 11kV feeders and applying an adjustment factor.	An adjustment factor of 0.98 is introduced to cater for relatively lower rating of the standard overhead conductor compared to the standard underground cable used for feeder exits.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP6	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES Overhead SWER [Volume in MVA (0's)] (DPA0305)	Estimated	Load Forecast Spreadsheet.	N/A	Given UE's relatively short SWER system, the limiting plant in all cases is the 100kVA isolation transformer, not the thermal or voltage capability of the overhead conductors. Hence this is set to 0.1MVA.	N/A	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP7	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES Overhead 22 kV [Volume in MVA (0's)] (DPA0306)	Estimated	Load Forecast Spreadsheet.	N/A	The weighted average capacity is calculated by dividing the total summer cyclic rating of the 22kV feeders by total number of 22kV feeders and applying an adjustment factor.	An adjustment factor of 0.98 is introduced to cater for relatively lower rating of the standard overhead conductor compared to the standard underground cable used for feeder exits.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP8	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES Overhead 66 kV [Volume in MVA (0's)] (DPA0309)	Estimated	Circuit data sheet	N/A	The weighted average capacity for 66kV lines is calculated by averaging the summer cyclic rating of the 66kV lines.	N/A	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP9	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES Underground low voltage distribution [Volume in MVA (0's)] (DPA0401)	Estimated	TLM Analysis and Consolidated Project List Consumption and Counts by Customer Type	N/A	This is the same method as DPA0301 because the limit is the distribution transformer rating.	N/A	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP10	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES Underground 6.6 kV [Volume in MVA (0's)] (DPA0403)	Estimated	Load Forecast Spreadsheet.	N/A	The weighted average capacity is calculated by dividing the total summer cyclic rating of the 6.6kV feeders by total number of 6.6kV feeders and applying an adjustment factor.	An adjustment factor of 1.02 is introduced to cater for	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.

								relatively higher rating of the standard underground cable compared to the standard overhead conductor used for feeder exits.	
BMUE3.5BOP11	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES Underground 11 kV [Volume in MVA (0's)] (DPA0405)	Estimated	Load Forecast Spreadsheet.	N/A	The weighted average capacity is calculated by dividing the total summer cyclic rating of the 11kV feeders by total number of 11kV feeders and applying an adjustment factor.	An adjustment factor of 1.02 is introduced to cater for relatively higher rating of the standard underground cable compared to the standard overhead conductor used for feeder exits.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP12	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES Underground 22 kV [Volume in MVA (0's)] (DPA0408)	Estimated	Load Forecast Spreadsheet.	N/A	The weighted average capacity is calculated by dividing the total summer cyclic rating of the 22kV feeders by total number of 22kV feeders and applying an adjustment factor.	An adjustment factor of 1.02 is introduced to cater for relatively higher rating of the standard underground cable compared to the standard overhead conductor used for feeder exits.	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP13	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES Underground 66 kV [Volume in MVA (0's)] (DPA0410)	Estimated	Circuit Data Sheet.	N/A	The weighted average capacity for 66kV cables is calculated by averaging the summer cyclic rating of the 66kV cables.	N/A	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP14	3.5	Physical Assets	TABLE 3.5.1 - NETWORK CAPACITIES Other [Volume in MVA (0's)] (DPA0413)	Actual	Load Forecast Spreadsheet.	N/A	As all operating voltages on the UE network are identified by other variables in this table, DPA0412 is set to zero.	N/A	N/A
BMUE3.5BOP15	3.5	Physical Assets	TABLE 3.5.2 - TRANSFORMER CAPACITIES Distribution transformer capacity owned by utility [Volume in MVA's (0's)] (DPA0501)	Actual	Transformer Load Management report from Network Load Management (NLM).	N/A	This is calculated by summing the distribution substation nameplate rating from the Transformer Load Management report sourced from Network Load Management.	N/A	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP16	3.5	Physical Assets	TABLE 3.5.2 - TRANSFORMER CAPACITIES Distribution transformer capacity owned by High Voltage Customers [Volume in MVA's (0's)] (DPA0502)	Estimated	Billing data.	N/A	UE does not have information related to customer installations. The summated maximum demand of all HV customers are included as a proxy for their capacity. This information is extracted from billing data by the Network Analytics Team.	N/A	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP17	3.5	Physical Assets	TABLE 3.5.2 - TRANSFORMER CAPACITIES Cold spare capacity included in DPA0501 [Volume in MVA's (0's)] (DPA0503)	Actual	Service Delivery.	N/A	UE does not have any cold spare for distribution substations however, the transformers in stores are included. The minimum stock level information is sourced from UE's Service Delivery. It is assumed that minimum stock levels are maintained and the capacity value calculated based on minimum stock levels is used to estimate this value.	N/A	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP18	3.5	Physical Assets	TABLE 3.5.2 - TRANSFORMER CAPACITIES Total zone substation transformer capacity where there is only a single step transformation to reach distribution voltage [Volume in MVA's (0's)] (DPA0603)	Actual	Networks Ratings Database.	N/A	This is the total name plate rating (OFDAF) of all zone substation transformers on the UE network sourced from Rating Database.	N/A	UE PR 2209 Population of Demand Related Data for the Benchmark RIN Template.
BMUE3.5BOP19	3.5	Physical Assets	TABLE 3.5.2 - TRANSFORMER CAPACITIES	Actual	Networks Ratings Database	N/A	This will be the same as above DPA0603.	N/A	UE PR 2209 Population of Demand

			Total zone substation transformer capacity [Volume in MVA's (0's)] (DPA0604)						Related Data for the Benchmark RIN Template.
BMUE3.5BOP20	3.5	Physical Assets	TABLE 3.5.3 - PUBLIC LIGHTING	Actual	GIS	N/A	The requested information is held within UEs Geographic Information System (GIS). To access this information UE have purpose built reports. The reports are built using Tableau, stored on a server and updated daily.	N/A	All Luminaires marked as billable status.
BMUE3.6BOP1	3.6	Quality of Service	TABLE 3.6.1 - RELIABILITY	Actual	DMS, Annual RIN 2017 Tab 3.6.8	N/A	Raw data is downloaded from the DMS Database. The data is cleansed to remove duplications, system errors (events that should have been cancelled), ensure each event has a valid feeder name, split out outages affecting multiple feeders into each feeder component and check SAIFI/MAIFI overrides and adjusted for temporary switching arrangements. SAIDI, SAIFI and MAIFI performance is calculated in accordance with AER definitions. Refer to Annual RIN tab 3.6.8 for feeder classifications. These events are then filtered further for excluded events and MEDs. Excluded events and MED records are maintained by Network Performance team.	N/A	N/A
BMUE3.6BOP2	3.6	Quality of Service	TABLE 3.6.2 - ENERGY NOT SUPPLIED	Estimated	Annual RIN 2017 Tab 3.6.8	Energy not supplied is calculated as the average demand x SAIDI / 60 minutes The average customer demand was calculated for each Medium Voltage (MV) feeder using the hourly data extracted from the PI Historian software. PI historian records the following values: - Average MW / hr - Average MVAr / hr The hourly readings were aggregated to a year for each MV feeder. Therefore, Average Demand per Feeder (MVA) = SQRT[(MW_AVG)^2 + (MVAr_AVG)^2]	Summed total from Annual RIN tab 3.6.8.	N/A	N/A
BMUE3.6BOP3	3.6	Quality of Service	TABLE 3.6.3 - SYSTEM LOSSES	Actual	Distribution Loss Factor calculation, DLF 2016-17 Spreadsheet.	N/A	Total UE distribution losses are annually calculated as part of the Distribution Loss Factor (DLF) reporting. The corresponding system losses percentage is calculated as network loss/total energy procured.	N/A	N/A
BMUE3.6BOP4	3.6	Quality of Service	TABLE 3.6.4 - CAPACITY UTILISATION	Actual	Not applicable. Calculated using the information available within the RIN itself.	N/A	This is the percentage of non-coincident summated raw system annual maximum demand in MVA (DOPSD0201) divided by the summation of total installed zone substation transformer capacity (DPA0604) at all the zone substations.	N/A	N/A
BMUE3.7BOP1	3.7	Operating Environment	Table 3.7.1 - Density Factors Customer Density [(0's)]	Estimated	Calculated	N/A	The cell is calculated from using data from other categories but included in the tab 'BM RIN 3.4 Data'. Customer Density = Total Customer Numbers (DOPCN01) / Route Line Length (DOEF0301)	N/A	Refer to procedure document UE PR 0085.
BMUE3.7BOP2	3.7	Operating Environment	Table 3.7.1 - Density Factors Energy Density [(0's)]	Estimated	Calculated	N/A	The cell is calculated from using data from other categories but included in the tab 'BM RIN 3.4 Data'. Energy Density = Total Energy Delivered (DOPED01) X 1000 / Total Customer Numbers (DOPCN01)	N/A	Refer to procedure document UE PR 0085.
BMUE3.7BOP3	3.7	Operating Environment	Table 3.7.1 - Density Factors Demand Density [(0's)]	Estimated	Calculated	N/A	The cell is calculated from using data from other categories but included in the tab 'BM RIN 3.4 Data'. Demand Density = Annual Maximum Demand X 1000	N/A	Refer to procedure document UE PR 0085.

							(DOPSD0201) / Total Customer Numbers (DOPCN01)		
BMUE3.7BOP4	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Rural Proportion [(0's)]	Actual	GIS Database	N/A	The requested information is held within UE's Geographical Information System (GIS) as feeder data and includes a rural/urban attribute. The sum of total Rural line length is divided by the total UE line length to give a %. Refer RIN data file UE Overhead Urban_Rural calcs for 2018 Rin.xlsx.	N/A	Refer to procedure document UE PR 0085.
BMUE3.7BOP5	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Urban and CBD Vegetation Maintenance Spans [(0's)]	Actual	Vegetation Management System Report	N/A	With the establishment of UE's new Vegetation Management System (VMS) these records are now available through reports from the VMS. This report and calculations are in the file 'consolidated working file RIN trim 2018.xlsx' in the RIN 2018 folder	N/A	N/A
BMUE3.7BOP6	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Rural Vegetation Maintenance Spans [(0's)]	Actual	Vegetation Management System Report	N/A	As described in the section above but filtered for rural spans still in file 'consolidated working file RIN trim 2018.xlsx'.	N/A	N/A
BMUE3.7BOP7	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Total Vegetation Maintenance Spans [(0's)]	Actual	Calculated	N/A	This total Vegetation Maintenance Spans is calculated as the sum of Urban and CBD Vegetation Maintenance Spans and Rural Vegetation Maintenance Spans as calculated in file 'consolidated working file RIN trim 2018.xlsx'.	N/A	N/A
BMUE3.7BOP8	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Total Number of Spans [(0's)]	Actual	GIS Database report file SPAN_REPORT_20160712_1500.xlsx	N/A	The requested information is held within UE's Geographical Information System (GIS). The total number of spans variable is calculated as the sum of all spans within the UE network as per the above file.	N/A	N/A
BMUE3.7BOP9	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Average Urban and CBD Vegetation Maintenance Span Cycle [(0's)]	Actual	Vegetation Management System (VMS) report of recorded trees and recorded cutting from VMS. File 'Tree Count UE VMS 2 cutting frequency calc.xlsx'	N/A	Trees have a last cut date recorded and are classified by feeder which is further classified to Urban and Rural. By dividing the number of Urban trees cut in the calendar year by the total number of Urban trees will give the average cutting cycle.	There is an assumption that all UE trees are listed in VMS.	N/A
BMUE3.7BOP10	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Average Rural Vegetation Maintenance Span Cycle [(0's)]	Actual	Vegetation Management System (VMS) report of recorded trees and recorded cutting from VMS. File 'Tree Count UE VMS 2 cutting frequency calc.xlsx'	N/A	Trees have a last cut date recorded and are classified by feeder which is further classified to Urban and Rural. By dividing the number of trees cut in the calendar year by the total number of trees will give the average cutting cycle.	That all trees are correctly classified and identified.	N/A
BMUE3.7BOP11	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Average Number of Trees per Urban and CBD Vegetation Maintenance Span [(0's)]	Actual	Calculated & Vegetation Management System	N/A	It has been assumed that the UE network characteristics have not changed from last submission.	N/A	N/A
BMUE3.7BOP12	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Average Number of Trees per Rural Vegetation Maintenance Span [(0's)]	Actual	Calculated Vegetation Management System	N/A	It is assumed that the network characteristics have not changed from last year's submission.	N/A	N/A
BMUE3.7BOP13	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Average Number of Defects per Urban and CBD Vegetation Maintenance Span [(0's)]	Actual	Calculated Vegetation Management System File 'consolidated working file RIN trim 2018.xlsx'	N/A	VMS reports combining the data for the total number of Urban classified trees in the year that were cut divided by the number of spans that were cut.	Assumes that all cut spans were defective. Assumes that only defective trees were cut.	N/A
BMUE3.7BOP14	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Average Number of Defects per Rural Vegetation Maintenance Span [(0's)]	Actual	Calculated Vegetation Management System File 'consolidated working file RIN trim 2018.xlsx'	N/A	As above for 'Urban and CBD' spans. VMS reports combining the data for the total number of 'Rural' classified trees in the year that were cut divided by the number of spans that were cut.	Assumes that all cut spans were defective. Assumes that only defective trees were cut.	N/A
BMUE3.7BOP15	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Tropical Proportion [(0's)]	Actual	GIS	N/A	UE does not have any tropical portion of land within its distribution area.	N/A	N/A
BMUE3.7BOP16	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Standard Vehicle Access [(0's)]	Estimated	Calculated	Assumed Network characteristics have not changed since last submission	Considering the AER definition provided for this variable, which is 'Distribution route Line Length that does not have Standard Vehicle Access', the standard vehicle access distance becomes: Standard Vehicle Access Distance (km) = Total Network Length * 0.007.	N/A	Previous submission percentage retained and applied to new network route length.

BMUE3.7BOP17	3.7	Operating Environment	Table 3.7.2 - Terrain Factors Bushfire risk [(0's)]	Actual	GIS Database report File 'SPAN_REPORT_20160712_1500.xlsx'	N/A	The Bushfire Risk variable is calculated as the sum of all SubT, HV, LV, Service (mains only) and Public Lighting span that are defined as 'TRUE' in the 'HBRA' column of the respective GIS database reports.	N/A	N/A
BMUE3.7BOP18	3.7	Operating Environment	Table 3.7.3 - Service Area Factors	Estimated	GIS Database File 'UE Overhead Urban_Rural calcs for 2018 Rin.xlsx'	N/A	The Route Line Length variable is calculated as the sum of all SubT, HV, LV, Service (mains only) and Public Lighting span lengths from the respective GIS database reports. The sum of span lengths is divided by 1000 to convert from metres to kilometres.	N/A	N/A