GAS MARKET ISSUE (GMI)

Summary Section

Jemena Gas Networks NSW (Ltd) is proposing a documentation change to the Retail Market Procedures (NSW/ACT) to support improvement of the Type 2 (connected less than 12 months) gas meter estimation and substitution methodology. The proposed changes create additional characterisations and an installation-specific methodology for Volume Boundary meters. The end result will be improved billing accuracy, customer outcomes and trust in the industry. No material operational impacts to Retailers have been identified. The benefits are less billing adjustments to both Network Operator and Retailer, less risk of revenue loss, more satisfied customers as well as cost reductions from reduced complaints and investigations.

Issue Number	IN004/20		
Version #	1.0 – DRAFT FOR DISCUSSION		
Impacted Jurisdiction(s)	ACT/NSW		
Proponent	Tim Sheridan	**Company**	JGN
Proponent e-mail	tim.sheridan@jemena.com.au	**Proponent phone #**	0418 820 369
Affected Gas Market(s)	• Retail	**Date lodged with AEMO.**	Click or tap to enter a date.
Short Issue Title	RMP amendments to improve BL TSF calculations and gas meter estimation methodology.		

Other key contact information

VERSION #	PRESENTED TO	DATE
1.0	GRCF (subject to AEMO review)	19 November 2020

GAS MARKET ISSUE – DETAILED REPORT SECTION

1. DESCRIPTION OF ISSUE

Currently the Base Load and Temperature Sensitivity (BL TSF) calculations define an estimation and substitution methodology for gas meters. There are 3 types:

Type 1 – 12 months reading history present – reading data is used to determine MIRN-specific BL and TSF standing data values which have billing period and Effective Degree Days applied when consumptions and meter readings are estimated.

Type 2 – less than 12 months reading history present – characterisation averages are used, calculated from whole-of-Type 1 population characterisation averages.

Type 3 – agreed method between network operator and retailer (in practice, for publishing of readings within RMP time-frames, network operator will apply alternate method using e.g. reading history and retailer will perform own validation, accept and use for billing or raise query or dispute).

Type 2 has six (6) characterisations or market segments:

MR	Metro Residential	Residential class within Short Term Trading Market
MB	Metro Business	Business class within Short Term Trading Market
NR	Non-Metro Residential	Residential class in regional NSW
NB	Non-Metro Business	Business class in regional NSW
AR	ACT Residential	Residential class in Canberra/ACT
AB	ACT Business	Business class in Canberra/ACT

Analysis of meter reading and estimation data by Jemena shows that the current methodologies do not cater for 2 installation types which display energy intensities and MIRN-to-MIRN variability not consistent with the 6 current characterisations.

Volume Boundary (VB) meters

This installation type, introduced by Jemena in 2015 for the medium density/high-rise market, offers an alternative to centralised hot water systems with individual unit sub-metering or individual metering for cooktops. Embedders or strata plans are typically the customers for VB meters who on-sell hot water or energy to individual customers outside of the retail gas market.

The current size of this market segment is 650 installations, with projected growth of 150 per year.

More than 60,000 dwellings are currently supplied energy through VB meters.

Appendices A and B shows a diagram of VB installation types – Pure (substantially Hot Water) and Hybrid (cooktops supplied through the VB meter with a combination of traditional centralised hot water set-up).

VB meters have wide variation in energy flow through the meter due to number of dwellings and appliance type. For dwellings, the range is from 10 to almost 1000 with the average around 100. For appliances, per dwelling cooking load is around 1-2 GJ per annum and for hot water is around 12-15 GJ per annum – approximately 7 times energy intensity variation.

Appendix C illustrates the high level of variance between individual VB-metered MIRNs.

The energy recorded by VB meters is neither representative of a single residential dwelling nor a business.

Appendix D shows indicative per dwelling base load, temperature sensitivity factor and occupancy factors.

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The consequence of the current RMP arrangements is that for VB meters, applying the NSW/ACT Retail Market Procedures (RMP) methodology leads to inaccurate estimates and *systemic underestimation* of energy and readings. Actual readings can also be unnecessarily invalidated as SAP is expecting a lower reading. This leads to less accurate customer bills, potential revenue loss, bill shocks (when actual readings are obtained) and retailer and customer dissatisfaction with the VB product.

A further impact is that the presence of VB meter energy within the residential (or business) characterisations skews higher the characterisation average calculation. Jemena notes that retailers are sometimes incorrectly classifying VB meter installations as business – they are substantively residential.

Consideration has been given to using Type 3 methodology or creating a VB characterisation average – these options do not address the large variances in energy across the VB meter portfolio, nor improving the accuracy of characterisation averages.

Therefore, Jemena proposes an additional Type 2 estimation methodology for VB meters linked to number of dwellings, appliance type and occupancy factor (allowing for non-100% occupancy of medium density / high-rise premises during the first year after meter activation).

Jemena further proposes that VB MIRNs and meter energy be excluded from the residential characterisations average calculation.

Gas meters attached to the same MIRN as hot water meter – medium density / high rise

A gas meter associated with a hot water meter attached to same MIRN will typically record cooktop / oven appliances and possibly bayonet fittings gas usage. Jemena data analysis of this 250,000 meter cohort shows annual energy in the range of 1-3 GJ per annum, a fraction of average residential customer gas meter usage – around 1/10 in NSW and 1/25 in ACT. Residential characterisation average is representative of customers with a variety and range of multiple appliances – cooking, hot water and space heating.

Typically, 10,000 to 20,000 new meters of this type are connected each year. This will continue into the foreseeable future as the AER has decided that Centralised Hot Water with individual market-contestable sub-meters must remain an available option alongside Volume Boundary.

Systemic overestimation of the gas meter consumption occurs where the meter reading is skipped during the first year after meter activation. Actual readings can also be unnecessarily invalidated as SAP is expecting a higher consumption and reading. Jemena has put in place business processes to validate and accept lower than expected actual readings.

The presence of gas meter with hot water meter MIRNs skews the residential characterisation average lower (opposite to Volume Boundary meters).

Resolving the skipped read scenario will reduce over-billing, cancel-rebill effort for Network Operator and Retailers and customer complaint volumes.

Jemena proposes to create additional residential characterisations for MIRNs with attached gas and hot water meters to calculate Type 2 estimated consumptions and readings.

Jemena also proposes to exclude the MIRNs and energy of gas meters associated with hot water meters from the residential characterisations and include in additional residential characterisations.

Proposed characterisations are outlined in Appendix E.

Type 1 estimations

The primary focus of this initiative is improvement of Type 2 gas meter estimations. Jemena also seeks to make a minor change to the Type 1 BL (1 October to 31 March) and TSF (1 April to 30 September) reading periods defined in the RMP to improve the quality of BL and TSF standing data calculations.

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This is for MIRNs with at least 12 months consumption history where the quarterly reading dates fall on dates outside the specified periods (due to scheduled dates or route changes) that a MIRN-specific BL and TSF value cannot be calculated. A 7 day tolerance around the RMP defined period dates would result in approximately 1,000 to 5,000 MIRNs each BL TSF twice-yearly calculation cycle being allocated MIRN-specific instead of characterisation average BL and TSF values.

Jemena proposes to seek discretion for BL calculations to use readings with a 7 day tolerance i.e. 23 September to 7 April and for TSF 24 March to 7 October for affected quarterly-read MIRNs which would otherwise revert to characterisation average values.

2. REFERENCE DOCUMENTATION

Retail Market Procedures (NSW and ACT)

Appendices A to E

3. PRIORITISATION AND TIMELINES

The proposed changes required to the RMPs and will underpin the deployment of automation for operational processes and delivery of improvements to a growing number of premises for embedders, retailer and ultimately end-use energy customers.

Ideally, the proposed RMP change would be implemented before 31 May 2021. However, JGN would seek to align RMP deployment with completion, UAT and go-live of IT build to automate the supporting operational processes.

4. SPECIFIC PROPOSAL

JGN proposes the following changes are made to the RMPs. The key changes are:

(1) Calculation methodology for estimation of Volume Boundary meter consumption using number of dwellings, appliance type and occupancy factor.

(2) Exclusion of Volume Boundary meter consumption and MIRNs from existing relevant Residential characterisations.

(3) New, separate residential characterisations for gas meters attached to same MIRN as hot water meters (Medium Density / High Rise segment).

(4) Exclusion of new characterisation energy consumption and MIRNs from existing relevant Residential characterisations.

(5) Introduction of 7 day allowable periods outside of current defined BL and TSF reading periods.

The proposed changes are set out in Table 1-1 below.

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Table 1-1 Proposed changes to the Retail Market Procedures (NSW and ACT)

Provision	Amendment
Clause 1.2.1, definition of 'volume boundary meter'	Insert the definition the following text: *volume boundary meter* – a gas meter which measures the total or appliance-specific consumption of a medium density or high rise premises containing multiple dwellings
Clause 1.2.1, definition of 'volume boundary hybrid'	Insert the definition the following text: *volume boundary hybrid* – a gas meter which measures the appliance-specific consumption (excluding centralised hot water) of a medium density or high rise premises containing multiple dwellings
A2.1 (c) Gas Meters and A3.2 (b) Gas Meters	Amend by including the underlined text: (iv) A *Network Operator* must determine the estimated (or substituted) usage for a *delivery point* metered as Volume Boundary by applying the relevant *base load*, *temperature sensitivity factor* and *occupancy factor* for that *delivery point* to each day occurring within the period to which the *estimated (*or *substituted) meter reading* relates. A Network Operator must apply effective degree days, applicable *average heating value* and *pressure correction factor* to derive *estimated (*or *substituted) consumed energy, flow* and *meter reading* in accordance with (ii) and (iii) above. (v) The *base load* and *temperature sensitivity factor* for each Volume Boundary metered *delivery point* will be determined by multiplying the number of dwellings supplied by the volume boundary meter and the per dwelling *base load* and *temperature sensitivity factor* for the connected appliances, with Volume Boundary applied to hot water heating and Volume Boundary Hybrid applied to other loads such as cooking. (vi) The per dwelling *base load* for Volume Boundary meters will be determined by the Network Operator from time to time by the aggregate centralised hot water master gas meter base load consumption divided by the number of individual hot water meters associated with the same dataset of master gas meters. (vii) The per dwelling *temperature sensitivity factor* for Volume Boundary Meters will be determined by the network operator from time to time by the aggregate centralised hot water master gas meter temperature sensitivity factor divided by the number of individual hot water meters associated with the same dataset of master gas meters.

Provision	Amendment
A2.1 (c) Gas Meters and A3.2 (b) Gas Meters	Amend by including the underlined text: (viii) The per dwelling *base load* for Volume Boundary Hybrid meters will be determined by the Network Operator from time to time by the aggregate *base load* of gas meters associated with hot water meters attached to a common MIRN divided by the number of gas meters in the same MIRN dataset. (ix) The per dwelling *temperature sensitivity factor* for Volume Boundary Hybrid meters will be determined by the Network Operator from time to time by the aggregate *temperature sensitivity factor* of gas meters associated with hot water meters attached to a common MIRN divided by the number of gas meters in the same MIRN dataset. (x) The *occupancy factor* will be determined by the Network Operator from time to time by the aggregate consumption of Volume Boundary and Volume Boundary Hybrid meters eligible for Type 2 Estimation and Substitution Methodology with actual readings divided by the sum of Type 2 Estimation and Substitution Methodology consumption for the same MIRN dataset (subject to the calculation result being no greater than 1). (xi) A *Network Operator* must review and update initial per dwelling Volume Boundary and Volume Boundary Hybrid *base load* and *temperature sensitivity factors* and *occupancy factor* by 30th September 2023 and then at least every 2 years thereafter.
A2.1 (c) Gas Meters and A3.2 (b) Gas Meters	Amend the Customer Characterisation Table by inserting text as underlined: NSW Metropolitan — NSW Non-metropolitan Residential R1 — R2 Residential MD/HR R3 — R4 Business B1 — B2 ACT Metropolitan Residential R1 Residential MD/HR R2 Business B1

Provision	Amendment
A2.1 (b) Gas Meters A3.2 (a) Gas Meters	Amend this clause by inserting text as underlined: (v) For quarterly read meters which have at least 12 months' consumption history and are ineligible for Type 1 calculation of *base load* and *temperature sensitivity factor* due to reading periods not being wholly within defined summer and winter periods, the Network Operator may use readings between 23 September and 7 April for the purposes of calculating a *base load* and reading periods between 24 March and 7 October for the purposes of calculating *temperature sensitivity factor*.

5. IMPACTS OF CHANGE

The proposed change does not require process or IT system change impacts, other than for JGN.

Currently, JGN is deploying ameliorating measures by actively pursuing actual readings, applying appropriate base load, temperature sensitivity factors to new volume boundary meters and validating readings for new gas meters attached to hot water meters i.e. going further than the Type 2 characterisation average granularity of the RMP, and is planning to make IT system changes to substantively automate these processes.

6. LIKELY BENEFITS

The proposed changes will result in more accurate network and end-user billing for: volume boundary meters, gas meters associated with a hot water meter for the same MIRN, and quarterly read customers whose reading periods fall outside the defined summer and winter periods.

More actual readings and better quality estimates will improve overall customer satisfaction for retailers, embedders and end-use customers in the medium density / high rise segment and enhance trust and confidence in the volume boundary meter product.

These factors will improve overall customer satisfaction principally by reducing the number of dissatisfied customers. In turn this will reduce the costs incurred by Retailers and Network Operators in cancel-rebilling effort and in resolving customer metering and billing issues.

Overall the propose change will help achieve the National Gas Objective through two mechanisms:

1. Improving the efficiency of the operation of the gas market via more accurate bills.
2. Improving price and quality outcomes for consumers by minimising the frustration from estimated or inaccurately estimated bills.

The proposed changes are also consistent with AEMO's statutory function to promote the development, and improve the effectiveness of the operation and administration of, gas markets.

7. IMPACT OF ISSUE NOT PROCEEDING

If this proposed change is not accepted, RMP customer characterisations will not be upgraded to achieve granularity consistent with the meter installation types unique to JGN and Evoenergy, actual readings will be needlessly invalidated and estimated readings will be inaccurate for retailers, embedders and customers in the medium density high rise segment.

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8. SUPPORTING DOCUMENTATION

Appendix A Volume Boundary Meter – "Hybrid" Installation Schematic

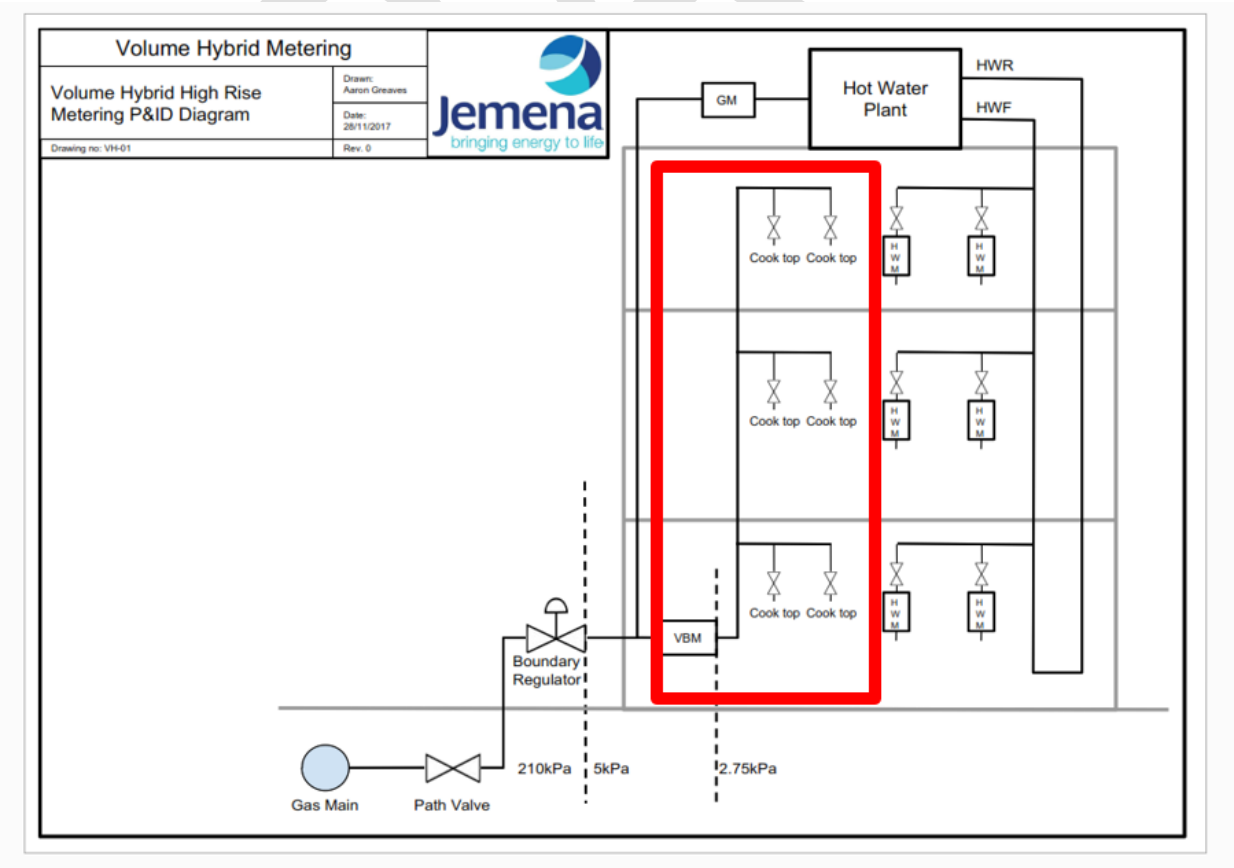
Appendix B Volume Boundary Meter – "Pure" Installation Schematic

Appendix C Volume Boundary Meter – Energy by Dwellings and Appliance Type

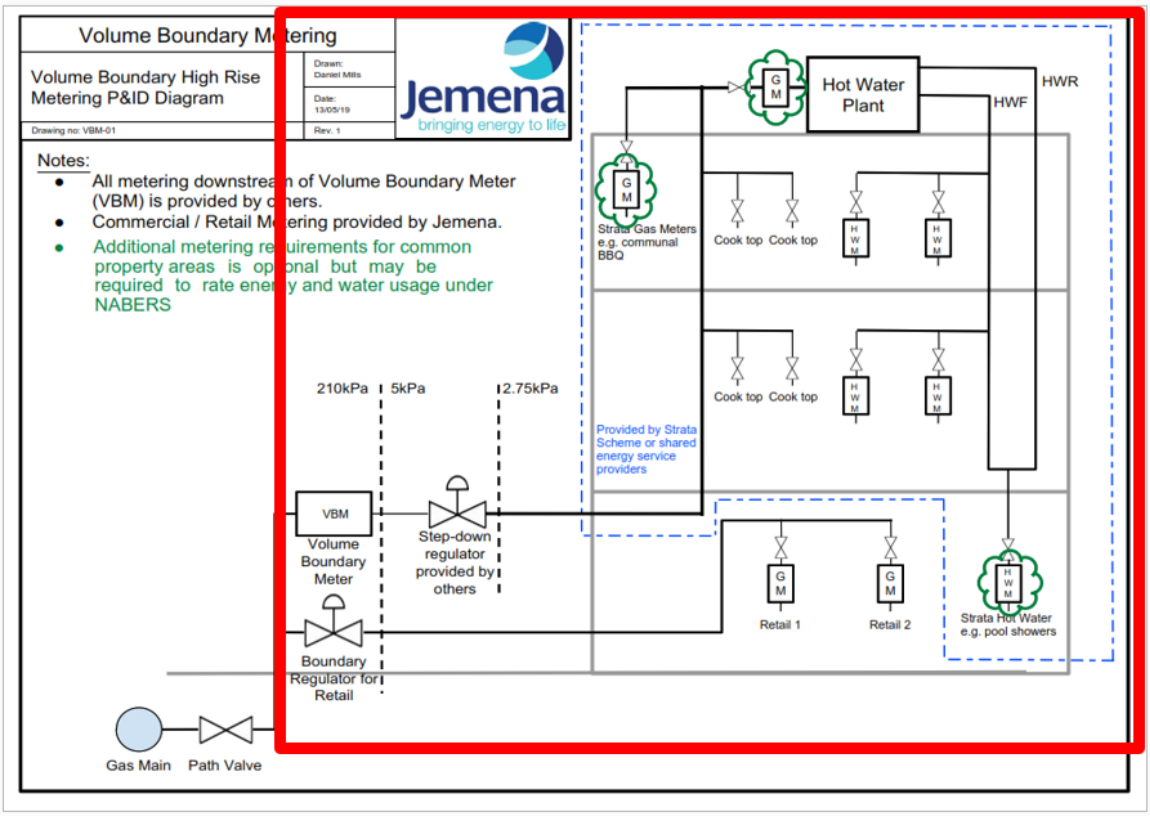
Appendix D Indicative per dwelling BL, TSF and occupancy factors

Appendix E Customer Characterisations – Current and Proposed State

APPENDIX A – VOLUME BOUNDARY HYBRID



APPENDIX B – VOLUME BOUNDARY METER



APPENDIX C – ANNUAL VOLUME BOUNDARY ENERGY BY DWELLINGS AND TYPE

Forecast Annual Energy (GJ)			
VB-type	Hybrid	Pure	
Dwellings	Cooking	Hot Water	
10	23	142	Average VB installation
20	47	285	
50	117	712	
75	175	1068	
100	233	1425	
200	467	2849	
300	700	4274	
400	934	5698	
500	1167	7123	
600	1401	8547	
700	1634	9972	
800	1867	11396	
900	2101	12821	
1000	2334	14245	

APPENDIX D – INDICATIVE PER DWELLING BASE LOAD, TEMPERATURE SENSITIVITY FACTOR AND OCCUPANCY FACTORS

Indicative per dwelling Volume Boundary and Volume Boundary Hybrid Base Loads and Temperature Sensitivity Factors

Region	Meter Type	Base Load MJ/day	Temperature Sensitivity Factor MJ/EDD
NSW	Volume Boundary	33.68	1.22
	Volume Boundary Hybrid	3.59	0.64
ACT	Volume Boundary	33.68	1.22
	Volume Boundary Hybrid	1.75	0.44

Indicative Occupancy Factor: 0.60

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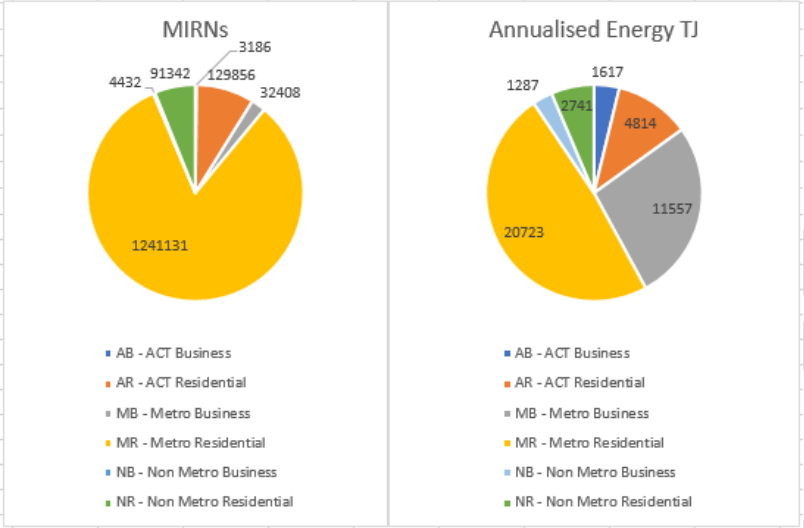
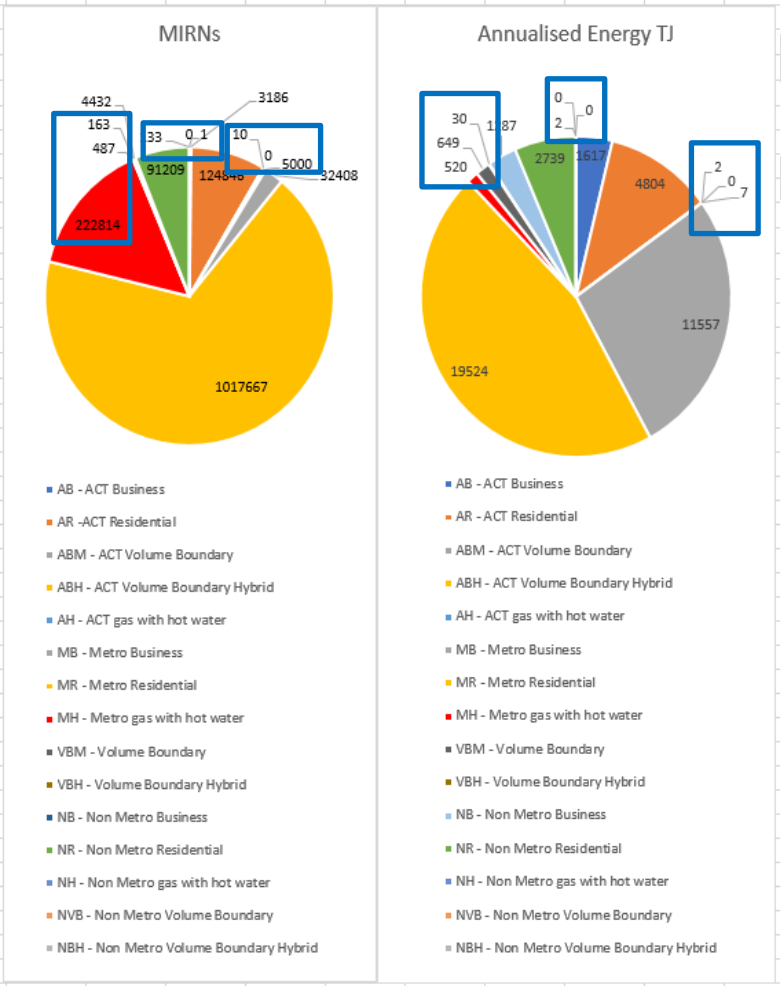
APPENDIX E – BL AND TSF CUSTOMER CHARACTERISATIONS

Current State (indicative MIRN and Energy values)



Proposed State (indicative MIRN and energy values)