Ergon Energy Distribution Network
Ergon Energy Isolated Supply
Energex Distribution Network

Our 17 service areas

1	Far North	7	Capricornia
2	Tropical Coast	8	Bundaberg Burnett
3	Herbert	9	Fraser Burnett
4	Flinders	10	Darling Downs
5	Pioneer	11	South West
6	Central West		

Distribution Loss Factors Methodology

2025

ERGON ENERGY

NETWORK

Part of Energy Queensland

Revision History

Reason for Update	Comments	Date
Version 1	Final Version	27/02/2024

CONTENTS

Distribution Loss Factors Methodology

INTRODUCTION

Distribution Loss Factors (DLFs) are calculated annually by Distribution Network Service Providers (DNSPs) in accordance with the requirements of the National Electricity Rules in order to determine the amount of energy dispatched to supply customers.

Loss factors are applied by retailers in accordance with the National Electricity Rules.

This report outlines the DLF reconciliation as well as the distribution loss factors for the following actual and virtual nodes in the Ergon Energy network:

- All Individually Calculated Customers (ICCs) and selected Connection Asset Customers (CACs), which include customers with greater than 10MW of demand or 40GWh pa consumption; as well as Embedded Generators (EGs) of greater than 10MW and smaller Generators where required by the National Electricity Rules (NER),
- All Subtransmission Bus and Line Customers on a zonal basis,
- All 22/11kV Bus and 22/11kV Line Customers on a zonal basis,
- All Low Voltage (LV) Bus and LV Line Customers on a zonal basis.

A diagrammatic representation of each of these sections is provided in Appendix A – Network Configuration.

Distribution Loss Factors Methodology

DEFINITION OF ZONES

Three pricing zones have been delineated in our distribution area broadly based on Queensland's local government areas (LGAs) with the distribution network electrical connection being the final determinant of which zone applies.

The three key zones utilised for the calculation of Distribution Loss Factors (DLF) align with the regional boundaries and DUOS (Distribution Use of System) locational zones as defined in the Network Tariff Guide 2022-23.[1] These regions are described in the figure below.

Figure 1 Regional Pricing Zones

East — The whole LGAs of:
Bundaberg (R)
Cairns (R)
Cassowary Coast (R)
Fraser Coast (R)
Gladstone (R)
Mackay (R)
North Burnett (R)
Rockhampton (R)
South Burnett (R)
Southern Downs (R)
Toowoomba (R)
Whitsunday (R)
Townsville (C)
Banana (S)
Livingstone (S)
Burdekin (S)
Hinchinbrook (S)
Cherbourg (S)
Woorabinda (S)
Yarrabah (S)

West — The whole LGAs of:
Barcaldine (R)
Blackall - Tambo (R)
Charters Towers (R)
Longreach (R)
Maranoa (R)
Balonne (S)
Bulloo (S)
Carpentaria (S)
Cook (S)
Croydon (S)
Etheridge (S)
Flinders (S)
Hope Vale (S)
McKinlay (S)
Murweh (S)
Paroo (S)
Quilpie (S)
Richmond (S)
Winton (S)
Wujal Wujal (S)

Mount Isa — Consists of the regulated network within the whole LGAs of Cloncurry (S) and Mount Isa (C), and those parts of Burke (S) and Boulia (S) supplied from the Mount Isa system.

Note: (LGA) = Local Government Area, (R) = Regional Council, (S) = Shire Council and (C) = City Council

A topographical map of these zones can also be found to in Appendix B – Pricing Zone Map. It is also noted that areas supplied from isolated (remote) generation are not included in any of the aforementioned zones.

---

[1] Website Source: https://www.ergon.com.au/__data/assets/pdf_file/0020/1007390/ERG-Network-Tariff-Guide-2022-23.pdf

Distribution Loss Factors Methodology

METHODOLOGY

Forecast Quantities & Parameters

The National Electricity Rules (NER) require Distribution Loss Factors (DLFs) to be calculated utilising quantities and parameters projected to the year in which the DLFs are intended to be applied. Customer and generator demand, individual and bulk energy sales and energy dispatch quantities are all forecast for the year of application.

All forecast quantities employed in the DLF calculation process are taken from detailed demand and energy forecasts which Ergon Energy is required to produce for Planning, Network Pricing and Statutory purposes.

Forecasts produced are intended to reflect the "most likely" or "base" case for "average" weather conditions.

At the Connection and Bulk Supply Point level, 10-year demand and dispatched energy forecasts are prepared based on regression analysis of up to 15 years of recorded data (typically 5-7 years) and corrected for switching or other system anomalies. Maximum Demands (MDs) are extrapolated with adjustments to accommodate confirmed and anticipated developments as well as other known local factors.

These forecasts are employed to provide a check and validation of internally produced forecasts. Ergon Energy's forecasts are also reviewed by and agreed with Powerlink for mutual planning purposes. Forecasts are also produced for all Zone Substations by a similar process to that for Bulk Supply Points.

Energy sales figures are forecast in a similar manner by customer class and for larger individual customers, based on their individual projections.

The network model utilised for load flow analysis is modified to reflect the forecast state of the network in the applicable year by incorporating configuration changes and asset upgrades contained in the capital works program.

For more information, please refer to clauses 3.6.3 and 3.15.4 of the NER which can be accessed on the Australian Energy Regulator (AER) website.[2]

---

[2] AER Website: http://www.aer.gov.au/

Distribution Loss Factors Methodology

DLFs for ICCs and Selected CACs

Site Specific Customers (SSC) made up of Individually Calculated Customers (ICCs) and selected Connection Asset Customers (CACs) have their DLF's calculated by load flow analysis based on the customers' forecast demand data and network load data for the year in which the DLFs are to be applied.

This analysis involves load flow studies on the directly connected network. The directly connected network is defined as all parts of the network which experience a change in power flow due to a change in customer loads between the customer connection point and the transmission network connection point.

The losses across the directly connected network are calculated for each half hour interval of a peak day. Loads (other than the ICC being studied) and EGs are modelled using forecast profiles for the upcoming financial year's peak summer day. For each half hour, the ICC is run at 80% and 100% of the forecast peak day profile. The average loads and losses at 80% and 100% ICC conditions across the summer day are computed and an average Marginal Loss Factor (MLF) is determined by:

$$MLF = 1 + LF \times (Average\ Loss\ Increase \div Average\ Load\ Increase)$$

Where LF is the forecast load factor of the ICC. The annual Average Loss Factor (ALF) is calculated by taking the square root of the MLF as per the equation below:

$$ALF = \sqrt{(MLF)}$$

In addition, iron losses of the transformers included in the directly connected network are calculated and apportioned based on the ratio of customer load and network load flowing through the transformer.

DLFs for Embedded Generators

Calculation of Distribution Loss Factors for all Embedded Generators >10MW has been performed using the Marginal Loss Factor approach. This technique is described below and detailed in the joint Energex/Ergon Energy report NCM17699 "Determination of Distribution Loss Factors for Embedded/Local Generators."

Step 1

The sub-transmission network is modelled by including all directly connected 132kV, 66kV, 33kV, 22kV, and 11kV customers along with direct connected loads representative of the 22kV and 11kV lines (lumped at the 22kV and 11kV busses). The Embedded Market Generators are modelled to their metering point. The bulk supply point (i.e. transmission system connection point) is modelled as an infinite bus.

The modelled loads reflect the forecast average load during the time when the generator is on in the section of the network being studied.

Step 2

The modelled embedded market generator output is incremented with the associated net system demand increase recorded. Dividing the net system demand increase by the increase in generation (kW) and subtracting the result from one provides the Marginal Loss Factor associated with the generator in question as per the equation below:

$$MLF = 1 - (Demand\ Increase \div Generation\ Increase)$$

Step 3

The annual Average Loss Factor (ALF) or Distribution Loss Factor (DLF) is calculated by taking the square root of the MLF as per the equation below:

$$ALF = \sqrt{(MLF)}$$

Calculation of Average Distribution Loss Factors

Average DLFs are calculated for each significant supply level in the network, whereas DLFs for major customers are calculated individually to determine the losses directly attributable to their loads.

The average DLF categories applied by Ergon are:

- Sub-transmission Bus
- Sub-transmission Line
- Distribution Bus
- Distribution Line
- Low Voltage (LV) Bus
- LV Line

The method used to calculate Average DLFs is to carry out load flow studies to determine the losses at the coincident network peak, followed by the application of calculated Loss Load Factors (LLFs) to obtain the actual losses.

The sub-transmission systems are modelled using appropriate load flow packages (namely PowerFactory). Losses on the distribution network (11 & 22kV) are calculated using forecast feeder peak demand data and iron losses data which is obtained from Ergon's corporate database.

Losses at the LV bus are calculated based on the average impedance of distribution transformers, and losses in the LV network are calculated as the difference between the total losses (calculated by the difference between Total Purchases and Total Sales), and the losses resulting from the higher voltage network studies.

The average DLFs for the network are summarised in Table 1, shown overpage.

Distribution Loss Factors Methodology

Table 1 Example of Consolidation of Energy Flows and Generic Loss Factor Calculations

NETWORK ITEM	PRINCIPAL HV SUPPLY VOLTAGE	NETWORK	LOSSES	SALES	NETWORK LOSS RATIO %	NETWORK DISTRIBUTION LOSS FACTOR	RECONCILIATION OF LOSSES	METHODOLOGY	
								LOSSES	SALES
ICC and CAC	per connection voltage	per connection voltage	$ICC_L + CAC_L$	$ICC_S + CAC_S$	Individually calculated	Individually calculated	$ICC_L + CAC_L$	ALF	**Note 1**
Sub-Trans. Bus	132kV, 66kV, 33kV	Sub-Transmission Bus	L_1	S_1	$D_1 = \dfrac{L_1}{S_1 + S_2 + f_1 * \sum(S_3 \ldots S_6)}$	$DLF_1 = 1 + D_1$	$DLF_1 \times S_1$	ALF	**Note 1. Note 4**
Sub-Trans. Line	132kV, 66kV, 33kV	Sub-Transmission Line	L_2	S_2	$D_2 = \dfrac{L_2}{S_2 + f_1 * \sum(S_3 \ldots S_6)}$	$DLF_2 = 1 + D_1 + D_2$	$DLF_2 \times S_2$	ALF	**Note 1, Note 4**
22/11kV bus	22/11kV	Zone S/S Transformers	L_3	S_3	$D_3 = \dfrac{L_3}{\sum(S_3 \ldots S_6)}$	$DLF_3 = 1 + f_1(D_1 + D_2) + D_3$	$DLF_3 \times S_3$	ALF	**Note 1 Note 4**
22/11kV line	22/11kV + SWER	22/11kV + SWER HV Line	L_4	S_4	$D_4 = \dfrac{L_4}{\sum(S_4 \ldots S_6)}$	$DLF_4 = 1 + f_1(D_1 + D_2) + D_3 + D_4$	$DLF_4 \times S_4$	ALF	**Note 1 Note 4**
22/11kV LV bus	from 22/11kV +SWER	22/11kV + SWER Trans. (LV bus portion)	L_5	S_5	$D_5 = \dfrac{L_5}{S_5}$	$DLF_5 = 1 + f_1(D_1 + D_2) + D_3 + D_4 + D_5$	$DLF_5 \times S_5$	**Note 3**	**Note 3 Note 4**
22/11kV LV line(a)		22/11kV + SWER Trans. (LV Line portion)	L_{6a}	0	N/A	N/A	N/A		
22/11kV LV line(b)	from 22/11kV and SWER	LV Line	L_{6b}	S_6	$D_6 = \dfrac{L_{6a} + L_{6b}}{S_6}$	$DLF_6 = 1 + f_1(D_1 + D_2) + D_3 + D_4 + D_6$	$DLF_6 \times S_6$	**Note 3**	
TOTALS			$ICC_L + CAC_L + \sum(L_1 \ldots L_6)$	$ICC_S + CAC_S + \sum(S_1 \ldots S_6)$			$\sum(above\ items)$		

Note 1: Metering point data (ICC, CAC, BSP, Zone Substation and High Voltage (HV) customers)
Note 2: Only selected CACs have an individually calculated distribution loss factor
Note 3: Refer to sections: 0 DLFs for 11/22kV Busbars and 0 DLFs for 22/11kV and SWER Lines
Note 4:

$$f_1 = \frac{(Energy_{In}SubBus - S_1 - L_1 - S_2 - L_2)}{(Energy_{Injected}DistBus + Energy_{In}SubBus - S_1 - L_2 - S_2 - L_2)}$$

Ergon Energy Corporation Limited ABN 50 087 646 062

Distribution Loss Factors Methodology

Calculation of Loss Load Factors

Loss Load Factors (LLFs) are calculated based on load duration curves, which are computed from half-hour average demands over a full year. The load duration curve is squared and averaged to obtain the LLF. LLFs are applied to the losses calculated at peak demands to determine the actual losses.

DLFs for Sub-transmission Bus Network

Sub-transmission bus losses comprise of the Ergon Energy owned 132kV and 110kV transmission line losses, the Ergon Energy owned 132/33kV, 132/66kV and 110/33kV transformer losses as well their accompanying iron losses. By modelling the Ergon Sub-transmission network model and conducting load flow analysis these losses can be extracted. For each transmission feeder and transmission transformer the Loss Load Factor (LLF) is obtained. Using the formula shown below the individual Feeder and Transformer losses are annualised.

$$Annual\ Energy\ losses\ (MWh) = \ Subtrans\_bus\ losses\ (MW)\ \times LLF$$

The sum of the annual energy losses for all transmission network connection points excluding ICC losses are divided by the sum of all non-ICC energy sales through the 132kV & 110kV transmission networks to obtain the DLF. This calculation is summarised in row 2 of Table 1, as extracted below.

Table 2 Sub-transmission Bus Network DLF Calculation

NETWORK ITEM	PRINCIPAL HV SUPPLY VOLTAGE	NETWORK	LOSSES	SALES	NETWORK LOSS RATIO %	NETWORK DISTRIBUTION LOSS FACTOR
Sub-Trans. Bus	132kV, 66kV, 33kV	Sub-Transmission Bus	L_1	S_1	$D_1 = \dfrac{L_1}{S_1 + S_2 + f_1 * \sum(S_3 \ldots S_6)}$	$DLF_1 = 1+D_1$

where $S_2 = Sales\ Sub\ line,\ S_3 = Sales\ Dist\ Bus\ ,\ S_4 = Sales\ Dist\ line,\ S_5 = Sales\ LV\ Bus,\ S_6 = Sales\ LV\ Line$

DLFs for Sub-transmission Line Network

Sub-transmission line losses comprise of the 66kV and 33kV line losses. These losses are obtained by conducting load flow analysis of each Bulk Supply Point (BSP) modelled down the zone substation 22/11kV bus. The LLF for each BSP is utilised to annualise the energy losses as shown in the formula bellow.

$$Annual\ Energy\ losses\ (MWh) = \ Subtrans\_line\ losses\ (MW)\ \times LLF$$

Distribution Loss Factors Methodology

The calculation of the average sub-transmission line DLF is summarised in row 3 of Table 1, as extracted below.

Table 3 Sub-transmission Line Network DLF Calculation

NETWORK ITEM	PRINCIPAL HV SUPPLY VOLTAGE	NETWORK	LOSSES	SALES	NETWORK LOSS RATIO %	NETWORK DISTRIBUTION LOSS FACTOR
Sub-Trans. Line	132kV, 66kV, 33kV	Sub-Transmission Line	L_2	S_2	$D_2 = \dfrac{L_2}{S_2 + f_1 * \sum(S_3 \ldots S_6)}$	$DLF_2 = 1 + D_1 + D_2$

where $S_2 = Sales\ Sub\ line,\ S_3 = Sales\ Dist\ Bus,\ S_4 = Sales\ Dist\ line,\ S_5 = Sales\ LV\ Bus,\ S_6 = Sales\ LV\ Line$

DLFS FOR 11/22KV BUSBARS

The bulk supply systems are modelled from the 33kV or 66kV busbar to the 11kV or 22kV busbar including the 66kV or 33kV to 22kV or 11kV transformers. The peak losses in kW calculated from the load flow studies are converted to annual energy losses using the LLF.

Losses attributed to the 132/11kV ,110/11kV, 110/22kV, 132/22kV, 66/22kV and 33/11kV transformers are added to the associated transformer iron losses to total the network sector losses.

The network sector loss factors for customers (other than ICCs and selected CACs) connected at the 11/22kV busbar level are determined by calculating the sum of the forecast losses and dividing by the sum of the forecast sales in the network sector and all downstream sales.

Effects of Energy Injection at 11/22kV Busbars

In calculating the DLF at and below the busbar level, consideration needs to be taken for the inclusion of any energy sources "directly injected" as a result of Connection Points to Embedded Generators or to the TNSP (Transmission Network Service Provider) at the 11 and 22kV busbar level. Such energy necessarily does not incur any upstream "category loss" within the DNSP's (Distribution Network Service Provider) network.

The DLF therefore is a function of the relative proportions of energy being supplied through the upstream DNSP network effectively loss free, as represented in the following formula:

$$DLF_2 = 1 + (f_1 \times (D_1 + D_2) + f_2 \times D_2)$$

where

Dx is the loss percentage (category loss) at level x,

f1 is the proportion of energy arriving at level 2 via the upstream DNSP (Distribution Network Service Provider) network, and

f2 is the proportion of energy arriving at level 2 directly from the Transmission Network Service Provider and Embedded Generation.

Distribution Loss Factors Methodology

The calculation of average DLF for the distribution bus level is summarised in row 4 of Table 1, as extracted below.

Table 4 Energy Injection on Distribution Bus Bars DLF Calculation

NETWORK ITEM	PRINCIPAL HV SUPPLY VOLTAGE	NETWORK	LOSSES	SALES	NETWORK LOSS RATIO %	NETWORK DISTRIBUTION LOSS FACTOR
22/11kV bus	22/11kV	Zone S/S Transformers	L_3	S_3	$D_3 = \dfrac{L_3}{\sum(S_3 \ldots S_6)}$	$DLF_3 = 1 + f_1(D_1 + D_2) + D_3$

where $S_3 = Sales\ Dist\ Bus$, $S_4 = Sales\ Dist\ line$, $S_5 = Sales\ LV\ Bus$, $S_6 = Sales\ LV\ Line$

DLFS FOR 22/11KV AND SWER LINES

Losses on distribution feeders are obtained though load flow analysis using the distribution network models with forecast peak load assigned to each feeder. The peak losses in kW, calculated from load flow studies are converted to annual energy losses using the LLF for each individual feeder as shown in the formula bellow.

$$Feeder\ Annual\ energy\ losses\ (kWh) = Feeder\ (kW)\ \times LLF$$

The total distribution line losses are summated and using the calculation in row 5 Table 1, the average DLF is obtained, as extracted below.

Table 5 Distribution and SWER Line DLF Calculation

NETWORK ITEM	PRINCIPAL HV SUPPLY VOLTAGE	NETWORK	LOSSES	SALES	NETWORK LOSS RATIO %	NETWORK DISTRIBUTION LOSS FACTOR
22/11kV line	22/11kV + SWER	22/11kV + SWER HV Line	L_4	S_4	$D_4 = \dfrac{L_4}{\sum(S_4 \ldots S_6)}$	$DLF_4 = 1 + f_1(D_1 + D_2) + D_3 + D_4$

where $S_4 = Sales\ Dist\ line$, $S_5 = Sales\ LV\ Bus$, $S_6 = Sales\ LV\ Line$

LV AND SWER CUSTOMERS

The technique described below is utilised to determine the losses in distribution transformers and appropriate allocation of energy (sales and network sector losses) to LV (Low Voltage) Bus and LV Line customers for each zone.

Each zone distribution transformer is identified by number, size, and voltage rating (11kV/415V or 22kV/415V & SWER). Typical 'no load' and 'full load' losses (in watts) for each differing transformer type were obtained from test certificates. The maximum demand and projected installed transformer capacity in the targeted zone were utilised to calculate the peak full load losses of distribution transformers. The total losses (kWh) for distribution transformers in each zone was then calculated by taking the product of peak full load losses by the load loss factor and adding 'no load' loss factors.

Distribution Loss Factors Methodology

The following formulae were utilised to obtain the losses (kWh) for each size of distribution transformer in each zone:

$$Total\ kWh\ Losses\ in\ Zone = (Peak\ Full\ Load\ Losses \times Load\ Loss\ Factor) + No\ Load\ Losses$$

$$Peak\ Full\ Load\ Losses\ (kWh) = (Maximum\ demand\ (kVA) \div Installed\ Tx\ Capacity\ (kVA))^2 \times No\ of\ Tx\ in\ Zone \times Full\ Load\ Losses\ (Watts) \times 8760 \div 1000$$

$$No\ Load\ Losses\ (kWh) = No\ of\ Tx\ in\ Zone \times No\ Load\ Losses\ (Watts) \times 8760 \div 1000$$

The break-up of the percentage of network sector losses allocated to LV Line and LV Bus customers were estimated by allocating all transformers with 2 or less customers to LV Bus and the remainder to LV Line. The percentage break-up of LV energy sales used in the East and West zones was obtained by projecting LV usage on a per line basis from Customer Information System (CIS) records. Energy on lines within each zone is summated to determine the total LV energy sales supplied.

The network sector loss factor for LV bus category is calculated by dividing the projected network sector losses in distribution transformers for the relevant zone by the sum of the projected LV bus sales. This value is added to the 22/11kV line loss factor to determine the loss factor for LV bus customers.

The network sector loss factor for LV line category is calculated by dividing the residual losses by the projected LV line energy sales including streetlights. This value is added to the 22/11kV line loss factor to obtain the loss factor for LV line customers. The network sector loss for LV Line is the residual loss calculated from projected Purchases less projected Sales less all other network sector losses. The calculation of the average DLF for LV bus and LV line are found in rows 6 and 8 of Table 1, as extracted below.

Table 6 LV and SWER Customer DLF Calculations

NETWORK ITEM	PRINCIPAL HV SUPPLY VOLTAGE	NETWORK	LOSSES	SALES	NETWORK LOSS RATIO %	NETWORK DISTRIBUTION LOSS FACTOR
22/11kV LV bus	from 22/11kV +SWER	22/11kV + SWER Trans. (LV bus portion)	L_5	S_5	$D_5 = \dfrac{L_5}{S_5}$	$DLF_5 = 1 + f_1(D_1+D_2) + D_3 + D_4 + D_5$
22/11kV LV line(a)		22/11kV + SWER Trans. (LV Line portion)	L_{6a}	0	N/A	N/A
22/11kV LV line(b)	from 22/11kV and SWER	LV Line	L_{6b}	S_6	$D_6 = \dfrac{L_{6a} + L_{6b}}{S_6}$	$DLF_6 = 1 + f_1(D_1+D_2) + D_3 + D_4 + D_6$

RECONCILIATION AND REPORTING

Calculated DLFs are applied and checked to ensure energy balances are valid throughout the supply network. In addition, reconciliation calculation is performed annually for the previous year by applying the published DLFs to actual recorded energy dispatches and sales.

A report detailing the calculations methodology and the detailed results is prepared each year and submitted for approval to the Australian Energy Regulator (AER). Following approval, the DLFs are forwarded to the Australian Electricity Market Operator (AEMO) which publishes them on its website each year.

Report Finalisation & Submission

Once the DLFs are calculated and reconciled, a report is prepared detailing the calculated site specific DLFs together with the average DLFs at each voltage level in the system.

The report is submitted for approval to the AER. Once approved, the DLFs are forwarded to the Australian Energy Market Operator to be published on its website each year.

SOURCES OF DATA

Studies were performed by the Ergon Energy planning department using available network models. Data for the loss factor calculation was obtained from the following sources:

- Customer Information System records supplied data on kWh sales per zone,
- Network Billing system supplied data on energy purchases by contestable customers,
- Metering data collection systems were used to obtain substation kWh and substation loads and load factors at system peak,
- Load and Energy Forecasts produced for Planning and Network pricing purposes were accessed for forward-looking calculations,
- Current year zone substation and distribution feeder network peaks procured from corporate systems (e.g. NODW, SIFT),
- Network load flow packages (PowerFactory) were utilised for all system modelling performed,
- Zone substation and distribution transformer iron and copper losses were extracted from corporate records and rated via test sheets and or plant rating data.

LIMITATIONS OF STUDY

Accuracy

Load flow studies were conducted with the most accurate data presently available from Ergon Energy metering, billing and forecasting systems.

Ergon Energy has transitioned its network load flow modelling software to PowerFactory and is continuously expanding and updating its models by district. In doings so, accuracy has been improved as the detail of feeder and bus models available for study are constantly reviewed and improved.

Ergon Energy is also reviewing and updating its methodology to align with its amalgamated network partner Energex. This has seen minor changes in process implementations including the consideration of load increments for the calculation of the Average Loss Factors (ALF) and accommodation to the sensitivity of network models.

The three-month period between most LV (Low Voltage) customer meter reads requires Computer Information Systems (CIS) data to be interpolated at the beginning and end of the financial year with readings taken outside of the financial year. This estimation will result in some tolerance of error in calculating the total metered LV energy. Considering a large number of customers this error should be minimal.

The DLF (Distribution Loss Factor) for LV line and streetlight customers was calculated ensuring that all losses in the system were accounted for. This method relies upon all DLFs at the higher voltage levels being accurate in order to realise "residual" losses at the LV Line level.

It is understood that significant uncertainty is inherent to the parameters impacting on DLF calculations. Values produced represent estimates for allocating network losses to individual customers or classes of customers are compliant with AER Rules and reasonably consistent with the relative contribution of customers' loads and associated network losses. Variations in weather and other factors can also significantly impact the accuracy of electrical sales forecasts.

Forecast losses are defined as the difference between forecast energy dispatch and forecast energy sales. These two items are both large in quantity and very nearly equal in measure thus, forecast losses are very sensitive to small changes to either of these variables.

APPENDIX A – NETWORK CONFIGURATION
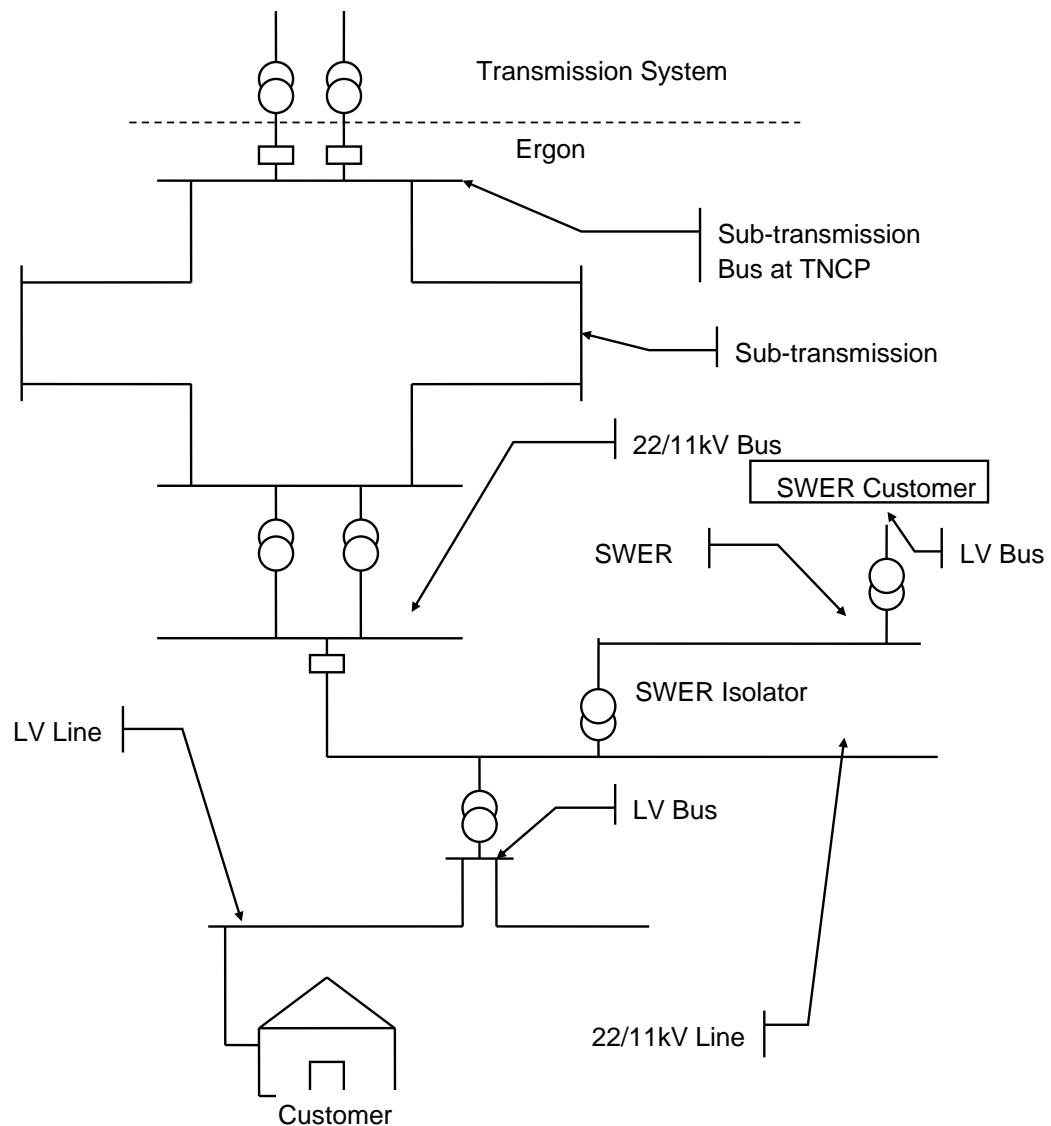
APPENDIX B – PRICING ZONE MAP

The following figure identified the regional and pricing zones for East, West and Mount Isa regions.

Mount Isa   Western Zone   Eastern Zone