



Connection policy

United Energy

To apply from 1 July 2021

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1 Introduction

1.1 Background and scope

A connection is the physical link between the electricity distribution network and customers' premises to allow the flow of electricity. Every year we connect thousands of households, businesses and generators to our network.

This policy outlines the connection services we provide, how connection charges are calculated and the application process. It accords with the Australian Energy Regulator's (**AER**) connection charge guidelines for electricity retail customers and the requirements in Chapter 5A of the National Electricity Rules (**Rules**).

This policy applies to retail customer or real estate developer connections requested from 1 July 2021. The policy does not apply to Registered Participants or intending Registered Participants—which are typically large industrial customers or large generators—as outlined in the Rules.¹

The types of connections covered by this policy are:

- connecting new premises
- making alterations to existing connections to meet a customer's new requirements²
- connecting embedded generators such as solar, wind power generators, or embedded storage.

1.2 Overview of connection works and categories

To connect a customer we will need to undertake:

- **premises connection** works—typically consisting of a new line between the closest pole and the dwelling, or a connection to an existing underground pit.

Where adequate supply is not available in an area to make a connection, we may also need to undertake:

- **customer specific** works—extend the network or augment the connection assets at the customer's premises
- **shared network** works—where the network's capacity is insufficient to support a connection, we may need to upgrade/augment it. This can be thought of as upgrading the network 'backbone' that services all customers.

As set out in this policy, we provide two types of connection offers: basic (where supply is available) and negotiated (where adequate supply is not available). The way we calculate connection charges and timeframes depend on the connection type. A summary of the most common connection types is provided below.

¹ These connections will be considered under the requirements of Chapter 5 of the Rules.

² Such as increasing the supply capacity or the number of phases that supply a premises, relocating the connection point at a premises or changing from an overhead to underground service

Table 1 **Connection offer types**

Seeking a new connection or modified connection for...	Conditions	This connection is typically a...
Residential premises or small commercial premises such as small shops	Where supply is available	Basic connection
	Where adequate supply is not available	Negotiated connection
Temporary supply, e.g. for carrying out construction works or holding a special event	Where supply is available	Basic connection
	Where adequate supply is not available	Negotiated connection
Unmetered supply e.g. electronic parking meters, bus shelters or phone boxes	Uniform load	Basic connection
Micro-embedded generator with pre-approval of exported capacity e.g. solar panels	With an inverter capacity of less than 10kW single phase, or less than 30kW for a three phase connection	Basic connection
	With an inverter capacity greater than 10kW single phase or 30kW for a three phase connection	Negotiated connection
Embedded generator that is not a micro-embedded generator e.g. thermal or wind generating systems	N/A	Negotiated connection
Commercial premises and/or multi-tenancy residential e.g. apartment building, shopping complex	Over 100 ampere	Negotiated connection
New land subdivision/ real estate development	N/A	Negotiated connection

Source: United Energy

2 Basic connections

2.1 Service description

Our basic connection service covers most routine connections such as:

- residential dwellings and small commercial premises, including temporary and permanent connections
- micro-embedded generator connections, such as inverter energy systems using solar, thermal or wind
- unmetered supply connections, such as electronic parking meters, bus shelters or phone boxes.

Whether a connection is a basic connection is discussed in more detail below.

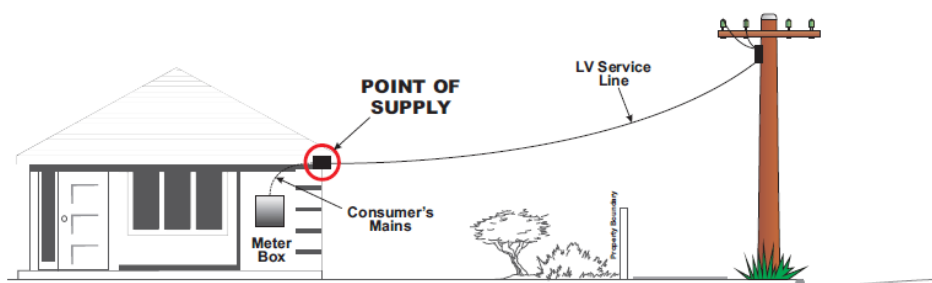
2.1.1 Load connections

Basic connections are available for:

- loads up to 170 amperes (**amps**) where adequate supply is available
- loads less than 10kVA (i.e. 40 amps in total) for connections to a single phase substation or on a Single Wire Earth Return (**SWER**) line where adequate supply is available.

For premises located in areas with overhead power lines, the connection involves a service wire to a point of supply (typically a fuse) on the customer's premises. The overhead service wire can be no longer than 20 metres on the customer property and 45 metres in total.³ This is illustrated in the following diagram.

Figure 2.1 Typical overhead connection for residential or small commercial premises

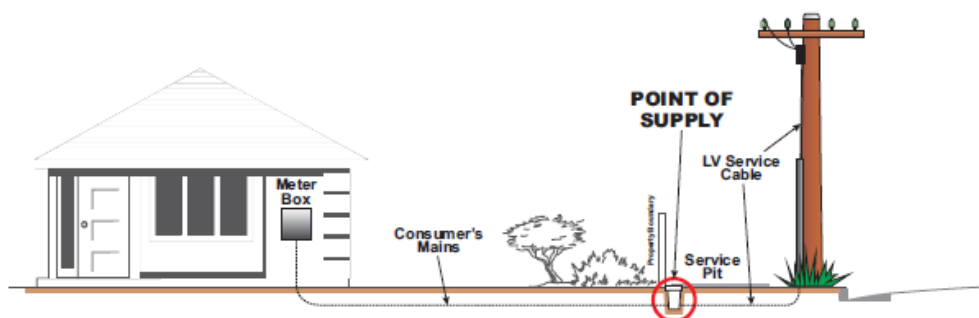


Source: United Energy

An underground service cable can be included as a basic connection where there is an existing underground pit and the service cable is no longer than 45 metres (where there is no underground pit, it can be installed as a negotiated connection service as outlined in 3). The customer is responsible for the Consumer's Mains to the premises as illustrated in the following diagram.

³ The overhead line must comply with the requirements of the Victorian Service and Installation Rules, available from: <http://www.victoriansir.org.au/>

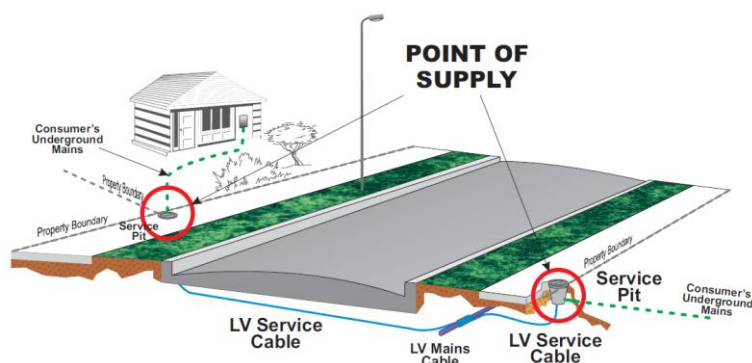
Figure 2.2 Typical underground connection for residential and small commercial premises



Source: United Energy

In new housing estates, customer connections are often underground. Generally, the electricity infrastructure would be installed under a negotiated connection contract with the developer and then each dwelling would be connected as a basic connection service. A typical customer connection in an underground residential housing development is shown in the following diagram.

Figure 2.3 Typical underground connection in a residential housing estate



Source: United Energy

Basic connections also include connection modifications, such as upgrades from a single phase connection to a three phase connection (up to 170 amps) or an upgrade of the service fuse. The alterations must not require customer specific or shared network works.

2.1.2 Micro-embedded generation and storage

Rooftop solar PV is the most common type of micro embedded generator. Other examples include thermal or wind powered generators, or embedded storage such as a battery. To be eligible for a basic connection, the generator must meet the following requirements:

- be connected to our distribution network by an inverter with a capacity of no more than 10 kilowatt (**kW**) on a single phase, or no more than 30kW on a three phase connection
- comply with Australian Standard 4777 (**AS4777**) (see the Clean Energy Council website for a list of approved inverters)
- not require customer specific or shared network works
- you have informed your retailer, as discussed in section 4.1.1.

2.1.3 Unmetered supply

Unmetered supply connections are typically provided for electronic parking meters, CCTV, bus shelters or telephone boxes. We offer unmetered supply when it is impractical to read or maintain a meter. Connections eligible to be unmetered must be small and have a steady and uniform load so the energy consumption can be accurately estimated.

2.2 Basic connection charges

A fixed fee is charged for basic connection services. The applicable fee depends on the connection characteristics, such as whether a current transformer is required (typically required for loads between 100-170 amps). These fees are approved by the AER and published in our General Service Charge Pricing Schedule available on our website.

2.3 Other charges

Other (non-connection) charges may also apply depending on your connection characteristics. These charges are outlined in our General Service Charge Pricing Schedule and have been approved by the AER. For example, a typical charge that may apply is for reconfiguring the electricity meter where you are connecting a micro embedded generator.⁴

2.4 Application process

You or your registered electrical contractor (**REC**) (on your behalf) may request a basic connection. This can be done via your retailer of choice or directly from us. If you raise the request:⁵

- via your retailer, we will provide you with an expedited connection including supply turned on, within 10 business days after we receive the properly completed connection documentation (including acceptance of our model standing offer (**MSO**) via your retailer)
- directly from us via the form available on our website, your connection will be made without supply turned on, within 20 business days after we receive the properly completed connection documentation. You will be required to raise a separate request with your retailer to have supply turned on.

If you require a written offer, additional steps will be required before the connection can be made.

For a basic connection, you are required to pay us the connection charges on acceptance of the offer or by the due date where we issue an invoice to you for those connection charges.

If you do not accept the MSO, then your connection will be a negotiated connection as outlined in chapter 3 **Error! Reference source not found..**

⁴ Where we are the meter provider.

⁵ If your connection requires current transformer metering the connection timeframes may differ.

3 Negotiated connections

3.1 Service description

Negotiated connections are those that may be too large or complex to meet the basic connection service criteria. This includes:

- connecting residential dwellings and small commercial premises where adequate supply is not available
- embedded generation or storage that is not compliant with AS4777 or requires greater than 10 kW per single phase connection and 30kW for a three phase connection up to 5MW (connections above this threshold are not governed by this policy)
- high voltage (HV), reserve capacity or dedicated assets
- public electric vehicle charging facilities
- enabling embedded networks
- real estate developments
- where customers construct and gift connection assets to us under our contestability framework, discussed in chapter 5.

3.2 Negotiated connection charges

Negotiated connection charges are calculated in accordance with the AER's cost-revenue-test:

$$CC = ICCS + ICSN - IR + SF$$

Where:

- **CC** is the capital contribution the customer must pay
- **ICCS** is the incremental cost of customer specific works, reflecting the cost for the connection services used solely by the customer (e.g. an extension)
- **ICSN** is incremental cost of shared network work, reflecting the costs incurred for connection services that are not used solely by the customer (e.g. an augmentation)
- **IR** is incremental revenue which is calculated as the present value of expected distribution revenue over 30 years (residential) or up to 15 years (non-residential).
- **SF** is the amount of any security fee

Under the cost-revenue-test:

- the component of the connection that forms part of a basic connection (e.g. the premises connection asset) is charged in accordance with the basic connection charges and is not subject to the cost-revenue-test. If, however, there is no clear distinction between the premises connection and the customer specific works (typical for large customers) or the basic connection does not cover the type of premises connection works required for the connection, all works will be subject to the cost-revenue-test.
- a capital contribution is only payable where the connection cost exceeds the revenue expected to be derived from it.

- we calculate the charge for each component in a fair and reasonable way and based on the least cost technically acceptable standard necessary for the connection.⁶
- some customers may be required, or in some cases may request, to make a pre-payment to initiate design or purchasing of long lead time material. Full payment of connection charges is generally required before construction commences.

The calculation of element of the cost-revenue-test is described in more detail below.

3.2.1 Customer specific charges

The customer specific charges include:

- costs to augment connection assets at a customer's premise
- network extension costs
- administration costs (including any design and certification costs)
- cost of providing any other connection services which are used solely by the customer
- tender costs (where relevant).

Overheads will be applied to these costs.

3.2.2 Shared network charges

The shared network charge is the cost of augmenting the network backbone to provide capacity for a new or modified connection.

Only customers requiring a connection capacity greater than 100 amps, or more than 40 amps on a SWER line are required to pay the shared network charges. These limits are known as the augmentation charge threshold.

The shared network cost is calculated as follows:

$$\text{Incremental cost of shared network} = \text{average cost of augmentation} \times \text{demand estimate}$$

The average cost of augmentation is the cost we incur to add a unit (i.e. a kVA) of capacity to the network. The applicable rate depends on which 'level' of the network the connection is made. For example if a connection is made at the HV level, you will not pay for augmenting LV assets. The rates are calculated from a review of recent actual augmentation project costs and are outlined in appendix A.

Overheads will be applied in addition to the augmentation unit rates.

3.2.3 Incremental Revenue

The incremental revenue is the component of customers' electricity charges, over the life of their connection, that pays for the network backbone. It is calculated as the forecast revenue customers pay to the distributor through their electricity charges (distribution use of system charges (**DUoS**)) less the amount that pays for operating and maintenance costs. In calculating this value:

- the DUoS price path is set out in our distribution determination for the 2021–2026 regulatory period, and a flat path (real terms) is used thereafter

⁶ This standard may differ depending on the connection's location, for example a higher standard may apply in high consequence bushfire areas. Where the customer is a real estate developer, we may also include the cost of providing for forecast load growth.

- DUoS is discounted by our regulated real pre-tax weighted average cost of capital.

This is calculated over 30 years for residential customers and 15 years for business customers—however an alternative period may be applied to business customers where 15 years is not a reasonable estimate of the connection services' life.

3.2.4 Estimating maximum demand and energy consumption

As discussed, an estimate of maximum demand and electricity consumption is needed to calculate the connection charge. For residential and small commercial premises, we will assess a customer's consumption and maximum demand based on:

- previous load history (if available)
- information supplied in the connection application (e.g. expected energy use, supply voltage, meter type)
- energy consumption / demand from similar customers.

For commercial and industrial premises, or real estate developments, we may also consider:

- the total load of all equipment in the building or project
- the method of estimating the maximum demand outlined in Australian Standard AS/NZS 3000 - Wiring Rules
- the proposed usage pattern
- typical load factors for similar customer installations or industry types.

If we and the customer cannot agree to these estimates, we may apply a provisional estimate for up to three years. Once the customer's likely demand or consumption has been revealed, a new value will be applied to the connection charge calculation. The customer will be subject to an additional charge or refund for the difference between the provisional estimate and actual demand or consumption. This additional charge/refund is only applicable where the customer is solvent and still using the premises.

The provisional estimate provisions do not apply to real estate developers. We may apply a similar provision to real estate developers by agreement.

3.2.5 Security fee

If we consider there is a risk we will not receive the incremental revenue used to estimate a customers' capital contribution, a security fee may be required. The security fee is refundable if the assumed incremental revenue eventuates. This ensures electricity users do not fund large customers' connections via their general electricity charges.

We will operate the security fee in accordance with the following principles:

- the security fee will be capped at the amount of incremental revenue we assess as being at risk
- the security fee will not exceed the present value of the connection cost
- we will not recover more than the total estimated incremental revenue through the security fee⁷
- the security fee may be in the form of either a prepayment or a financial guarantee.

⁷ If the actual incremental revenue realised over the period of the security fee scheme exceeds the estimated incremental revenue, we will refund the security fee in full.

We will provide an annual rebate of the security fee. The first qualifying period is 12 months after the connection is tied-in to the network. In order to receive the maximum allowable refund for the year, we will verify that the customer's actual electricity use meets the estimate used in the connection offer.

We will pay interest on the refund amount based on the AER's approved cost of debt outlined in the most relevant distribution determination. Interest will not be payable on security held in the form of a bank guarantee

3.2.6 Pioneer scheme

A pioneer scheme applied for network extensions that cease being dedicated to the use of a customer within 7 years. The customer may be entitled to a partial refund of their connection charge. Similarly, if you connect to an extension within 7 years of its construction, you may be required to make a financial contribution towards its cost to the customers already connected. This scheme will apply to dedicated network extensions which have been fully funded by a customer or towards which a customer has paid a capital contribution, with the exclusion of service pits.

We will calculate the charge (from a subsequent customer) and refund (to each customer already connected) by:

- taking into account the length or amount of electricity used relative to customers already connected to the extension
- depreciating the extension's value on a straight line basis over a 20 years
- if the original extension was built to a higher standard than the least cost technically acceptable standard, then only the cost of constructing to the least cost technically acceptable standard will be used for the purposes of the pioneer scheme. Where the extension's cost is unknown, for example because it was contestably constructed, we will estimate it.

The pioneer scheme will apply in the following circumstances:

- the original premises must be occupied and using the extension
- the payment to any customers already connected is greater than \$1,250 (\$2021, real) adjusted for CPI
- a pioneer payment can be made to the current occupier of a premises or the original occupier (who paid for an extension) of the premises. If there is a dispute between the current and original occupier, the current occupier of the premises shall be taken to be entitled to any refund unless there is written evidence or an agreement to the contrary
- the pioneer scheme does not apply to business customers or real estate developments.

This pioneer scheme will apply to offers made from 1 July 2021. The pioneer scheme in place at the time of an offer made prior to this date will continue to apply to those connections.

3.3 Other charges

Other (non-connection) charges may apply depending on the connection's characteristics. These charges are outlined in our General Service Charge Pricing Schedule and have been approved by the AER, and could include:

- upfront charge to cover our expenses incurred in assessing the application and making a connection offer

- where you request a higher standard connection, you must pay the additional cost of providing the service to the standard⁸
- specification and design enquiry services (which haven't been included in the connection offer)⁹
- specification and design enquiry services where a customer requests information to assist them undertake feasibility studies or budget estimates
- audit design and construction services where our review, approval or acceptance of third party works is requested or considered necessary.¹⁰

3.4 Application process

Connection requests should be made well in advance of the anticipated date of the connection requirement so that we can meet your timeframes.

Requests for negotiated connection services must be made to us directly in writing. You should include, where relevant, the:

- site plan
- copy of planning permit
- copy of subdivision
- road construction plan
- complete loading details
- embedded generation details.

We will provide budget estimates free of charge, however, a project fee will be charged for a firm offer to enable detailed design (as discussed in section 3.3).

We will use best endeavours to provide an offer within 65 business days of receiving a completed application (not counting any time in which further information that we have sought from the customer is provided) or a period agreed with you. To accept the offer, you must sign and return it to us before the date lapses, which will be outlined in the offer.

We will outline the basis of our charges in the offer.

⁸ This may include an applicant requesting a supply point that requires additional extension work or a request for a reserve high voltage feeder.

⁹ If uncertainty exists with respect to matters including, but not limited to, the route of an extension, location of other utility assets, environmental considerations, obtaining necessary permits from state or local government bodies.

¹⁰ This may be required in situations including, but not limited to: customer provided buildings, conduits or ducts used to house our electrical assets; customer provided connection facilities including switchboards used for connections; electrical distribution work completed by one of our approved contractors that has been engaged by a customer; provision of system plans and system planning scopes e.g. to bidders for contestable works; reviewing and/or approving plans submitted by bidders for contestable works.

4 Embedded generators and real estate developers

4.1 Embedded generators and storage systems

There are unique connection arrangements for embedded generators and real estate developers. These are outlined below.

4.1.1 Pre-approval for export capable connection process

If you require a basic connection to connect an embedded generator up to 10kW on a single phase or 30kW for three phase connections, you must inform your retailer.

For negotiated connections, such as where the generation capacity is between 10kW/30kW on three phases and 5MW, we need to undertake a detailed connection assessment. This requires you (or your representative) to lodge an application using embeddedgeneration@ue.com.au. Further information on the pre-approval process is available in our Embedded Generation Standards policy, available on our website.¹¹

As part of this connection process you will be required to provide information on your embedded generator or storage system as outlined in guidelines that are being developed by the Australian Energy Market Operator. Once the guidelines are completed, the required information will also be specified in this connection policy.

4.1.2 Charges for non-registered embedded generation

For embedded generators requiring a negotiated connection, the cost-revenue-test as outlined in chapter 3 **Error! Reference source not found.** will apply, however, for those that are also load customers:

- the connection cost will be calculated on the cost (including shared network charge) to support both the load and generation components of the connection
- the relevant load for calculating the shared network costs will be the gross peak demand of the load, regardless of the embedded generator's expected electricity output
- the augmentation unit rate does not apply to the generation output
- no incremental revenue will be received from the generation component for the purposes of the cost-revenue-test.

4.2 Real estate developers

4.2.1 Charges for real estate developers

When determining the requirement for a capital contribution:

- a real estate developer is treated as a single customer
- incremental costs may include the costs of providing efficiently for forecast load growth
- incremental revenue is the estimated revenue we will receive from all the sites/connection services within the real estate development.

¹¹ Refer <<https://www.unitedenergy.com.au/wp-content/uploads/2018/05/UE-ST-2008-Embedded-Generation-Network-Access-Standard-V1.3.pdf>>

5 Contestable services

5.1 Competitive tendering and contestable works

When we make an offer to modify our network in relation to a connection request, we must call for tenders (or you may run a tender process) unless you agree no tenders should be called for.¹² Our tendering policy, available on our website, provides more details.¹³ Where a competitive tender has been sought by the applicant, and we receive a request in writing for information pertaining to that offer, we will provide an:

- itemised breakdown of the materials, labour costs and overheads, and the final price, offered to us by any person who submitted a tender
- explanation of why a person was selected as preferred tenderer for the performance of works associated with the modification.

We may charge you the reasonable costs incurred in conducting or assisting in the tender process. An estimate of the costs will be provided before the tender process begins.

5.2 Reimbursement

Assets constructed on a contestable basis must be gifted to us, after which we will own and maintain them.

Where works are undertaken by a third party, we ensure competitive neutrality by providing the customer with a reimbursement for the gifted connection assets. The value of the reimbursement is the amount of the incremental revenue that we estimate will be received from your connection.

¹² Essential Services Commission, Electricity Industry Guideline No. 14.

¹³ <<https://www.unitedenergy.com.au/wp-content/uploads/2016/06/Tendering-policy-30062016.pdf>>

6 Modifying assets

6.1 Modifying assets

Asset modification includes the undergrounding, relocation, replacement or removal of assets.

Where we receive written request, we will develop an offer to modify our assets. Our offer will include:

- the price, calculated on the basis we make a contribution to the cost for our avoided costs
- the cost that we will incur for the modification works (not subject to the cost-revenue-test), including the costs of materials and labour
- other terms and conditions.

Following receipt of the offer, the applicant may make a written request for an itemised breakdown of our material, labour and overhead costs contained within the offer, in addition to our calculation of the avoided costs set out below. Our response will be provided within 10 business days.

6.2 Avoided costs

Customers will be eligible for a rebate of the amount of our avoided costs that may result from the modification of our assets. The avoided costs will be calculated as follows:

$$AC = AM + DAR$$

where:

- *AC is the amount of our avoided costs*
- *AM is the present value of the maintenance and vegetation management we will avoid in relation to existing assets as a result of their modification*
- *DAR is the amount of our deferred asset replacement (DAR) costs*

The DAR costs are calculated as follows:

$$DAR = RC_E - RC_N$$

where:

- *RC_E is the present value of the future capital costs that we will avoid in connection with the replacement of existing assets as a result of their modification*
- *RC_N is the present value of the future capital costs that we will avoid in connection with the replacement of new modified assets*

The future capital costs in the calculation of DAR include the cost of materials, labour and a margin of up to 10 per cent for overheads.

In determining the present value, we will use a discount rate equal to our regulated pre-tax weighted average cost of capital. The asset life used in the calculation will be consistent with that set out in our distribution determination for the prevailing regulatory control period.

7 Further information

7.1 Contact

For more information about connecting to our network you may:

- visit our website <https://www.unitedenergy.com.au/your-electricity/new-connections/>
- email us via ueservicedesk@ue.com.au
- call us on 1300 131 689.

7.2 Complaints

We aim to provide our customers with a positive connection experience. However, if you ever find the service we provide is less than satisfactory, we encourage you to contact us via one of the ways outlined above so that we may address your concerns. All complaints are recorded for investigation and resolution. If the complaint is not resolved to your satisfaction, a dispute resolution process will start and a senior customer relations consultant will investigate the matter further.

If we cannot resolve your concerns you may contact the Victorian Energy and Water Ombudsman, the Australian Energy Regulator or raise the complaint on the Essential Services Commission (Victoria) complaints register.¹⁴

¹⁴ This register is being developed.

8 Augmentation unit rates

Table 2 Indicative augmentation unit rates (\$ per MVA, \$2018)

	Discounted cumulative unit rate
LV feeder	1,070,000
Distribution substation	757,000
HV feeder	570,000
Zone substation	415,000
Sub-transmission line	172,000

Source: United Energy

Note: The average augmentation unit rates are escalated each subsequent year by the Consumer Price Index (**CPI**). Overheads will be applied in addition to the augmentation rates

The following diversification rates are applied to these augmentation rates before they are applied.

Table 3 Diversification factors applied to augmentation rates

Customer type	Connection level	Diversification				
		LV	Dist Sub	HV	Zone Sub	Sub T
URD LV Residential (with gas)	LV Mains	0.38	0.34	0.30	0.27	0.26
	Dist Sub		0.34	0.30	0.27	0.26
	HV Feeder			0.30	0.27	0.26
LV Residential (with gas)	LV Mains	0.40	0.38	0.32	0.29	0.28
	Dist Sub		0.38	0.32	0.29	0.28
	HV Feeder			0.32	0.29	0.28
LV Residential (without gas)	LV Mains	0.40	0.38	0.32	0.29	0.28
	Dist Sub		0.38	0.32	0.29	0.28
	HV Feeder			0.32	0.29	0.28
Large LV < 170A	LV Mains	0.60	0.55	0.50	0.46	0.44
	Dist Sub		0.55	0.50	0.46	0.44
	HV Feeder			0.50	0.46	0.44
Very Large LV > 170A	Dist Sub		1.00	0.90	0.80	0.76
	HV feeder			0.90	0.80	0.76
	Zone Sub				0.80	0.76
HV Business	HV Feeder			0.95	0.88	0.84
	Zone Sub				0.88	0.84
Large HV Business	HV Feeder			1.00	0.90	0.86
	Zone Sub			1.00	0.90	0.86

Source: United Energy