

# Connection Policy 2020-2025

effective 1 July 2020



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# 1 Introduction

## 1.1 About Energex

Energex Limited (Energex) is part of the Energy Queensland Group. Energex manages an electricity distribution network that delivers world-class energy products and services to one of Australia's fastest growing communities – the South-East Queensland region. Energex has been supplying electricity to Queenslanders for more than 100 years and today provides distribution services to more than 1.4 million domestic and business connections, delivering electricity to a population base of around 3.4 million people via over 54,000 km of overhead and underground network.

## 1.2 Purpose and scope of document

This document is Energex's connection policy for the regulatory control period from 1 July 2020 to 30 June 2025. It sets out the nature of the connection services offered by Energex during this period, and the charges that may apply for those connection services.

This policy has been prepared in accordance with Part DA of Chapter 6 of the National Electricity Rules (the Rules), which requires distribution network service providers to prepare a connection policy setting out the circumstances in which a retail customer or real estate developer may be required to pay a connection charge for the provision of a connection service under Chapter 5A of the Rules. This document is also consistent with:

- the connection charge principles described in Part E of Chapter 5A of the Rules
- the "Connection charge guidelines for electricity retail customers" published by the Australian Energy Regulator (AER), and
- the AER's Framework and Approach decision for the proposed classification of services for the 2020-2025 regulatory control period.

This policy does not apply to Registered Participants or intending Registered Participants seeking to connect to Energex's distribution network under Chapter 5 of the Rules.

## 1.3 Connecting to the Energex distribution network

A connection is the physical link between a distribution system and a customer's premises to allow the flow of electricity. All customers will require network connection services to connect their premises to the Energex distribution system. Typically, a meter is also required in order to measure the amount of electricity that flows through the connection.

### 1.3.1 Connection services provided by Energex

As a distribution network service provider, Energex is responsible for providing connection services to customers to physically connect their premises to the Energex distribution network. These services include:

- connecting new premises to the distribution network (new connections)

- making alterations to existing connections where those existing connections are no longer able to meet customers' requirements, e.g. increasing the number of phases that supply a premises, relocating the incoming supply to a premises or changing from an overhead to an underground service (connection alterations), and
- establishing micro-embedded generator and embedded generator connections (which may be either new connections or connection alterations).

The provision of connection services may involve the establishment or modification of assets dedicated to the particular customer (connection assets), as well as extensions to, or augmentations of, the shared distribution network. An extension of the distribution network is where the present boundaries of the distribution network need to be extended to include a new power line or facility. An augmentation of the distribution network is where work is required to enlarge the existing network or increase its capacity to distribute electricity, e.g. by installing a larger transformer.

Charges for connection services will typically depend upon the customer connection type and the classification of the customer connection services required to make the connection.

### 1.3.2 Installation of meters

Apart from certain very limited cases where an unmetered connection is appropriate, customers connecting to Energex's distribution network will require a meter to measure the flow of electricity across the connection point, both for billing purposes and to access other services.

Energex is not responsible for installing or replacing meters at customers' premises. Instead, it is the responsibility of the customer's nominated electricity retailer to appoint a metering coordinator to provide this service, except where a customer has appointed their own metering coordinator.<sup>1</sup> Consequently, charges for new and replacement metering installations are the responsibility of the customer or their electricity retailer and are not discussed in this policy.

## 1.4 Supporting and technical documentation

This connection policy should be read in conjunction with Energex's connection manuals and technical standards. Current versions of these documents, as well as further information on the connection application process and applicable charges, are available on the Energex website: [www.energex.com.au](http://www.energex.com.au).

## 1.5 Contact details

You can contact our customer service centre via our website: [www.energex.com.au](http://www.energex.com.au); or by calling: 13 12 53.

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<sup>1</sup> Business customers who consume electricity at or above the upper consumption threshold of 100 MWh per annum are classified as large customers in Queensland and are able to appoint their own metering coordinator.

## 2 Classification of customer connections

In discussing connection services and charging arrangements, this policy refers to two types of customer connections, namely:

- small customer connections, and
- major customer connections.

The relevant type is determined by Energex based on the levels of expected energy consumption and generation, using information provided by the connection applicant in accordance with Energex's processes and procedures.

### 2.1 Small customer connections

Small customer connections are for those customers that fall within the Standard Asset Customer (SAC) tariff class under Energex's Annual Pricing Proposal, which is available on our website.<sup>2</sup>

Small customer connections typically include the connections of:

- residential dwellings and small commercial premises coupled and connected at low voltage or coupled at high voltage and connected at low voltage where the installed capacity is less than 1,000 kVA (1 MVA)
- unmetered supply connections, and
- micro-embedded generating units (as defined in Australian Standard AS/NZS 4777 "Grid connection of energy systems via inverters") with an installed capacity of less than or equal to 30 kVA e.g. solar, thermal or wind powered systems, energy storage (e.g. batteries), or hybrid systems (e.g. solar PV plus batteries).

Most small customer connections will only require standard connection assets which Energex must provide.<sup>3</sup> However, in some instances, there may need to be changes to the existing connection assets, or an extension to, or augmentation of, the shared distribution network.

#### 2.1.1 Residential and small commercial premises

Small customer connections are typically for residential customers and small commercial premises. The connection will involve either a low voltage overhead service connection or a low voltage underground service connection, depending on whether the distribution network in the customer's area is overhead or underground.

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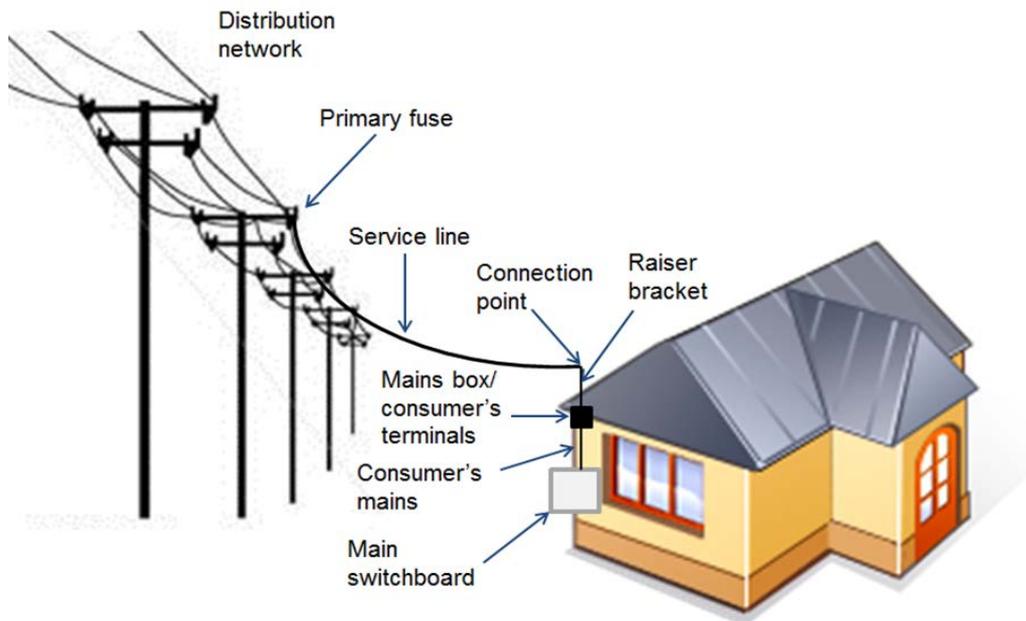
<sup>2</sup> Refer to Energex's Annual Pricing Proposal for full details of eligibility criteria for the SAC tariff class.

<sup>3</sup> Section 14(3) of the *Electricity Regulation 2006* (Qld) provides that the maximum length of a service line required to be provided and installed within a customer's premises by an electricity entity at the electricity entity's cost is: (a) 20 m for an overhead service; and (b) 7 m for an underground service line.

Underground and overhead service lines and associated equipment are typically dedicated connection assets used to connect a particular customer's electrical installation to the shared distribution network.

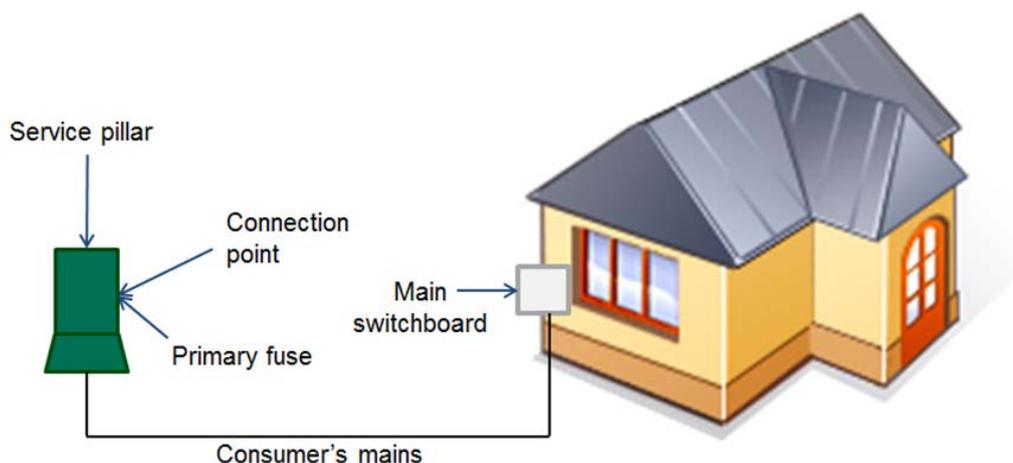
For premises located in an area with overhead power lines, the connection typically involves an overhead service wire and service fuses from an Energex-owned pole to a connection point on the customer's property. This is illustrated in the following diagram.

**Figure 1: Typical overhead connection for residential customer**



For premises located in an area with underground electricity supply, the connection typically involves the customer's consumer mains connecting into a connection point in an Energex-owned distribution service pillar. The customer is then responsible for the consumer's mains. This is illustrated in the following diagram.

**Figure 2: Typical underground connection for residential customer**



## 2.1.2 Unmetered supply

Energex offers unmetered supply connections in certain circumstances when it is considered impractical to read or maintain a meter or where metering equipment would be susceptible to damage. Connections that are eligible for unmetered supply are typically small, but must have a steady and uniform load, i.e. where the energy consumption can be accurately assessed without the need for a meter. Unmetered supply connections are generally provided for facilities such as customer-owned and operated street lights, bus shelters, watchman lights, illuminated signs, security cameras or traffic monitoring equipment.

## 2.1.3 Micro-embedded generating units

An embedded generating unit is an electricity generator that is connected to the distribution network (rather than the transmission network) and which may export electricity back into that distribution network. This term includes micro-embedded generating units that are connected to the network via an inverter and are defined in Australian Standard AS/NZS 4777 (generally up to 200 kW capacity). Micro-embedded generating units include solar, thermal or wind powered systems, energy storage (e.g. batteries), or hybrid systems (e.g. solar PV plus batteries).

The connection of one or more micro-embedded generating units is a small customer connection where the aggregate capacity of the generating units is less than or equal to 30 kVA. These micro-embedded generating units must comply with Energex's technical standards which can be found on our website.

## 2.2 Major customer connections

Major customer connections are defined in Energex's Annual Pricing Proposal as those connections that fall within the tariff classes of Connection Asset Customer (CAC) and Individually Calculated Customer (ICC),<sup>4</sup> embedded generators and real estate developments. Major customer connections will typically include:

- large commercial premises coupled at high voltage or sub-transmission with an installed capacity of greater than 1,000 kVA (1 MVA)
- micro-embedded generating units with an installed capacity of greater than 30 kW
- non-registered embedded generators (i.e. with an installed capacity of greater than 200 kW), and
- real estate developments, which include the commercial development of land in one or more of the following ways:
  - residential housing and commercial and / or industrial subdivisions

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<sup>4</sup> Refer to Energex's Annual Pricing Proposal for full details of eligibility criteria for CAC and ICC tariff classes.

- commercial and / or industrial multi-tenanted premises, e.g. shopping centres and office buildings, and
- multi-residential premises, e.g. residential unit towers.<sup>5</sup>

A new connection to Energex's distribution network is required by major customers who are establishing a new site. Alternatively, a major customer may require a connection alteration when the capacity of the existing installation no longer meets demand requirements. An extension to, or augmentation of, the shared distribution network may be required to make the connection.

Connection assets are all components used to connect a particular customer's electrical installation to the shared distribution network, which are not used by other customers (including any dedicated extension). The connection assets required to connect a major customer to the network can include:

- high voltage overhead or underground mains
- low voltage overhead or underground mains and services
- distribution transformers, and
- protection systems.

The network coupling point marks the boundary between the dedicated connection assets and the shared distribution network.

Real estate developers are responsible for the design and construction of electrical reticulation and connection assets within the development. The connection of real estate developments to the Energex distribution network will typically involve an extension to the distribution network and augmentation of the shared distribution network to cater for the expected future intended usage of the premises within the development.

Further information on the technical aspects of major customer connections is provided in the connection manuals and technical standards available on our website.

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<sup>5</sup> A real estate development involves the development of "land itself" for commercial gain. That is, where once developed, the land and any improvements thereon will generally be sold for commercial gain, e.g. a residential unit tower. This is to be distinguished from the development or construction of commercial or industrial premises on land, where that premises will be used for ongoing commercial or industrial purposes, e.g. a factory or mine site.

### 3 Connection offers

Distribution network service providers can provide three types of connection offers for new connections or connection alterations: basic, standard and negotiated.

The type of connection offer required will depend on criteria such as the connection type, the size and complexity of the connection and whether Energex will need to undertake work to extend or augment the distribution network. Many small customer connections are entitled to a basic connection offer (unless augmentation of connection assets, a network extension or augmentation of the shared network is needed to make the connection and / or the customer elects to negotiate the terms of their contract). Major customer connections will typically require a negotiated connection offer. Energex does not currently propose to provide an offer for standard connection services.

The table below summarises the most common connection offers based on the nature of the premises being connected.

**Table 1: Connection offer types**

Connection type	Demand / Capacity	Connection Offer Type	Section
Urban single residential premises or small commercial property	Less than or equal to 100 amps per phase	Basic	3.1
	Greater than 100 amps per phase	Negotiated	3.3
Rural single residential premises or small commercial property	Less than or equal to 80 amps per phase (or less than or equal to 10 kVA (approx. 40 amps) on SWER lines)	Basic	3.1
	Greater than 80 amps per phase (or greater than 10 kVA (approx. 40 amps) on SWER lines)	Negotiated	3.3
Urban temporary supply	Less than or equal to 100 amps per phase	Basic	3.1
	Greater than 100 amps per phase	Negotiated	3.3
Rural temporary supply	Less than or equal to 80 amps per phase (or less than 10 kVA (approx. 40 amps) on SWER lines)	Basic	3.1
	Greater than 80 amps per phase (or greater than 10 kVA (approx. 40 amps) on SWER lines)	Negotiated	3.3
Micro-embedded generating units	For connections to main grid lines less than or equal to 10 kVA rated capacity per phase with export capped at 5 kVA per phase	Basic	3.1
	For connections to main grid lines greater than 30 kW and less than or equal to 100 kW rated capacity with export capped at 15 kVA	Basic	3.1
	For connections to main grid lines greater than 100 kW and less than or equal to 200 kW rated capacity with export capped at 30 kVA	Basic	3.1
	For connections to SWER lines less than or equal to 10 kVA rated capacity per phase with export capped at 2 kVA	Basic	3.1
	All others	Negotiated	3.3
Non-registered embedded generators	Inverter capacity greater than 200 kW	Negotiated	3.3

Connection type	Demand / Capacity	Connection Offer Type	Section
Unmetered supply	Pre-approved unmetered devices	Basic	3.1
	Other unmetered devices	Negotiated	3.3
	Customer-owned and operated street lights	Basic	3.1
Large commercial premises (other than real estate developments)	Greater than 1,000 kVA (1 MVA)	Negotiated	3.3
Real estate developments	N/A	Negotiated	3.3

### 3.1 Basic connection offer

Energex is required to provide model standing offers for the provision of basic connection services which have been approved by the AER. These are available on the Energex website. Once a customer accepts the terms of a model standing offer, a connection contract for basic connection services is formed.

A basic connection offer will generally apply to the following connections:

- connection of residential and small commercial premises where:
  - supply is available, i.e. there is a line available, at the required voltage and with sufficient capacity for the proposed connection
  - there is minimal or no network augmentation required (other than network extension beyond the standard service line), and
  - the maximum connection capacity is 100 amps per phase for urban premises,<sup>6</sup> 80 amps per phase for rural premises<sup>7</sup> or 10 kVA on SWER lines;
- connection of micro-embedded generating units where:
  - capacity is available, i.e. there is a line available and the network assets in that area have sufficient rated capacity to support the connection
  - generation is balanced across phases
  - the micro-embedded generating units are connected to a main grid line and have:
    - a rated capacity of less than or equal to 10 kVA per phase and an export limit of up to 5 kVA per phase
    - a rated capacity of greater than 30 kW and less than or equal to 100 kW and an export limit of up to 15 kVA, or
    - a rated capacity of greater than 100 kW and less than or equal to 200 kW and an export limit of up to 30 kVA, or

<sup>6</sup> Premises connecting to an Energex feeder classified as either a “CBD feeder” or “urban feeder” (refer to glossary in section 7 for definitions).

<sup>7</sup> Premises connecting to an Energex feeder classified as a “short rural feeder” (refer to glossary in section 7 for definition).

- the micro-embedded generating units are connected to a SWER line and have a rated capacity of less than or equal to 10 kVA per phase and an export limit of up to 2 kVA in total.
- connection of certain unmetered supplies, such as where the device to be connected has been pre-approved as a Type 7 compliant device (which includes some CCTV and security cameras, illuminated signs and traffic monitoring equipment) or is a customer-owned and operated street light, where supply is available and minimal network augmentation is required, and
- temporary connections for short-term supply with a maximum connection capacity of 100 amps per phase for urban premises, 80 amps per phase for rural premises or 10 kVA (approx. 40 amps) on SWER lines.

The majority of small customers seeking to connect to Energex's distribution network or alter an existing connection will typically not require significant augmentation and, as such, will receive a basic connection offer.

Customers eligible for a basic connection offer will generally not be required to pay an upfront fee for the installation of connection assets. Instead, Energex will recover the costs for the connection assets through the annual network charges paid by all customers who use the distribution network (see section 4.3).

All connection applicants have a right to negotiate the terms and conditions of their connection contract. Where the connection applicant elects to negotiate the terms and conditions of their connection, the model standing offer for basic connection services will not apply. In these circumstances, Energex will prepare a negotiated connection offer (see section 3.3 below).

From time to time, Energex may seek the AER's approval to offer other basic connection services in addition to those listed above. Current information on model standing offers approved by the AER will be maintained on the Energex website.

## 3.2 Standard connection offer

In a similar manner to basic connection services, Energex may offer standard connection services for a particular class of connection service for which a model standing offer has been approved by the AER.

However, at this stage Energex is not proposing to offer any standard connection services. Energex may seek the AER's approval to offer standard connection services in the future. Current information on any model standing offers approved by the AER for the provision of standard connection services will be maintained on the Energex website.

### 3.3 Negotiated connection offer

A negotiated connection offer will generally apply for the following connections:

- connection of residential and small commercial premises where:
  - supply is not readily available and / or network augmentation is required, or
  - the maximum connection capacity exceeds 100 amps per phase for urban premises,<sup>8</sup> 80 amps per phase for rural premises<sup>9</sup> or 10 kVA (approx. 40 amps) on SWER lines
- connection of certain unmetered supplies not covered by basic connection services, such as non-pre-approved devices and more complex street lighting arrangements, or where capacity is not available and network augmentation is required
- connection of micro-embedded generating units where:
  - supply is not available and / or network augmentation is required, or
  - the micro-embedded generating unit does not fall within the relevant capacity and export limitations for a basic connection service
- major customer connections, including for non-registered embedded generators and real estate developments, and
- any basic connection service where the customer elects to negotiate the terms of the connection contract.

The connection charges associated with negotiated connection offers will vary, depending on customer type and the specific requirements of the connection service (see section 4 for information on connection charges).

A negotiated connection contract is entered into when a customer accepts Energex's negotiated connection offer.

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<sup>8</sup> Premises connecting to an Energex feeder classified as either a "CBD feeder" or "urban feeder" (refer to glossary in section 7 for definitions).

<sup>9</sup> Premises connecting to an Energex feeder classified as a "short rural feeder" (refer to glossary in section 7 for definition).

## 4 Charges for connection services

### 4.1 Basis for determining charges for connection services

The AER regulates the charges that Energex may impose for specific services.

The connection charges payable by a customer to Energex will (where applicable) be comprised of the following components:

- connection charges for services classified as alternative control services
- capital contributions for services classified as standard control services, and
- connection charges for extension assets to which a pioneer scheme applies.

These connection charges are explained below.

### 4.2 Connection charges for alternative control services

Alternative control services are generally customer-specific or customer-requested services. These services are commonly provided by Energex, but some services may be subject to competition. Where an alternative control service is provided by Energex, the full cost of the service can be recovered from customers using that service.

Consequently, customers will generally be required to pay a connection charge for each of the services detailed in the table below (where applicable).

**Table 2: Alternative control services**

Service	Description
Connection application and management services	Works initiated by a customer or retailer which are specific to the connection point. Includes, but is not limited to: <ul style="list-style-type: none"><li>• connection application related services</li><li>• de-energisation</li><li>• re-energisation</li><li>• protection and power quality assessment</li><li>• customer-requested change requiring primary and secondary plant studies for safe operation of the network (e.g. change to protection settings)</li><li>• rectification of illegal connections or damage to overhead or underground service cables</li><li>• calculation of a site-specific distribution loss factor on request in respect of a generating unit up to 10 MW or a connection point for an end-user with actual or forecast load up to 40 GWh per annum capacity as per clause 3.6.3(b1) of the Rules, and</li><li>• power factor correction.</li></ul>
Premises connections for major customer connections (including dedicated network extensions for the connection)	New or upgraded connection assets including any extension required to connect a power line or facility outside the present boundaries of the distribution system where that extension will be dedicated to the exclusive use of the major customer.  This service includes the design, construction, commissioning and energisation of those assets (including associated administration services, e.g. reconciling project financials) and any generation that may be required to supply existing customers while equipment is de-energised to allow the testing, commissioning and energisation of the assets to occur.

Service	Description
Real estate development connections	Connection services associated with real estate development connections will cover design assessment and contract negotiation, and the design, construction, audit, commissioning and energisation of connection assets. <sup>10</sup>
Temporary connections	Temporary connection for short-term supply (including temporary builder's supply) requested by a customer (or by a retailer or other agent on behalf of a customer).
Connection alterations	Work initiated by a customer specific to an existing connection, including, but not limited to, supply abolishment (i.e. where the connection is no longer required), relocation of the point of attachment, re-arrangement of connection assets, replacement of an overhead service line (e.g. as a result of a point of attachment relocation), supply enhancement (e.g. upgrade from single phase to three phase) and upgrade from overhead to underground service.
Non-standard unmetered supply	Augmentation of connection assets at the customer's connection point or network extension dedicated to the exclusive use of the customer required to provide the connection service.
Enhanced connection services	Other or enhanced connection services provided at the request of a customer or third party that include those that are: <ul style="list-style-type: none"> <li>provided with a higher quality of reliability standards, or lower quality of reliability standards (where permissible) than required by the Rules or any other applicable regulatory instruments</li> <li>in excess of levels of service or plant ratings required to be provided by the distributor, or</li> <li>associated with augmenting the shared network to remove a constraint faced by an embedded generator, including micro-embedded generating units with an aggregate capacity greater than 30 kW.</li> </ul>

Information on specific charges is available in the Energex Alternative Control Services Price List, which is available on the Energex website.

### 4.3 Capital contributions for standard control services

Standard control services are generally those services that are central to the supply of electricity and provided by Energex, including the design, construction and operation of the shared network, and small customer connections. Costs for these services are recovered through network charges for all relevant customers. However, under certain circumstances, customers may be required to contribute towards the costs associated with a standard control service (referred to as a "capital contribution").

Energex's network charges for standard control services are based on assumptions about the typical nature of connections and the number of new connections to be made over the planning horizon,<sup>11</sup> which in turn determines the required capacity of the network. Where a new connection or connection alteration is non-standard and / or made outside the planning horizon, Energex incurs costs that are not recovered through the network charges for standard control services.

Capital contributions are contributions by the connection applicant towards the cost of network extension, other network augmentation or connection assets required to enable the new connection or connection alteration to be made. Where a capital contribution is required, this will be specified in the connection offer and will be required to be paid as set out in section 4.6.

<sup>10</sup> The real estate developer is required to fully fund the electrical works needed to make supply available to the development in accordance with the relevant council development application conditions and Energex standards. The connection assets are "gifted" to Energex following final product audit and acceptance of the installation.

<sup>11</sup> The planning horizon for Energex's future works is five years.

**Table 3: Standard control services**

Service	Description
Premises connections for small customer connection	An addition or alteration to connection assets dedicated to the relevant connection point.
Network extension	An extension required to connect a power line or facility outside the present boundaries of the distribution system to facilitate: <ul style="list-style-type: none"><li>• a new or altered major customer connection where there is a reasonable likelihood that the network extension will be used to supply another customer or customers within the planning horizon, or</li><li>• a new or altered small customer connection.</li></ul>
Augmentation of the shared network	Any shared network enlargement or enhancement undertaken to facilitate a new or altered small customer connection or major customer connection (other than an embedded generator connection).

### 4.3.1 Determining when a capital contribution is required

Energex will, on a case by case basis, assess whether a customer is required to make a capital contribution towards the costs associated with providing a connection service, taking into consideration whether:

- augmented connection assets are required for a small customer connection, in which case the customer may be required to make a capital contribution towards the costs (depending on the outcome of the cost-revenue-test outlined in section 4.3.3 below)
- network extension assets are required solely for the benefit of a small customer connection (i.e. dedicated to the exclusive use of the customer), in which case the customer may be required to make a capital contribution towards the costs (depending on the outcome of the cost-revenue-test outlined in section 4.3.3 below)
- augmentation of connection assets and / or network extension is required solely for the benefit of a major customer (i.e. dedicated to the exclusive use of the customer), in which case the customer will be required to fully fund the assets and associated connection works through an alternative control connection service charge (and a capital contribution will therefore not be required), and
- augmentation of the shared distribution network is required for either a small customer connection that exceeds the shared network augmentation threshold (see section 4.3.2 below) or a major customer connection, in which case a capital contribution may be required (depending on the outcome of the cost-revenue-test outlined in section 4.3.3 below).

Where Energex considers there is a reasonable likelihood that a network extension will be used to supply another customer or customers within seven years, the assets will be considered to form part of the shared network and no capital contribution will be required. Otherwise, the extension assets will be regarded as dedicated to the exclusive use of the customer.

### 4.3.2 Shared network augmentation threshold

Capital contributions for network augmentation (other than a network extension beyond the standard service line) are not applicable where the maximum demand at the connection point:

- does not exceed 100 amps per phase for urban premises;<sup>12</sup>
- does not exceed 80 amps per phase for rural premises;<sup>13</sup> or
- does not exceed 10 kVA (approx. 40 amps) on SWER lines.

### 4.3.3 Method of calculating capital contributions (the cost-revenue-test)

Where applicable, the capital contribution amount will be calculated in the following manner:

$$\text{Capital Contribution (CC)} = \text{ICCS} + \text{ICSN} - \text{IR}(n=X)$$

Where:

ICCS	=	Incremental Cost Customer Specific
ICSN	=	Incremental Cost Shared Network
IR(n=X)	=	Incremental Revenue

A capital contribution is only payable where the incremental costs exceed the incremental revenue, i.e.  $CC > \$0$ .

The **Incremental Cost Customer Specific (ICCS)** is the incremental costs incurred by Energex that are specific to the connection, such as:

- costs of providing or augmenting any connection assets at the customer's premises
- costs of any dedicated network extension
- administration costs (including design and certification costs)
- costs of providing any other standard control services which are used solely by the customer, and
- tender costs (where applicable).

The **Incremental Cost Shared Network (ICSN)** is the network costs incurred by Energex as a result of the new or altered connection, but which are not specific to the connection, such as network augmentation (other than an extension beyond the standard service line). The ICSN is determined on the basis of unit rates, as follows:

$$\text{ICSN} = \text{Unit Rate} \times \text{Demand Estimate}$$

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<sup>12</sup> Premises connecting to an Energex feeder classified as either a "CBD feeder" or "urban feeder" (refer to glossary in section 7 for definitions).

<sup>13</sup> Premises connecting to an Energex feeder classified as a "short rural feeder" (refer to glossary in section 7 for definition).

Where:

Unit Rate	=	Average cost of network augmentation (other than an extension beyond the standard service line) per unit of added capacity, expressed as \$/kVA.
Demand Estimate	=	Estimated maximum demand at the connection point, measured in kVA.

The unit rates used to determine the ICSN for the 2020-2021 financial year are set out in the table below.<sup>14</sup> The process for determining the estimated maximum demand is set out in section 4.3.5 of this policy.

**Table 4: ICSN unit rates for 2020-2021**

Voltage Level	\$ / kVa per annum (excl. GST)
Subtransmission	\$6
High Voltage	\$42
Low Voltage	\$80

Note: Energex will set the shared network augmentation costs on a case-by-case basis based on the connection type, customer's expected demand and location of the connection on the distribution network.

The **Incremental Revenue** (IR( $n=X$ )) will be the net present value of all of the expected Distribution Use of System (DUoS) charges recoverable from the customer. Energex will apply the following principles in estimating the IR:

- forecast DUoS revenue will be based on the price path set out in the AER's determination for 1 July 2020 to 30 June 2025 and the relevant network tariffs as set out in Energex's approved Annual Pricing Proposal and Tariff Structure Statement (both available on our website). For the period from 1 July 2025, Energex will assume a constant tariff in real terms
- a discount rate based on Energex's approved regulatory weighted average cost of capital converted to pre-tax terms using the estimated average effective tax rate for the regulatory control period will be applied
- a 30 year discount period will be applied for residential customers
- if the customer is a business customer, then an assumed connection period of 15 years will be applied when calculating the expected DUoS charges recoverable from the customer. However, where a 15 year connection period does not reflect a reasonable estimate of the time that the connection service will be connected, Energex may apply an alternative assumed connection period for that connection service
- for basic connection offers and where the connection falls below the shared network augmentation charge threshold, Energex will exclude from the IR the portion of DUoS charges attributable to augmentation of the shared network where it is estimated to be material, and

<sup>14</sup> For subsequent years of the 2020-2025 regulatory control period, the unit rates will be escalated using the Australian Bureau of Statistics (ABS) Consumer Price Index (CPI) All Groups, Weighted Average of Eight Capital Cities, March to March Quarter, (ABS Catalogue 6401.0).

- Energex will ensure that operational and maintenance costs have no net impact on the capital contribution payable by the customer.

All capital contributions will be calculated specifically for the applicant. Energex does not apply pre-calculated capital contributions.

#### **4.3.4 Accounting treatment of augmentation assets**

Under the Rules, Energex may not recoup a return on, or of,<sup>15</sup> the asset to the extent that the asset was funded through a capital contribution. Accordingly, to the extent that these assets have been so funded, they will not be considered in determining the revenue to be recovered from standard control services.

Where the capital contribution is provided as an “in-kind” contribution, as is commonly the case for electrical reticulation and connection assets within a real estate development, the fair and reasonable value of the contribution will be determined using the AER-approved formula for major customers.

#### **4.3.5 Measuring demand and consumption**

Where the connection applicant is required to make a capital contribution, the connection offer made by Energex will set out the demand and consumption estimates used to determine the amount of the capital contribution.

Energex will generally determine the consumption and demand based on the information supplied in the connection application. Where specific consumption and demand information is not provided in the connection application, Energex will base the estimates on load patterns of similar customers and apply the general principles we use to determine a customer’s tariff class, as set out in our annual AER-approved Pricing Proposal. Similarly, Energex may also take into account the impact of complementary technologies, such as solar PV and energy storage systems, on likely demand and consumption.

Where Energex and the connection applicant (other than a real estate developer)<sup>16</sup> cannot reach agreement on the estimated demand and consumption for use in determining the capital contribution payment for the connection point, Energex will apply a provisional estimate.

Where a provisional estimate has been used to determine a capital contribution, the connection applicant may be subject to an additional charge or refund for the difference between the actual consumption and demand and provisional estimates of consumption and demand. Energex will assess the additional charge or refund payable within three years of the connection being energised. The amount of the additional charge or refund will be the difference between the actual capital contribution paid and that calculated based on the actual demand and consumption.

An additional charge or refund is only applicable where the connection applicant is still solvent and continuing to utilise the premises.

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<sup>15</sup> The return of the asset refers to depreciation.

<sup>16</sup> Where Energex and a real estate developer cannot agree on the forecast level of consumption and / or demand for the premises within the development for the purposes of determining the capital contribution, the connection offer will be based on Energex’s reasonable estimate of the level of future consumption and / or demand.

## 4.4 Pioneer scheme for customer funded network extension assets

If a network extension asset ceases, within seven years after its installation and energisation, to be dedicated to the exclusive use of the customer occupying the premises, the customer may be entitled to a partial refund of connection charges under an Energex pioneer scheme.

A pioneer scheme will apply to all dedicated network extensions which have either been fully funded by a customer or towards which a customer has paid a capital contribution. Pioneer schemes will not be applied to shared network augmentations.

When a subsequent customer connects to a network extension which is subject to a pioneer scheme, Energex will provide each customer already connected to the extension with a partial refund and charge subsequent customers the amount determined by the pioneer scheme.

Energex will calculate the charge from a subsequent customer and refund to each customer already connected to an extension by:

- taking into account the physical attributes (i.e. length) a subsequent customer uses of an extension asset relative to other customers already connected to the extension, or
- taking into account the amount of electricity demand used by a subsequent customer relative to other customers already connected to the extension, and
- depreciating extension assets over 20 years using a straight line depreciation method.

However, if Energex's pioneer scheme calculates a total refund to all customers already connected to the extension that is less than \$1,000 (\$, real 2012),<sup>17</sup> Energex will not pay a refund to these customers and will not charge the customer connecting to the extension.

All customers who fund a dedicated network extension will be advised that they may be entitled to a partial refund under a pioneer scheme. Energex will also advise all new customers who apply for connection services that they may be required to contribute towards a pioneer scheme (where applicable).

Where a new customer contributes an amount towards a pioneer scheme, Energex will forward the refund to the current owner of the premises as soon as practicable.

### 4.4.1 Method for calculating a refund of connection charges

The contribution by a subsequent customer to network extension works previously funded by the original customer will either be based on the physical attributes of the extension assets or the demand of a subsequent customer.<sup>18</sup>

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<sup>17</sup> This threshold will be escalated annually using the Australian Bureau of Statistics (ABS) Consumer Price Index (CPI) All Groups, Weighted Average of Eight Capital Cities, March to March Quarter, (ABS Catalogue 6401.0).

<sup>18</sup> The method used for calculating a refund will be determined based on whether the network extension assets funded by the original customer are distribution lines (i.e. a calculation based on length of extension) and / or assets other than distribution lines (i.e. a calculation based on electricity demand).

- **Calculation based on length of extension**

Following is the method Energex will use when calculating refunds based on the length of the original customer's extension:

$$\frac{\text{Cost of original customer's extension x depreciation factor}}{\text{Number of new customers + original customer}} \times \frac{\text{Length of original customer's extension to be used by new customer}}{\text{Total length of original extension}} \times \frac{\text{CPI(2)}}{\text{CPI(1)}}$$

- **Calculation based on electricity demand**

Energex may also take into account the amount of electricity demand to be used by a subsequent customer relative to other customers already connected to the extension. The method Energex will use when calculating refunds based on electricity demand will be as follows:

$$\frac{\text{Cost of original customer's extension x depreciation factor}}{\text{Demand required by new customer of original customer's extension}} \times \frac{\text{Sum of the demand required by all customers already connected to the original customer's extension}}{\text{CPI(2)}} \times \frac{\text{CPI(1)}}{\text{CPI(1)}}$$

Where:

Cost of original customer's extension	=	Where the original network extension was funded by a large customer as an alternative control service, actual cost, or  Where the original network extension was partially funded by a capital contribution, the amount of capital contribution paid by the original customer.
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Number of new customers	=	The number of new customers seeking an offer to connect to the network extension.
Depreciation factor	=	Apply straight line depreciation, over a twenty year asset life.
CPI(1)	=	The average of the consumer price indices (All Groups, All Capital Cities), published by the Australian Bureau of Statistics, for the previous four quarters immediately prior to the date that the original customer's extension works are completed.
CPI(2)	=	The average of the consumer price indices (All Groups, All Capital Cities), published by the Australian Bureau of Statistics, for the previous four quarters immediately prior to the date of the new customer's application for customer connection services.

#### 4.4.2 Subsequent refunds

For subsequent refunds, the extension assets subject to any pioneer scheme will be recorded according to the sharing arrangements prevailing at the time.

If a subsequent customer connects to the original customer's extension assets, the original customer will potentially hold:

- assets not already shared with any other customers, and / or
- assets already shared with one or more subsequent connecting customers.

When calculating any subsequent refunds, Energex will depreciate the value of assets to reflect their remaining life and appreciate the value in line with the CPI since the previous refund. The amount of the refunds in relation to each shared or non-shared component of the original customer's extension assets will then be calculated in accordance with section 4.4.1 above.

#### 4.4.3 Application of pioneer schemes

Energex will take the following into consideration when establishing pioneer schemes and calculating a refund of connection charges:

- if an original customer requests a connection to be constructed to a higher standard or capacity than the least cost technically acceptable standard, then only the cost of constructing the connection to the least cost technically acceptable standard or capacity will be subject to the pioneer scheme
- if Energex requires an extension to be built to a higher standard or capacity than required by an original customer, other than a real estate developer, the original customer will only pay for the extension to the standard required or capacity for its connection service and only the extension necessary for the original customer will be subject to a pioneer scheme

- if Energex requires an extension to be built to a higher standard or capacity than required by a real estate developer and Energex charges a capital contribution for augmentation to the network to allow for forecast load growth, then the extension will be subject to a pioneer scheme, unless the real estate developer and Energex agree that Energex should only charge the real estate developer for the portion of the total cost attributable to the real estate developer, and
- any pioneer scheme applied to real estate developments would only apply to customers connecting to the extension assets outside the pioneer developer's site boundary and not to premises connecting within the development.

## 4.5 Security fee

Energex may require the payment of a security fee where we consider that there is a high risk that we may not earn the estimated incremental revenue from the connection services Energex is to provide.

Should Energex require a security fee, it may require an amount to be paid either upfront, or by way of a financial security (e.g. a bank guarantee) to be provided (in Energex's discretion) in the amount which is the lesser of the incremental revenue at risk of non-recovery or the incremental cost incurred by Energex.

Where the security fee is provided as an upfront payment, Energex will rebate the security fee via annual instalments, with the annual rebate being the:

- interest earned on the security,<sup>19</sup> calculated at the interest rate (cost of debt) approved by the AER for the revenue determination, plus
- the lower of:
  - the actual incremental revenue received from the customer for the year, and
  - the security fee that was paid for that year.

Energex will not:

- require a security fee for an amount that exceeds the value of the incremental revenue which is at risk of not being recovered
- require a security fee for an amount that exceeds the present value of the incremental costs incurred by Energex, or
- require a security fee where the total value of the network augmentation or connection asset augmentation is valued at less than \$10,000.

Security fees are not intended to cover defects in workmanship where the connection assets are constructed by a third party. Separate warranties will be sought to cover these risks.

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<sup>19</sup> Generally, Energex does not earn interest on the security fees it holds.

## 4.6 Payment of connection charges

Charges for connection services may be payable either through the customer's electricity retail account or directly to Energex, depending on the type of connection. Customers will be advised of connection charges and payment requirements in their connection offer.

### 4.6.1 Payment of small customer connection charges

Energex will generally not invoice customers directly for most connection charges for small customer connections but will pass these charges on to the customer's electricity retailer for inclusion in the customer's next electricity account.

However, under certain circumstances, Energex may seek advance payment of connection charges for connection application and management services before the commencement of construction work. When a customer is required to pay a capital contribution for a standard control service, payment will be required prior to commencement of construction.

### 4.6.2 Payment of major customer connection charges

Energex will generally require the connection applicant to pay the charges for connection application and management services at the time the services are provided.

Energex will also typically require advance payment of connection charges, including capital contributions, for major customer connections prior to commencement of construction work.

Where these connection charges are more than the prepayment threshold of \$5,000 (\$, real 2012),<sup>20</sup> the payments may be staged if the construction:

- is not expected to commence for three months or more, or
- can be logically segmented into distinct stages of construction.

Where the connection charges are greater than the prepayment threshold and construction is not expected to commence for three months or more, the following staged payments may apply:

- at connection offer acceptance:
  - sunk costs for design and administration already incurred by Energex
  - costs for design and administration that Energex will incur immediately after offer acceptance, and
  - costs for specialised or non-standard assets that Energex will need to procure prior to construction commencing, and
- the balance of all connection charges three weeks prior to construction commencement.

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<sup>20</sup> This threshold will be escalated annually using the Australian Bureau of Statistics (ABS) Consumer Price Index (CPI) All Groups, Weighted Average of Eight Capital Cities, March to March Quarter, (ABS Catalogue 6401.0).

Where the connection charges are greater than the prepayment threshold and construction can be logically segmented into distinct construction stages, the following staged payments will apply:

- at connection offer acceptance:
  - sunk costs for design and administration already incurred by Energex
  - costs for detailed design and administration that Energex will incur immediately after offer acceptance, and
  - costs for specialised or non-standard assets that Energex will need to procure prior to construction commencing, and
- three weeks prior to commencement of each construction stage, a staged payment of the connection charge that reasonably reflects the costs that Energex will incur in the construction stage.

## 5 Contestability of services

There is currently limited contestability for the provision of electricity distribution network connection services in Queensland.

The following works in relation to major customer connections may only be carried out by Energex:

- augmentation of the distribution network
- the design and construction of any part of the connection assets within an Energex bulk supply or zone substation (e.g. 132/33 kV, 33/11 kV substations)
- the design and construction of relay operated switchgear that will be part of Energex's direct network system, and
- the testing, commissioning and energisation of works.

For some connections defined as major customer connections, a customer may be able to choose either Energex or an approved service provider to undertake the design and construction of new connection assets to be funded by the customer. However, the design and construction of connection assets by approved service providers is only permitted for certain asset types.

Energex may exclude certain categories of works required for the design and construction of connection assets from being undertaken by external providers based on safety, technical or environmental reasons. In these cases the works will be undertaken by Energex and funded by the customer. These exclusions will be subject to review from time to time.

Further information about contestability of services and the accreditation of third party service providers is provided in the connection and technical documentation available on our website.

## 6 Dispute resolution

Disputes between Energex and customers will be managed in accordance with Energex's standard complaints and dispute resolution procedure, details of which are available on Energex's website. Energex will make every endeavour to resolve connection disputes in a timely manner.

Where agreement on the terms and conditions of the connection offer cannot be reached, the AER may consider and make determinations regarding customer connection disputes between a customer and Energex. The AER is responsible for making determinations on customer connection disputes with electricity distribution businesses under Part 10 of the National Electricity Law. Information on the AER's customer connection dispute resolution process is available on the AER's website: [www.aer.gov.au](http://www.aer.gov.au).

## 7 Glossary

### 7.1 Abbreviations

AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
CC	Capital Contribution
CPI	Consumer Price Index
Energex	Energex Limited
ICCS	Incremental Cost Customer Specific
ICSN	Incremental Cost Shared Network
IR	Incremental Revenue
kVA	Kilovolt amperes
kW	Kilowatt
MVA	Megavolt amperes
PV	Photovoltaic

### 7.2 Definitions

Term	Definition
Alternative Control Services (ACS)	A distribution service provided by Energex that the AER has classified as an alternative control service under the Rules.
Approved Service Provider	A person or organisation authorised by Energex to carry out the design and / or construction of certain electrical works.
Augmentation	Work to enlarge the distribution system or to increase its capacity to transmit or distribute electricity.
Australian Energy Regulator (AER)	The federal government body responsible for the economic regulation of electricity distribution services provided in the National Grid.
Basic connection services	A connection service that meets the requirements for a basic connection service, as set out in section 3.1 of this Connection Policy.
Capital contribution	A contribution by a connection applicant towards costs associated with a standard control connection service.
CBD feeder	A feeder supplying predominantly commercial high-rise buildings, supplied by a predominantly underground supply network containing significant interconnection and redundancy when compared to urban areas.
Connection	A physical link between a distribution system and a retail customer's premises to allow the flow of electricity.
Connection alteration	An alteration to an existing connection including an addition, upgrade, extension, expansion, augmentation or any other kind of alteration.
Connection applicant	An applicant for a connection service who is a retail customer, a retailer or other person acting on behalf of a retail customer or a real estate developer.
Connection application	An application made under clause 5A.D.3 of the Rules.
Connection assets	The components of a distribution system used to provide connection services.

Term	Definition
Connection charge	A charge imposed by a Distribution Network Service Provider for a connection service.
Connection contract	A contract formed by the making and acceptance of a connection offer.
Connection offer	An offer by a Distribution Network Service Provider to enter into a connection contract with a retail customer or a real estate developer.
Connection point	The agreed point of supply established between Network Service Provider(s) and another Registered Participant, Non-Registered Customer or franchise customer.
Connection policy	A document, approved as a connection policy by the AER under Chapter 6 of the Rules, setting out the circumstances in which connection charges are payable and the basis for determining the amount of such charges.
Connection service	Means either or both of the following: (a) A service relating to a new connection for premises; (b) A service relating to a connection alteration for premises. but, to avoid doubt, does not include a service of providing, installing or maintaining a metering installation for premises.
Contestable	A service is contestable if the laws of the participating jurisdiction in which the service is to be provided permit the service to be provided by more than one supplier as a contestable service or on a competitive basis.
Distribution Network Service Provider	A person who engages in the activity of owning, controlling, or operating a distribution system. Energex is a Distribution Network Service Provider.
Distribution system	A distribution network, together with the connection assets associated with the distribution network, which is connected to another transmission or distribution system. Connection assets on their own do not constitute a distribution system.
Embedded generator	A person that owns, controls or operates an embedded generating unit. It includes those customers with micro-embedded generation as per Australian Standard AS/NZS 4777 ( <i>Grid connection of energy systems via inverters</i> ) with an installed capacity of up to 200 kW.
Extension	An augmentation that requires the connection of a power line or facility outside the present boundaries of the transmission or distribution network owned, controlled or operated by a Network Service Provider.
Final Distribution Determination	The AER's Final Distribution Determination sets the revenue and pricing control regime that Energex must comply with for the regulatory control period.
Long rural feeder	A feeder which is not an urban feeder or isolated feeder and has a total feeder route length of greater than 200 km.
Major customer connection	Connections for those customers who fall within the tariff classes of Individually Calculated Customer (ICC) and Connection Asset Customer (CAC), embedded generators and real estate developments, as defined in Energex's Annual Pricing Proposal.
Micro-embedded generator	A retail customer who operates, or proposes to operate, an embedded generating unit for which a micro-embedded generator connection is appropriate.
Micro-embedded generator connection	A connection between an embedded generating unit and a distribution network of the kind contemplated by Australian Standard AS/NZS 4777 ( <i>Grid connection of energy systems via inverters</i> ).
Model standing offer	A document approved by the AER as a model standing offer to provide basic connection services or as a model standing offer to provide standard connection services.
National Electricity Market	The wholesale exchange operated and administered by AEMO.
National Electricity Rules	Rules made under the National Electricity Law which govern the operation of the National Electricity Market.

Term	Definition
National Grid	The interconnected transmission and distribution systems within Queensland, New South Wales, Victoria, Tasmania, South Australia and the Australian Capital Territory.
Negotiated connection	A connection that is not a basic or standard connection.
Network	The apparatus, equipment, plant and buildings used to convey, and control the conveyance of, electricity to customers (whether wholesale or retail) excluding any connection assets. In relation to a Network Service Provider, a network owned, operated or controlled by that Network Service Provider.
Network coupling point	The point at which connection assets join a distribution network, used to identify the distribution service price payable by a customer.
Network service provider	A person who engages in the activity of owning, controlling or operating a transmission or distribution system and who is registered by AEMO as a Network Service Provider under Chapter 2 of the Rules. Energex is a network service provider.
New connection	A connection established or to be established in accordance with Chapter 5A of the Rules and applicable energy laws, where there is no existing connection.
Non-registered embedded generator	An embedded generator that is neither a micro-embedded generator nor a Registered Participant.
Original customer	The connection applicant who triggered the requirement and paid for the construction of an extension asset.
Pioneer scheme	A scheme to enable a customer who has either fully funded or paid a capital contribution towards a dedicated network extension to receive a refund if the network extension is subsequently used by other customers within seven years after its installation and energisation.
Real estate developer	A person who carries out a real estate development.
Real estate development	The commercial development of land including its development in one or more of the following ways: <ul style="list-style-type: none"> <li>residential housing and commercial and / or industrial subdivisions;</li> <li>commercial and / or industrial multi-tenanted premises; and</li> <li>multi-residential premises.</li> </ul>
Registered Participant	A person who is registered by AEMO in any one or more of the categories listed in rules 2.2 to 2.7 of the Rules (in the case of a person who is registered by AEMO as a Trader, such a person is only a Registered Participant for the purposes referred to in rule 2.5A). However, as set out in clause 8.2.1(a1), for the purposes of some provisions of rule 8.2 only, AEMO, Connection Applicants, Metering Providers and Metering Data Providers who are not otherwise Registered Participants are also deemed to be Registered Participants.
Regulatory control period	A period of no less than five regulatory years for which the Distribution Network Service Provider is subject to a control mechanism imposed by a distribution determination.
Retail customer	A small customer or a large customer, including a non-registered embedded generator and a micro-embedded generator.
Rules	The National Electricity Rules.
Short rural feeder	A feeder which is not an urban feeder or CBD feeder.
Small customer connection	Connections for those customers that fall within the Standard Asset Customer (SAC) tariff class in accordance with Energex's Annual Pricing Proposal.
Standard connection service	A connection service (other than a basic connection service) for a particular class (or sub-class) of connection applicant and for which a model standing offer has been approved by the AER.

Term	Definition
Standard service line lengths	<p>Section 14(3) of the Electricity Regulation 2006 (Qld) provides that the maximum length of a service line required to be provided and installed within a customer's premises by an electricity entity at the electricity entity's cost is:</p> <ul style="list-style-type: none"> <li>(a) 20m for an overhead service line; or</li> <li>(b) 7m for an underground service line.</li> </ul>
Subsequent customer	A connection applicant, other than the original customer, who connects to an extension subject to a pioneer scheme.
Urban feeder	A feeder which is not a rural feeder or CBD feeder and has an annual actual maximum demand per total feeder route length of greater than 0.3 MVA/km.