

Final Decision

Essential Energy

Electricity Distribution

Determination 2024 to 2029

(1 July 2024 to 30 June 2029)

Attachment 18
Connection Policy

April 2024

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Contents

List of attachments	iii
18 Connection Policy	1
18.1 Final decision.....	2
18.2 Essential Energy’s revised proposal	3
18.3 Assessment approach	3
18.4 Reasons for final decision.....	3
18.5 AER approved connection policy	5
Shortened forms	6

18 Connection Policy

We are required to make a decision on the connection policy that is to apply to Essential Energy for the 2024-29 regulatory control period. This may be the connection policy prepared by a distributor, some variant of it, or a policy substituted by us under the National Electricity Rules (NER).¹

We are required to approve the policy if we are satisfied that it adequately complies with the requirements of part DA of chapter 6 of the NER.²

A connection policy sets out the nature of connection services offered by a distributor when connection charges may be payable by retail customers. It also sets out how those charges are calculated.

A connection policy:³

- must be consistent with:
 - the connection charge principles set out in chapter 5A of the NER
 - the connection policy requirements set out in part DA of chapter 6 of the NER
 - our connection charge guideline published under chapter 5A⁴, and
- must detail:
 - the categories of persons that may be required to pay a connection charge and the circumstances in which such a requirement may be imposed
 - the aspects of a connection service for which a connection charge may be made
 - the basis on which connection charges are determined
 - the manner in which connection charges are to be paid (or equivalent consideration is to be given)
 - a threshold (based on capacity or any other measure identified in the connection charge guideline) below which a retail customer (not being a non-registered embedded generator, a real estate developer, a Registered Participant or an Intending Participant) will not be liable for a connection charge for an augmentation other than an extension.

Our connection charge guideline for electricity retail customers

Under chapter 5A of the NER, we are required to develop and publish our connection charge guideline to set out how electricity distributors should charge new electricity customers for connecting to their networks.⁵

¹ NER, cl 6.12.1(21) & cl 6.12.3(i).

² NER, cl 6.12.3(i).

³ NER, cl. 6.7A.1(b).

⁴ AER, *Connection charge guideline for electricity retail customers, Under chapter 5A of the National Electricity Rules Final Version 3.0*, April 2023.

⁵ NER, cl. 5A.E.3(a).

Following a rule change on 1 August 2022, we initiated a review of the connection charge guideline to specify the conditions under which a distributor may impose a static zero export limit on rooftop solar in limited situations.

Static zero export limit means a customer may not export electricity at any time. These conditions are intended to strengthen customer safeguards.⁶

Our final decision on the review of the connection charge guideline was published in April 2023. This was after the due date for the regulatory proposal on 31 January 2023. Therefore, the proposed connection policy needed to be modified to align with the final connection charge guideline. In our draft decision, we amended Essential Energy's connection policy to align with the connection charge guideline. In its revised proposal, Essential Energy proposed connection policy included these changes, along with other minor amendments.

A connection policy must be consistent with our connection charge guideline to ensure that connection charges:⁷

- are reasonable and take into account the efficient costs of providing connection services arising from the new connection or connection alteration.
- provide, without undue administrative cost, a user-pays signal to reflect the efficient costs of providing the connection services
- limit cross-subsidisation of connection costs between different classes (or subclasses) of retail customers
- are competitively neutral if the connection services are contestable.

18.1 Final decision

We approve Essential Energy's connection policy as it complies with the NER and our connection charge guidelines.

However, we observed that a customer on a stand alone power system (SAPS) requiring network augmentation to add capacity is likely to pay more than a grid-connected customer requiring the same augmentation. This is discussed in section 18.4.1.

We expect Essential Energy to provide customers with information on SAPS that has meaning and value to them, such as any SAPS' augmentation threshold (including potential costs), in its customer engagement and communication strategy regarding the potential transition to SAPS. This was set out in our SAPS expectation letter dated August 2022 and is consistent with the AEMC's policy intent on SAPS.⁸

⁶ Available at <https://www.aemc.gov.au/rule-changes/access-pricing-and-incentive-arrangements-distributed-energy-resources>.

⁷ NER, cl 5A.E.3(b).

⁸ Australian Energy Market Commission, *Updating the regulatory frameworks for distributor led stand-alone power systems, Final report, 28 May 2020*, p. 90; Australian Energy Regulator, *SAPS expectation letter*, August 2022.

18.2 Essential Energy’s revised proposal

In its revised revenue proposal Essential Energy accepted our draft decision on connection policy.

However, it resubmitted its policy to accommodate its intention to roll out SAPS to certain customers. Specifically, Essential Energy’s amendment includes a SAPS-specific augmentation threshold that is responsive to the AEMC’s policy direction. This is further discussed in section 18.4 below.

A SAPS is a stand-alone power supply which includes solar panels, a battery for energy storage and a back-up diesel generator. It operates separately from the electricity network of poles and wires and can be used as an alternative energy source to power homes.

SAPS are a potential energy solution for consumers in remote locations at the end of long powerlines, in areas prone to natural disasters and in densely vegetated or difficult to access areas. Installing a SAPS, is likely to increase power supply reliability for remote consumers.⁹

18.3 Assessment approach

We examined Essential Energy’s proposed connection policy against the requirements of Part DA of chapter 6 of the NER. We assessed whether it:

- is consistent with the connection charge principles set out in chapter 5A of the NER, and our connection charge guideline
- contains all information for new customers prescribed by the NER.

In addition, we also examined whether:

- other connection-related charges included in the connection policy, such as metering installation charges, are consistent with the service classification of this preliminary determination
- the connection policy contains terms that are fair and reasonable.

18.4 Reasons for final decision

We approve Essential Energy’s amended connection policy because it:

- meets the connection policy requirements set out in part DA of chapter 6 of the NER,
- is consistent with the connection charge principles set out in chapter 5A of the NER, and
- is consistent with our connection charge guideline published under chapter 5A of the NER.

Compliance with the connection policy requirements

Essential Energy’s revised connection policy includes a section on SAPS. In particular, it describes the threshold below which a retail customer (not being a non-registered embedded

⁹ Essential Energy, <https://www.essentialenergy.com.au/-/media/Project/EssentialEnergy/Website/Files/Our-Network/Stand-Alone-Power-Systems-Flyer.pdf?la=en&hash=EE0E71120CC51898370E923131E1FEB2403DB52F>

generator or a real estate developer) will not be liable for a connection charge for a SAPS augmentation other than an extension.

The additional SAPS section addresses the content requirement in 6.7A.(1)(b)(2)(i), as it explains categories of persons that may be required to pay a connection charge and the circumstances in which such a requirement may be imposed when SAPS augmentation is to occur.

Compliance with the connection charge principles and guidelines

The connection charge principles and guidelines cover how, when, and why charges may apply to a customer, including the general basis for charging when a network extension augmentation is made, and the interaction between capital contributions and tariffs.

The connection charge guidelines require Essential Energy to provide the basis on which its connection charges are determined. The SAPS policy content achieves that by describing the potential charges that may apply when the augmentation threshold is exceeded.

If augmentation of a premise's connection assets at the retail customer's connection point is necessary to provide a connection service, connection charges for the service may include a reasonable capital contribution towards the cost of the augmentation.¹⁰

Essential Energy's SAPS policy is consistent with the above in describing the potential cost once the augmentation threshold is exceeded.

18.4.1 Interaction of Essential Energy's proposed connection policy with regulated SAPS policy intent

On 20 May 2020, the AEMC released its Final Report, *Updating The Regulatory Frameworks for Distributor-led Stand-Alone Power Systems*. This report outlined the AEMC's policy considerations when enabling distribution network businesses to supply their customers using SAPS where it is cheaper than maintaining a connection to the grid.

The framework for SAPS was that generally, the same protections, pricing and standard of supply should apply to SAPS customers as to customers within the interconnected grid. However, the AEMC also stated:¹¹

While the Commission continues to consider it is reasonable for DNSPs to apply their connection policies to DNSP SAPS in the same manner as they would for grid connected customers, it recognises that changes may be required to existing connection policies to ensure their application is appropriate to DNSP SAPS. For example, SAPS may need to be established under a particular category of connection service in DNSP's existing policies, and the costs of upgrades may be different. It is the Commission's view that DNSPs' connection policies should generally seek to apply the thresholds detailed in their existing policies to SAPS customers...

¹⁰ Connection charge principles.

¹¹ AEMC, *Updating the regulatory frameworks for distributor led stand-alone power systems*, Final report, 28 May 2020, p. 104.

To enable the transition to SAPS for some customers, Essential Energy included a SAPS-specific augmentation threshold in its connection policy for our approval.

As outlined, we assessed Essential Energy’s proposed connection policy and found it to be compliant with the requirements of NER. However, we observed that Essential Energy’s proposed connection policy will effectively create 2 different classes of customers (one for grid-connected customers, and another for SAPS-connected customers). Even though both classes of customers will only face the incremental costs of upgrading supply to their connections, the different nature of their supply arrangements may lead to the actual amount of these costs being very different in practice.

Essential Energy has indicated that the initial SAPS would be scoped to provide additional capacity to forestall the need for an upgrade:¹²

... It has been proposed to size units with an additional 30% in peak capacity above historical measured maximum demand or up to the existing network connection capacity. In addition to the peak capacity growth allowance, systems have been sized to accommodate a 50 per cent increase on annual average consumption or as negotiated with customers...

However, if an upgrade is needed, the cost to the SAPS customer may be significantly more than cost of an upgrade to the grid-connected customer. For example, if still connected to the grid, this customer may face only the cost of augmentation of local supply assets such as a pole-mount transformer, or low voltage mains. When connected to a SAPS, this customer may face the cost of upgrading the SAPS system—which is likely to involve more solar panels, a larger battery, larger inverter(s), and a larger backup generator.

The above said, there is no requirement under the NER that customers on a SAPS should be no worse off *economically* than grid connected customers,

18.5AER approved connection policy

The approved connection policy is appended to this attachment.

¹² Essential Energy, *4.01 Stand Alone Power Systems – Supporting Information*, Nov 2023, p. 7.

Shortened forms

Term	Definition
AEMC	Australian Energy Market Commission
AER	Australian Energy Regulator
NER	National Electricity Rules
SAPS	Stand Alone Power Systems

ESSENTIAL ENERGY CONNECTION POLICY 2024–29



Effective 1 July 2024

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CONTENTS

1.0	Purpose and scope	3
2.0	Connecting to our network.....	3
2.1	Types of connection services.....	3
2.1.1	<i>Basic connection offers</i>	5
2.1.2	<i>Standard connection offers</i>	5
2.1.3	<i>Negotiated connection offers</i>	5
2.2	Contestability of connection services.....	5
2.3	Connection works funded by Essential Energy	6
2.4	Charges for removing export constraint on request from a micro embedded generator.....	7
3.0	Augmentation thresholds	7
3.1	Shared network augmentation thresholds.....	7
3.2	Augmentations thresholds for regulated SAPS	7
4.0	Connection charges.....	8
4.1	Third party fees and charges	8
4.2	Ancillary Network Services	8
4.3	Enhanced connection services.....	9
4.4	Pioneer Scheme payments	9
5.0	Real estate developments, registered participants and intending participants	9
6.0	Static zero export limits	10
7.0	Estimation of customer’s consumption and demand.....	10
8.0	Pioneer Scheme	10
8.1	Establishment and administration of the scheme	10
8.2	Calculation of Pioneer Scheme payment	11
8.2.1	<i>Pre-calculated refund</i>	11
8.2.2	<i>Pro-rata refund</i>	12
8.2.3	<i>Original customer’s outstanding amount</i>	12
8.2.4	<i>CPI Adjustments</i>	12
8.2.5	<i>Definitions</i>	13
9.0	Financial guarantees (security fee).....	14
10.0	Prepayments.....	14
11.0	Dispute resolution.....	14
12.0	Definitions.....	15

UNCLASSIFIED**1.0 PURPOSE AND SCOPE**

This document is Essential Energy's Connection Policy for the 2024–29 regulatory period. It outlines when a customer is required to pay the cost of connecting their premises or real estate development to the Essential Energy network. This policy will apply to a customer requesting, after 1 July 2024, to connect to Essential Energy's distribution system (including regulated stand alone power systems (SAPS)) or to alter an existing connection under Chapter 5A of the National Electricity Rules (NER).

This policy has been approved by the AER and has been prepared in accordance with the following regulatory instruments:

- Connection charge principles set out in Part E – Connection Charges, of Chapter 5A of the NER
- Part DA – Connection policies, of Chapter 6 of the NER
- Australian Energy Regulator's (AER's) Connection Charge Guidelines for electricity retail customers, under Chapter 5A of the NER (Connection Charge Guidelines)
- AER's Framework and Approach decision for the 2024–29 regulatory control period in relation to the proposed classification of services
- *Electricity Supply Act 1995* (NSW).

Note: This policy does not apply to connections to Essential Energy's network by registered participants or intending registered participants in the wholesale market. These connections are covered by Chapter 5 of the NER.

2.0 CONNECTING TO OUR NETWORK

A connection is the physical link between Essential Energy's distribution network and a customer's premises to allow the flow of electricity or a connection to regulated Stand-alone Power Systems. Connection services are the works on or related to the electricity network required to connect a customer's installation, or to alter an existing connection.

Connection services may involve the establishment or modification of assets dedicated to the customer (connection assets), an extension of the distribution network (e.g. a new power line), or works to augment the network to increase its capacity or upgrade existing infrastructure. They do not include works within a customer's electrical installation.

The customer may be required to provide Essential Energy, at no cost to Essential Energy, connection assets, necessary easements, interests in land or leases on their premises to accommodate network infrastructure to support the connection works.

2.1 Types of connection services

Essential Energy offers three categories of connection services and will make an offer to connect or amend an existing connection under Chapter 5A of the NER based on the information provided in the customer's connection application:

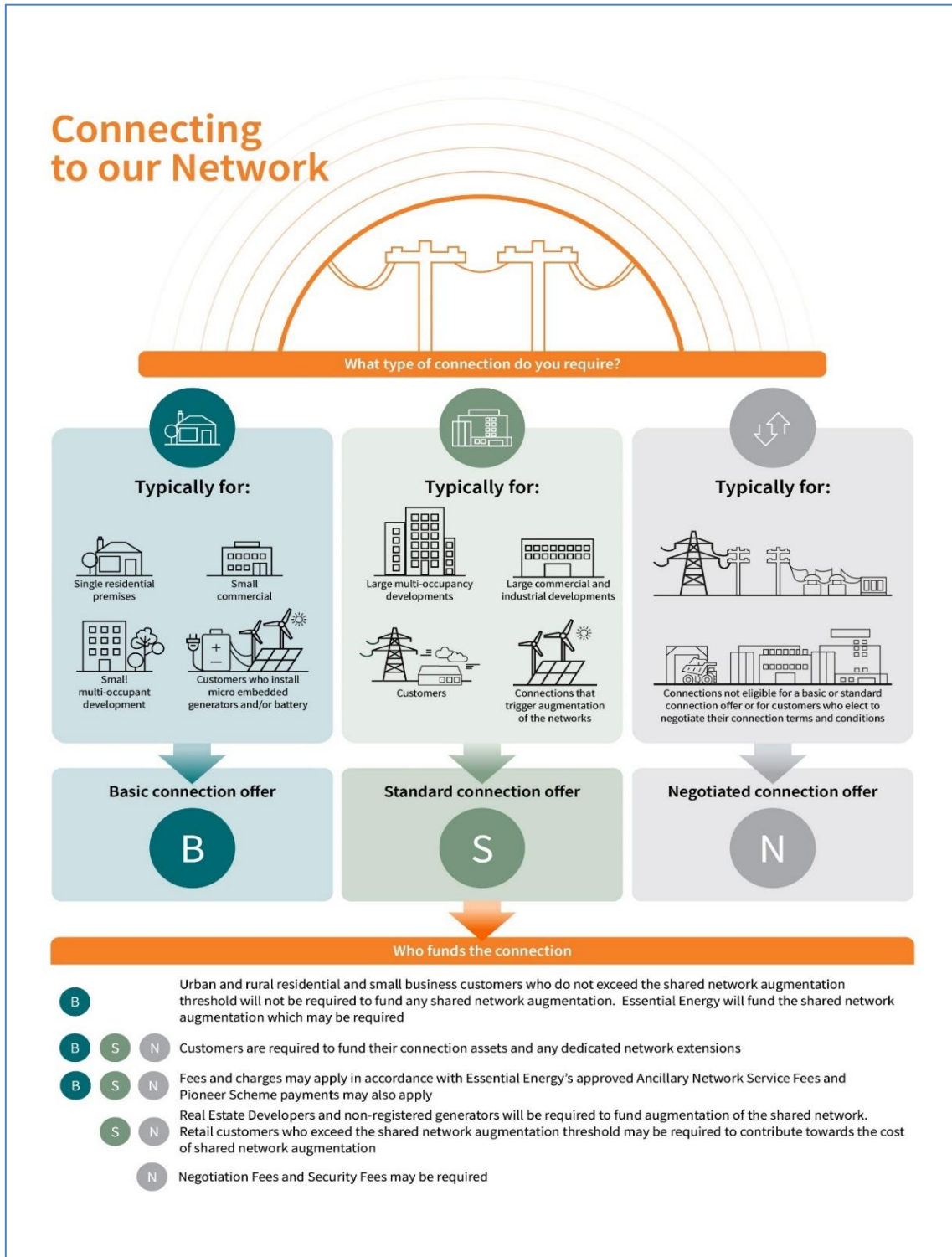
- basic
- standard
- negotiated.

The type of connection offer will depend on criteria such as connection type, size and complexity of the connection, and whether any augmentation or extension to the network is necessary to facilitate the connection. Figure 1 below provides an overview of the different types of connection

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and offers. AER approves model standing offers that cover the terms and conditions under which basic and standard connection services are provided.

Figure 1 Connecting to our network



UNCLASSIFIED**2.1.1 Basic connection offers**

Basic connection services generally consist of new connections or connection alterations where:

- supply is available; and
- minimal, or no augmentation is required.

Basic connection services are offered to customers wishing to permanently or temporarily connect to the low voltage network and generally involve single residential premises, small commercial premises and small multi-occupant developments. They are also offered to customers who propose to install a micro embedded generator within their installation. Customers who accept a basic connection offer are required to fund the contestable connection works associated with their dedicated connection assets.

2.1.2 Standard connection offers

Standard connection services are typically offered to large multi-occupant developments, large commercial and industrial developments, real estate developments, as well as urban and rural customers above the shared network augmentation threshold where augmentation of Essential Energy's shared network is required to enable the connection to occur. Standard connection offers may also be offered to customers who propose to install an embedded generator.

In addition, if a network extension is required that involves design by a Level 3 ASP and/or construction by a Level 1 ASP, then a standard connection offer will be made. Customers who accept a standard connection offer will be required to fund the connection works associated with:

- design services
- premises connection assets
- any dedicated network augmentation for real estate developers, non-registered embedded generators and Registered Participants or Intending Participants
- retail customers, any augmentation of the shared network where the applicable shared network augmentation threshold is exceeded.

2.1.3 Negotiated connection offers

Negotiated connection services are for customers who elect to negotiate the terms and conditions of their connection or for customers that are not eligible for either a basic connection or a standard connection offer. Customers who accept a negotiated connection offer will be required to fund the contestable connection works on the same basis as customers who accept a basic or standard connection offer (that is, the contestable connection works associated with their dedicated connection assets).

2.2 Contestability of connection services

The *Electricity Supply Act 1995* (NSW) allows customers to choose an Accredited Service Provider (ASP) to provide some connection services, which are known as contestable services. The customer must use an ASP to provide these contestable services in NSW. In other jurisdictions customers will need to use an appropriately licenced electrical contractor to undertake this work.

The customer will engage the services of an ASP and make payment to them directly for contestable services, which may require new network assets or augmentation of existing network assets including:

- design and construction of electricity distribution infrastructure
- installation of connection assets at the customer's connection point

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- installation of assets within the customer's electrical installation
- installation of a network extension from the customer's connection point to Essential Energy's distribution network boundary
- augmenting the existing distribution network (except for customers below the shared network augmentation threshold).

There are certain connection works or portions thereof which are augmentation, extensions, or final connection work that would normally be provided on a contestable basis that may be classified as non-contestable. Risk management principles that reference criteria such as safety, network security, protection of critical network infrastructure, and reliability of supply to customers determine connection works that can only be carried out by Essential Energy. In these instances, the connection work is non-contestable and will be completed by Essential Energy. This non-contestable connection work will also be funded by the customer.

Examples of work which may be non-contestable connection work include:

- greenfield major connection projects
- sub-transmission and transmission projects.

The following categories are examples of works which are typically classified as non-contestable connection works:

- all work within existing zone substations
- sub-transmission generator connection works
- optical fibre termination
- works which will impact Essential Energy's telecommunications network infrastructure.

Customer funded assets will be gifted to Essential Energy once they are energised and will form part of Essential Energy's network. After energisation, Essential Energy takes ownership of the assets and will then operate, maintain and replace the assets as necessary.

2.3 Connection works funded by Essential Energy

Shared network augmentation refers to works undertaken to increase the capacity of Essential Energy's network to supply more than one customer.

The types of work that may be considered shared network augmentation may include:

- creating new zone substations or increasing the capacity of existing zone substations
- creating new transmission lines or increasing the capacity of existing transmission lines
- increasing the capacity of distribution lines and distribution transformers that supply more than one customer
- extending distribution lines in a location that will provide connection with other existing network infrastructure.

Essential Energy will consider the potential for:

- any new dedicated high voltage (HV) mains extension supplying a multi-occupant development or
- a customer substation in an urban network

to be classed as shared network augmentation in the foreseeable future, which may attract a funding contribution by Essential Energy.

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When Essential Energy receives the connection application, it will determine the reasonable likelihood of such asset sharing taking place in the foreseeable future (maximum of seven years).

This assessment may determine that the HV mains extension or the substation in an urban network will be classed as shared network augmentation, which may attract a funding contribution by Essential Energy.

Essential Energy may fund, or make a contribution towards, augmentation works to the shared network, which are associated with a connection in the following circumstances:

- Augmentation of the shared network required to connect a customer where the relevant shared network augmentation threshold is not exceeded.
- Connection works to Essential Energy's network and those works will be used by other customers in the foreseeable future, and as a result the works will form part of the shared network.
- Where Essential Energy requests the construction of the network infrastructure to a higher standard to that necessary for the connection.
- Where Essential Energy uses a network extension that was paid for by another customer within seven years for Essential Energy's purposes to supply load, Essential Energy will make a payment towards the costs of the extension assets in accordance with the Pioneer Scheme.

2.4 Charges for removing export constraint on request from a micro embedded generator

Where a micro embedded generator wishes to fund the network augmentation to remove a static zero export limit;

- the embedded generator must engage a suitable ASP to undertake the necessary augmentation works, unless part or all of works are deemed non-contestable (refer Section 2.2 Contestability of connection services).
- The charge payable by the micro embedded generator will be determined in accordance with Chapter 7A of the AER's Connection Charge Guideline for Electricity Customers.

3.0 AUGMENTATION THRESHOLDS

3.1 Shared network augmentation thresholds

The shared network augmentation threshold is a threshold below which retail customers (other than non-registered embedded generators, real estate developers, Registered Participants or an Intending Participant) will not be required to make a contribution towards the cost of any augmentation of the distribution network.

Different thresholds apply to retail customers depending on whether the shared network connection is in an urban or rural area. Essential Energy will fund the shared network augmentation works if a customer applies for a capacity below the threshold. In urban areas, the threshold is demand up to 100amps (per phase over three phases) and in rural areas with demand up to 63amps (single phase) or 21amps per phase over three phases.

3.2 Augmentations thresholds for regulated SAPS

Different augmentation thresholds apply to connection alterations that arise due to significant changes to the demands on a SAPS, such as:

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- customers whose premises are connected to an Essential Energy regulated SAPS, whose consumption profile changes significantly; and
- prospective customers who request a connection to an Essential Energy regulated SAPS, where such new connection would result in a significant increase to the use profile for that system.

(Both of these connection alterations are referred to as **SAPS Augmentations**).

The threshold for SAPS Augmentations is a threshold below which retail customers (other than non-registered embedded generators, real estate developers, Registered Participants or Intending Participants) will not be required to make a contribution towards the cost of any augmentation of the regulated SAPS.

The SAPS Augmentation threshold is expressed as a percentage increase to the consumption profile of the original regulated SAPS customer(s) at the time it was installed by Essential Energy. For existing SAPS customers, their SAPS Augmentation threshold is an increase of 50 per cent over the highest historical annual consumption of the previous 5 years prior to the regulated SAPS being established, or as agreed with a SAPS customer at the time of conversion to a regulated SAPS.

For prospective customers who request a connection to an existing Essential Energy regulated SAPS, their SAPS Augmentation threshold is calculated to ensure that existing customers supplied by the regulated SAPS retain their Augmentation threshold for load growth.

4.0 CONNECTION CHARGES

This policy sets out the circumstances when a connection charge may be payable. Customers may be required to pay to Essential Energy fees and charges, including Pioneer Scheme payments and fees approved by the AER, which are published on our website.

4.1 Third party fees and charges

Where a customer engages an ASP or electrical contractor for contestable connection works, some fees and charges are payable directly to the ASP or electrical contractor and are not payable to Essential Energy and therefore are not connection charges for the purposes of this policy.

In addition to ASP or electrical contractor charges, the customer may also incur property tenure costs which relate to the granting and registration of leases and easements, and associated plans over Essential Energy infrastructure located on the customer's premises. Some of these costs are payable directly to the relevant third party unless statutory or other requirements dictate that Essential Energy must perform the activity. In that case, costs will be payable direct to Essential Energy.

In addition, all connections must be metered except where the energy consumption can be accurately assessed without the need for a meter. Essential Energy no longer provides metering services for new connections or connection alterations. Customers will be required to obtain and pay for metering services through their energy retailer and metering coordinator.

4.2 Ancillary Network Services

These services are ancillary to the connection and are provided on a 'customer-requested' or 'as required' basis. These fees have been set by the AER and a full list and description of ancillary network services and fees can be found in the network price list available on our website.

UNCLASSIFIED**4.3 Enhanced connection services**

When a customer requests a higher standard of augmentation works beyond the minimum requirements or least-cost technically acceptable standard and Essential Energy agrees with the request, the customer will be required to fund the marginal cost of the additional work.

4.4 Pioneer Scheme payments

A customer who proposes to connect to a part of the network funded by another customer in the previous seven years, may be required to make a payment to connect under the Pioneer Scheme.

5.0 REAL ESTATE DEVELOPMENTS, REGISTERED PARTICIPANTS AND INTENDING PARTICIPANTS

For the purposes of this policy:

- Essential Energy will deal with the real estate developer as if that party were a single customer.
- Where the development is to proceed in stages, each stage will be considered as a separate project.

Real estate developers, Registered Participants, Intending Participants and Telecommunication Authorities are not subject to the shared network augmentation threshold and are required to fund any augmentation, extension and future provisions determined by Essential Energy in the Design Information Package. This includes but is not limited to:

- conduits
- cables
- cable switches
- temporary high voltage (Loop in/out required for staging).

Real estate developers that cannot be supplied by the adjacent Essential Energy network will be required to fund substations or additional capacity on, or in the vicinity, of the development. Where Essential Energy requires infrastructure (substations and transformers) to be installed to a greater capacity than the least-cost technically acceptable standard, the real estate developer will not be required to fund the infrastructure required for the greater capacity. This will typically occur where future development is foreseeable beyond the boundary of the development and it is prudent to provide additional capacity. Essential Energy will fund the incremental cost of these works.

UNCLASSIFIED**6.0 STATIC ZERO EXPORT LIMITS**

The connection of a generator to the Essential Energy distribution network does not of itself guarantee the ability to export electricity.

Essential Energy is required to outline the circumstances under which we may offer customers with small, embedded generation a connection with a static zero export limit. Essential Energy will only impose a static zero export limit in circumstances permitted under the AER's Connection Charge Guideline for Electricity Customers. Our policy on when Essential Energy will impose a static zero export limit is available on our website.

7.0 ESTIMATION OF CUSTOMER'S CONSUMPTION AND DEMAND

Information provided in the connection application will be used to estimate the applicant's consumption and demand. Essential Energy may use other methods to estimate the customer's consumption or demand where the information provided on the connection application is not consistent with other customers of a similar type, or, where the existence of network constraints, emerging or otherwise, requires engineering intervention to manage impact on the network.

If the connection exceeds the maximum agreed capacity at the premises or site, then Essential Energy may require the customer to either:

- Remediate the demand to within the agreed limit (e.g., by installing a load limiting device).
- Enter into a new connection agreement for increased maximum capacity or demand.

Alternatively, through consultation and in good faith, Essential Energy may reduce the agreed maximum capacity if:

- the customer's demand has remained less than the agreed maximum capacity for the previous five years; or
- the customer's demand has remained less than the agreed maximum capacity for the previous two years, Essential Energy requires the unused network capacity to relieve a forecast network constraint and the customer does not have a current negotiated connection agreement with Essential Energy to reserve this capacity; or
- The customer agrees to reduce the agreed maximum capacity.

If a customer has agreed to an alternative manner in which available capacity may be adjusted, in an agreement negotiated with Essential Energy, that agreement will prevail over the default position set out in this clause.

If the renegotiated connection agreement enables a new customer to connect using existing network assets paid for by the original customer, then a reimbursement to the original customer may be applicable in accordance with section 8.0.

8.0 PIONEER SCHEME**8.1 Establishment and administration of the scheme**

If, within seven years, subsequent customers benefit from the installation of assets funded by the original customer, Essential Energy will reimburse a portion of the construction cost to the original customer under the Pioneer Scheme.

If the extension assets were constructed to a higher standard or capacity than the least-cost technically acceptable standard required by Essential Energy, then only the cost of constructing

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the extension asset to the scope and standard required by Essential Energy will be included in the Pioneer Scheme.

Essential Energy is responsible for the administration of the Pioneer Scheme and may charge an administration fee. The refund is made by way of a connection charge (known in this policy as a Pioneer Scheme payment) payable by the subsequent users of the assets. Essential Energy will pay the refund as soon as practicable after the subsequent users pay Essential Energy the connection charge.

In some circumstances, Essential Energy may not find the customers who are a party to a Pioneer Scheme in which case we will discount the Pioneer Scheme charge to subsequent customers by the amount not refunded.

Any Pioneer Scheme applied to real estate developers will only apply to customers connecting to the extension assets outside the developer's site boundary and not to premises connecting within the development. Subdivision applicants will not be eligible to receive reimbursements as original customers.

8.2 Calculation of Pioneer Scheme payment

Essential Energy will determine the appropriate calculation to assess to the Pioneer Scheme refund amount, based on the physical attribute of the asset or the demand of a subsequent customer. The different calculations are outlined below, but no amount is payable if the total reimbursement payment to all customers already connected is less than \$1685 (\$ real December 2022), adjusted for CPI.

8.2.1 Pre-calculated refund

- Where the original customer's works are a distribution line, an amount calculated in accordance with the following formula:

$$\frac{\text{Cost of original customer's works x Depreciation Factor}}{\text{Number of prospective new customers + original customer}} \times \frac{\text{Length of original customer's works used by the new customer (km)}}{\text{Total length of original customer's works (km)}} \times \frac{\text{CPI(2)}}{\text{CPI(1)}}$$

- Where the original customer's works are other than a distribution line, an amount calculated in accordance with the following formula:

$$\frac{\text{Cost of original customer's works x Depreciation Factor}}{\text{Number of prospective new customers + original customer}} \times \frac{\text{CPI(2)}}{\text{CPI(1)}}$$

UNCLASSIFIED**8.2.2 Pro-rata refund**

- The pro-rata calculation is generally applied for residential customers in urban areas in accordance with the following formula:

$$\frac{\text{Cost of original customer's works x Depreciation Factor}}{\text{New utilisation of original customer's works}} \times \frac{\text{CPI(2)}}{\text{CPI(1)}}$$

8.2.3 Original customer's outstanding amount

- The original customer's outstanding amount is calculated as follows:

$$\frac{\text{Cost of original customer's works x Depreciation Factor}}{\text{Number of prospective new customers} + \text{original customer}} \times \frac{\text{CPI(2)}}{\text{CPI(1)}} - \text{less Total cost share refunds paid by new customers to Essential Energy in respect of those works as at date of the new customer's application for customer connection services.}$$

8.2.4 CPI Adjustments

- The formulas above do not include any references to CPI in the case where the beginning of the relevant period for the calculation of CPI(2) is less than 12 months after the end of the relevant period for the calculation of CPI(1).
- CPI(1) means the average of the consumer price indices (all groups, all capital cities), published by the Australian Bureau of Statistics, for the four quarters immediately prior to the date the original customer's works were completed.
- CPI(2) means the average of the consumer price indices (all groups, all capital cities), published by the Australian Bureau of Statistics, for the four quarters immediately prior to the date of the new customer's application for customer connection services.

UNCLASSIFIED**8.2.5 Definitions****Cost of original customer's works** means:

- where Essential Energy carried out the original customer's works, the cost (based on actual cost) of performing those works to the least-cost technically acceptable standard; and
- where an *ASP* carried out the original customer's works, the asset valuation supplied as part of the certification process.

New utilisation of original customer's works means:

- Where the original customer's works are a distribution line, a figure in kVA.km, representing the new customer's expected load in kVA (as specified in its application for customer connection services), multiplied by the length of the original customer's works used by the new customer (in kilometres).
- Where the original customer's works are works other than a distribution line, a figure in kVA, representing the new customer's expected load (as specified in its application for customer connection services).

Number of prospective new customers means the number of new customers (excluding the original customer) that Essential Energy expects, prior to construction of the original customer's works, will use those works or any part of them during the refund period, determined in consultation with the original customer, and taking into account all relevant factors including but not limited to:

- the capability of the proposed works
- the current number of properties that could potentially utilise those works
- the current zoning of the area and any rezoning proposals
- any proposed subdivisions or development applications
- historical patterns of customer connection in similar areas.

Total utilisation of original customer's works means:

- where the original customer's works are a distribution line, a figure in kVA.km, representing the total loads of each customer (including the original customer and the new customer) who use or will use the original customer's works, in kVA (as specified in their respective applications for customer connection services), multiplied by the length of distribution line constituting the original customer's works, in kilometres.
- where the original customer's works are works other than a distribution line, a figure in kVA, representing the total loads of each customer (including the original customer and the new customer) who use or will use the original customer's works (as specified in their respective applications for customer connection services).

Depreciation factor

A straight-line depreciation, over a 20-year asset life, is to be applied to unadjusted values to determine the current day depreciation value of the asset.

The depreciation factor is to be determined as follows:

$$\frac{\text{(Deemed asset life (20 years) – asset age)}}{\text{Deemed life (20 years)}}$$

UNCLASSIFIED**9.0 FINANCIAL GUARANTEES (SECURITY FEE)**

In accordance with Chapters 5A and 6 of the NER, Essential Energy will require a customer to provide a financial guarantee (also known as a security fee), where their connection requires Essential Energy to fund substantial network augmentation works that is initially only for the customer's benefit, and where Essential Energy considers there is a high risk that Essential Energy may not earn the estimated incremental revenue from the construction of the works.

The security fee will not exceed the present value of the incremental costs that Essential Energy will incur in undertaking the network augmentation. The security amount will not be greater than the estimated incremental revenue which Essential Energy assesses as having a high risk of not being recovered. The security fee amount will be established at the same time as the connection offer is accepted and/or the design information package is issued and prior to the network augmentation works being initiated. This will allow the network augmentation works to proceed in parallel with any associated contestable works.

The security fee is payment to Essential Energy of a minimum level of network revenue each year for the duration of the agreement, to make up any shortfall in their actual Network Use of System (NUoS) charges over the period, which is nominally five years, although this can be varied between five and ten years on a case-by-case basis.

The security fee amount is secured by a bank guarantee or other suitable financial instrument as agreed by Essential Energy. Essential Energy is entitled to withdraw from the bank guarantee or financial instrument any shortfall in actual NUoS payments, in accordance with the terms stated in the deed and the bank guarantee.

Where the security fee has been provided as an upfront payment, Essential Energy will rebate the security fee annually until the earlier of:

- The actual incremental revenue realised over the period of the security fee scheme exceeds the estimated incremental revenue.
- Essential Energy refunds the security fee in full.

Where the security fee has been provided as an upfront payment, Essential Energy will pay interest on the security fee, commensurate to the manner in which the security fee is treated. Interest is not payable on security held in the form of a bank guarantee.

10.0 PREPAYMENTS

Essential Energy will only seek prepayments in circumstances which are permitted by the regulatory environment and in particular Chapter 5A of the NER and the AER Connection Charge Guidelines.

11.0 DISPUTE RESOLUTION

A dispute between a retail customer or real estate developer and Essential Energy about connection charges is an access dispute for the purposes of section 2A of the National Electricity Law, which may be referred to the AER for resolution in accordance with the NER.

Prior to referring the matter to the AER, Essential Energy encourages customers to first attempt to resolve the dispute directly with Essential Energy, in accordance with Essential Energy's Complaints and Dispute Resolution Procedure. Details of how to apply for review of a decision by Essential Energy and how Essential Energy will conduct the review are available on Essential Energy's website: www.essentialenergy.com.au.

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Small customers may also refer their dispute to the relevant Ombudsman to resolve the matter. For small customers in New South Wales, the ACT and Victoria:

Energy and Water Ombudsman of New South Wales
 Freecall: 1800 246 545
 Freefax: 1800 812 291
 Email: omb@ewon.com.au
 Mail: Reply Paid Box K1343, Haymarket NSW 1239

For small customers in Queensland:

Queensland Energy Ombudsman
 Freecall: 1800 662 837
 Freefax: 1800 812 291

Email: complaints@ewoq.com.au or info@ewoq.com.au
 Mail: PO Box 3640, South Brisbane QLD 4101

12.0 DEFINITIONS

As far as possible, Essential Energy has used terms and definitions which are consistent with Chapter 5A and Chapter 10 of the NER and the National Electricity Law.

Term	Definition
Augmentation	Work to enlarge a distribution or transmission system or to increase its capacity to transmit or distribute electricity.
AER	The Australian Energy Regulator
ASP	An Accredited Service Provider, being an entity accredited under Part 3 of the Electricity Supply (Safety and Network Management) Regulation 2014 (NSW)
Basic connection service	means a connection service related to a connection (or a proposed connection) between a distribution system and a retail customer's premises (excluding a non-registered embedded generator's premises) in the following circumstances: (a) either: (1) the retail customer is typical of a significant class of retail customers who have sought, or are likely to seek, the service; or (2) the retail customer is, or proposes to become, a micro embedded generator; and (b) the provision of the service involves minimal or no augmentation of the distribution network; and (c) a model standing offer has been approved by the AER for providing that service as a basic connection service.
Basic micro EG connection service	means a basic connection service for a retail customer who is a micro embedded generator.
Connection	A physical link between a distribution system and a customer's premises to allow the flow of electricity.

UNCLASSIFIED

Term	Definition
Connection alteration	An alteration to an existing connection including an addition, upgrade, extension, expansion, augmentation or any other kind of alteration.
Connection Charge Guidelines	The Australian Energy Regulator's Connection Charge Guidelines for electricity retail customers, published under Chapter 5A of the NER
Connection works	<p>In relation to a new customer, are those works yet to be constructed which will upon construction:</p> <ol style="list-style-type: none"> a. Enable Essential Energy to provide customer connection services requested by that new customer; and b. Form part of the <i>network</i> on the side of the <i>linkage point</i> where all the <i>network</i> assets on that side are dedicated to one or more customers. <p>These include (without limitation):</p> <ol style="list-style-type: none"> c. In the case of services to new connection points (as defined in the National Electricity Rules) requested by a new customer, works to connect the customer's premises at that connection point to the existing <i>network</i>; and d. In the case of services to existing connection points: <ol style="list-style-type: none"> i. Replacements of existing assets servicing that connection point, where those existing assets, at the time of their replacement, satisfy (a) and (b) above; or ii. Additional new works that satisfy (a) and (b) above in relation to that connection point <p>in order to provide additional service at that connection point requested by the new customer.</p>
Connection service	<p>Means either or both of the following:</p> <ol style="list-style-type: none"> (a) a service relating to a new connection for premises. (b) a service relating to a connection alteration for premises. <p>but, to avoid doubt, does not include a service of providing, installing or maintaining a metering installation for premises.</p>
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 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.
Electrical installation	<p>Electrical equipment installed for the purposes of conveyance, control, measure or use of electricity, where electricity is or is to be supplied for consumption. Includes electrical equipment supplied from a distributor's system or a private generating system.</p> <p>Note: An electrical installation usually commences at the point of supply and finishes at a point (in wiring) but does not include portable or stationary electrical equipment connected by plug and socket-outlet (other than where a socket-outlet is used to connect sections of the fixed installation) (AS/NZS 3000:2018 Wiring Installation Rules).</p>

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Term	Definition
Embedded generator	means a person that owns, controls or operates an embedded generating unit.
Embedded generating unit	A generating unit connected within a distribution system and not having direct access to the transmission network.
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 Essential Energy.
Intending Participant	A person who is registered by <i>AEMO</i> as an <i>Intending Participant</i> under Chapter 2.
Linkage point	The point on the <i>network</i> where the use of assets changes from being dedicated to one or more customers (where all the <i>network</i> assets on that side of the point are so dedicated), to being shared with customers generally. For this purpose, assets are considered to be dedicated to one or more customers only if they are: <ul style="list-style-type: none"> a. Used by one customer exclusively; or b. Shared by more than one customer in circumstances where Essential Energy has required that those customers together procure and fund the same <i>connection works</i>.
Micro EG connection	Means a <i>connection</i> between an <i>embedded generating unit</i> and a <i>distribution network</i> of the kind contemplated by <i>Australian Standard AS4777</i> (Grid connection of energy systems via inverters).
Micro embedded generator	A small customer, large customer or MSGA customer who operates, or proposes to operate, an embedded generating unit for which a micro EG connection is appropriate.
MSO	Model Standing Offer means 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.
NER	The National Electricity Rules.
Network	Essential Energy's electricity distribution system.
Network coupling point	The point at which connection assets join a distribution network, used to identify the distribution service price payable by a customer.
New connection	A connection established or to be established in accordance with Chapter 5A of the Rules and applicable energy laws, where this is no existing connection.
Non-Contestable	A service that can only be carried out by Essential Energy.
Original customer	The connection applicant who triggered the requirement and paid for the construction of an extension asset.
Pioneer Scheme	A cost-sharing arrangement for retail customers who have funded the development and construction of electrical infrastructure assets connected to Essential Energy's network.
Premises connection assets	Means the components of a network used to provide connection services.

UNCLASSIFIED

Term	Definition
Real estate developer	Means a person who carries out a real estate development.
Real estate development	means the commercial development of land including its development in 1 or more of the following ways: <ul style="list-style-type: none"> a. subdivision b. the construction of commercial or industrial premises (or both) c. the construction of multiple new residential premises.
Regulated stand alone power system	A stand alone power system: <ul style="list-style-type: none"> (a) Implemented as a project undertaken by a Distribution Network Service Provider to address system limitations and that involves the planning, development, construction and commissioning of a stand-alone power system; or (b) of a Distribution Network Service Provider, designated by a law of a participating jurisdiction, as a part of the national electricity system.
Retail customer	A person who is one or more of the following: <ul style="list-style-type: none"> a. a small customer b. a large customer c. a micro embedded generator d. a non-registered embedded generator, other than a non-registered embedded generator who has made an election under clause 5A.A.2(c) for connection under Chapter 5.
Rural customer	A new customer whose premises, the subject of its application for customer connection services, are connected or will be connected (once any relevant connection works are constructed) to the network at a point at which the network is a rural network.
Rural network	The part of the network: <ul style="list-style-type: none"> a. Where the average demand on the HV feeders within it is less than 0.3MVA/km; or b. That is in an area zoned as rural under a local environment plan (made under the Environmental Planning and Assessment Act 1979 (NSW)); or c. That is in an area predominantly used for agricultural purposes.
Static zero export limit	Has the same meaning as in the National Electricity Rules
Standard connection service	means a <i>connection service</i> (other than a <i>basic connection service</i>) for a particular class (or sub-class) of <i>connection applicant</i> and for which a <i>model standing offer</i> has been approved by the <i>AER</i> .
Subsequent customer	A connection applicant, other than the original customer, who connects to an extension subject to the Pioneer Scheme.
Urban network	That part of the network that is not a rural network.