

ActewAGL Distribution Connection policy

VERSION 2.0

June 2014

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Overview

ActewAGL Distribution's connection policy sets out the circumstances in which connection charges are payable and the basis for determining the amount of such charges. The policy has been prepared in accordance with the requirements in Chapter 5A of the National Electricity Rules (NER) and the Australian Energy Regulator's (AER's) *Connection charge guidelines for retail electricity customers, under Chapter 5A of the National Electricity Rules, version 1.0* (AER connection charge guidelines). The policy uses the terminology and concepts used in the NER and the guidelines. This overview provides a simplified summary of the key elements of the policy.

The connection charges payable by a connection applicant will depend on the type of connection and the connection assets and services involved. In general the total charge for a new connection or altered connection may comprise:

- *A capital contribution toward the costs of the assets used to provide the connection.* Where the estimated incremental costs of a connection exceed the estimated incremental revenue, the connection applicant may be required to make a contribution toward the costs of the premises connection assets and any required network extensions. A shared network augmentation charge may also apply where the customer's estimated maximum demand exceeds the threshold of 100 Amps per phase and augmentation of shared network assets is required.
- *Charges for ancillary services, services provided at above minimum standard requirements at the customer's request, and special connection requirements.* Ancillary services may include asset removals or relocations, temporary connections and service upgrades. Connection applicants pay for any required ancillary services, on a cost recovery basis at rates approved by the AER. The additional costs of above standard connections or special requirements (for example due to difficult site conditions) must also be paid by the connection applicant, at AER approved rates.
- *Charges payable under the pioneer scheme.* Where a connection involves the use of extension assets paid for by an original customer, within the past 7 years, the subsequent customer may be required to make a contribution towards the cost of the extension assets. The original customer may be eligible for a refund.

Charges will also apply for metering services required for the connection. Metering charges are not covered by the connection policy. The AER sets prices for the regulated metering services provided by ActewAGL Distribution, as part of the 5-yearly distribution determination.

The connection policy sets out the connection charges that may apply for 14 different types of connections (see Chapter 4), ranging from basic connections (requiring no augmentation of the network) for residential and small commercial customers on unserved blocks in urban areas,

through to large (>100 Amps) commercial connections requiring a new substation, subdivision estate reticulation, and embedded generator connections.

Residential and small low voltage commercial customers in urban areas seeking a basic connection, which does not require network augmentation or extension and involves maximum demand of less than 100 Amps, will generally not be required to make a capital contribution. Charges will apply, on a fee or quoted basis, where the connection involves customer specific ancillary services (such as a temporary connection) or services above the least cost technically acceptable standard or special requirements. The pioneer scheme will generally not apply to residential and small commercial customers, although it may in some cases – for example for rural connections requiring network extensions.

Larger commercial customers and real estate developers may be required to make a capital contribution toward the costs of premises connection assets and network extensions, depending on the outcome of the incremental cost-revenue-test (ICRT). Design and administration costs will be included in the calculation of the required contribution. Charges will also apply where the connection involves ancillary services and higher standard services or special requirements. The pioneer scheme may also apply to these connection applicants. Large commercial customers and real estate developers connecting a load to the network may also be required to pay a shared network augmentation. No shared network augmentation charge will apply for subdivision estate reticulation.

The connection policy also contains requirements for financial guarantees and prepayments. Where ActewAGL Distribution considers there is a significant risk that it may not earn the estimated incremental revenue from the connection applicant, it may require a financial guarantee in the form of a bank guarantee. This will generally only apply to large connections that are the subject of a negotiated offer. For connections where the estimated connection charges are greater than \$50,000, ActewAGL Distribution requires an advance payment of 50 per cent of the total charges and a bank guarantee for the balance. Full prepayment is required at the time the connection offer is formally accepted for connections where the estimated connection charges are less than \$50,000.

1 Purpose and scope

ActewAGL Distribution has prepared this connection policy in accordance with the requirements in Chapters 5A and 6 of the *National Electricity Rules* (NER) and the Australian Energy Regulator's (AER's) *Connection charge guidelines for retail electricity customers, under Chapter 5A of the National Electricity Rules, version 1.0* (AER connection charge guidelines). The connection policy sets out the circumstances in which connection charges are payable and the basis for determining the amount of such charges.

The connection policy applies to all:

- new connections to ActewAGL Distribution's electricity network; and,
- modifications or alterations to existing connections to ActewAGL Distribution's electricity network;

requested after 1 July 2015, provided that the party requesting the new or modified connection is not a registered participant, as defined in the NER.¹ In the event that the party is a registered participant, ActewAGL Distribution will assess the connection application in accordance with Chapter 5 of the NER.

As well as the requirements relating to connection charges and connection policies (in Part E), Chapter 5A of the NER contains requirements for model standing offers (MSOs), connection contracts, negotiated connections, connection applications and dispute resolution. These matters are beyond the scope of the connection policy.² Information on connection application processes, timeframes and contracts and copies of ActewAGL Distribution's MSOs can be found on ActewAGL Distribution's website.³

This connection policy (version 2.0) applies for the regulatory period, from 1 July 2015 to 30 June 2019. It replaces the connection policy approved by the AER for the transitional regulatory period, from 1 July 2014 to 30 June 2015.

¹ NER Chapter 10, Glossary

² Connection policy is defined in the Chapter 5A of the NER: "*connection policy* means a document, approved as a connection policy by the AER under Chapter 6, Part E, setting out the circumstances in which *connection charges* are payable and the basis for determining the amount of such charges".

³ See <http://www.actewagl.com.au/About-us/Publications.aspx>

2 ActewAGL Distribution's connection services

ActewAGL Distribution provides 3 broad types of connection services.

2.1 Basic connection services

Basic connection services involve a connection between a distribution system and customer's premises (excluding a non-registered embedded generator's premises) in the following circumstances:

(a) either:

- the retail customer is typical of a significant class of retail customers who have sought, or are likely to seek, the service; or
- the retail customer is, or proposes to become, a micro-embedded generator; and

(b) provision of the service involves minimal or no augmentation of the distribution network; and

In any case, maximum demand is not more than 100 Amps per phase.

Basic connections are provided under a basic connection offer. In accordance with Chapter 5A of the NER, ActewAGL Distribution has prepared two model standing offers (MSOs) for basic connection services – one for retail customer connections which do not include micro-embedded generators and one for customer connections which include micro-embedded generators.⁴ The MSOs have been approved by the AER.

2.2 Major connection services

Major connections are primarily connections which have one or more of the following characteristics:

- maximum demand is greater than 5 MVA or
- the site includes embedded generation of greater than 30 kW or
- the site situation is complex or sensitive.

Major connections are provided under a negotiated offer.

2.3 Minor or routine connection services

These are all remaining types of connections which fall outside the above two categories. Minor and routine connections are too complex to be considered basic, but too small to be considered

⁴ Micro-embedded generators are up to 10 kW for single phase generators and 30 kW for three phase connections

major connections. These connections are generally for projects between 100 Amps per phase and 5 MVA.

ActewAGL Distribution's minor or routine connection services are usually provided under a negotiated offer due to large variations in the scope of works and possible solutions. However, relatively simple connection works within this category are provided under the basic connection offer.

Major and minor/routine connections usually include some components which are negotiated and other components which are subject to regulated charges, depending on the parameters of the job. For example, a customer may have special requirements relating to reliability or the location of a substation.

An indicative classification of connection types into the basic, minor/routine and major categories is shown in Table 1. The exact classification depends on individual job parameters and the scope of work.

The connection charges that apply to each of the connection types listed in Table 1 will depend on the connection services and ancillary services required – for example whether network extensions or augmentations are required, whether asset removals and relocations are required, and whether the customer requests services to a standard above the least cost technically acceptable standard (LCTAS). The full list of connection services and ancillary services offered by ActewAGL Distribution is provided in Attachment A to this policy.⁵

⁵ For completeness, the tables in Attachment A also includes other services (eg metering) which may be required as part of the connection.

Table 1: Indicative classification of connection types

<i>Type of connection</i>	<i>Basic</i>	<i>Minor / Routine</i>	<i>Major</i>
1 Single service connection – residential or small commercial load, urban location, greenfield	✓	✓	
2 Single service connection – residential or small commercial load, urban location, brownfield/already serviced block	✓	✓	
3 Single service connection – residential or commercial load, rural area	✓	✓	
4 Low voltage (LV) consumer mains		✓	
5 LV commercial or residential connection (no substation required)	✓	✓	
6 LV commercial or residential connection (substation required)		✓	✓
7 High voltage (HV) commercial connection		✓	✓
8 Subdivision estate reticulation, residential underground, typical		✓	
9 Subdivision estate reticulation, residential or commercial or mixed load, non typical		✓	✓
10 Multi-unit block (no substation required)		✓	
11 Multi-unit block (substation required)		✓	
12 Extra large block reticulation (multi hectare blocks)		✓	✓
13 Embedded generator < 30 kW	✓	✓	
14 Temporary connections	✓	✓	

Connection offers will include an itemised statement of the relevant cost components and connection charges.⁶ The potential cost components are listed in Table 2. The first three items (A, B and C) are the most commonly applied.

⁶ As required by clause 5A.E.2 of the Rules. The itemised statement will include any metering costs, where relevant.

Table 2: Customer connections – potential cost components

<i>Cost component</i>	<i>Description</i>
A Premises connection assets	<p>These assets are dedicated (or predominantly dedicated) to the single customer connection, normally located on the customer’s premises or in the immediate vicinity of the customer’s premises (the location may depend on planning requirements). These assets are unlikely to be used for the supply of other customers.</p> <p>Customers may be required to make a reasonable capital contribution towards the cost of premises connection assets in certain circumstances (see Chapters 3 and 4 of this policy). The required capital contribution will be determined using the incremental cost-revenue-test (ICRT) as specified in the AER connection charge guidelines (see Attachment B of this policy). The required capital contribution may be adjusted for in-kind contributions made by the customer (for example it may be more efficient for a developer to provide some civil works). The in-kind contribution will generally be valued at the avoided cost to ActewAGL Distribution.</p>
B Extensions	<p>Extensions involve extending the network outside the present boundaries. For load customers the extension assets are located between the existing network (upstream linkage point) and the premises connection assets. For reticulation, such as subdivision estate reticulation, extension assets are located between the existing network (downstream linkage point) and estate reticulation assets. These are shared assets or dedicated assets that could be shared. These assets extend the existing network to a connected new site – for example:</p> <ul style="list-style-type: none"> Point-of-Entry cubicle that can be looped out of to supply another customer, chamber substations (even those located within a customer block) that can be used to supply an alternative customer, HV and LV cables that are extended to a new customer, but can be used to supply an alternative customer. <p>Customers may be required to make a reasonable capital contribution towards the cost of extension assets in certain circumstances. The required capital contribution will be determined using the ICRT. More information is provided in Chapters 3 and 4 and Attachment B of this policy. The required capital contribution may be adjusted for in-kind contributions made by the customer (for example it may be more</p>

Cost component	Description
	efficient for a developer to provide some civil works). The in-kind contribution will generally be valued at the avoided cost to ActewAGL Distribution.
C Design and administration	Design and administration costs relating to the connection, including but not limited to design, asset acceptance, project management, project administration, tendering and procurement. ⁷ These may be included in the ICRT, in accordance with the AER connection charge guidelines.
D Shared network augmentation	<p>Augmentation means works to enlarge the capability of the distributor's network to distribute electricity. The works may include:</p> <ul style="list-style-type: none"> • Replacement of existing assets with assets of increased capacity or capability – for example, replace HV or LV cable with a larger cable, transformer upgrade to a larger transformer. • Installation of a new asset to increase the capacity of an existing segment of the network – for example, install an additional transformer in an existing substation. • Installation of a new asset to increase the performance, functionality or capability of the existing shared network – for example, install additional switchgear into the network. <p>Augmentation may involve augmentation of shared or dedicated assets. This cost category (D) only covers shared network augmentation. Augmentation of the shared network refers to shared network assets capacity and capability increases, other than extensions. Augmentation of dedicated assets is included in premises connection assets (cost category A above) or extensions (category B above) as applicable.</p> <p>Shared network augmentation charges (\$/kVA) may apply in certain</p>

⁷ For connections which require significant design early in the process and, in the assessment of ActewAGL Distribution, there is a high risk of the project not going ahead, a deposit for detailed design may be required before design commences (see detailed schedule of services for which a charge may apply in Attachment A). Some network technical enquiry and connection enquiry costs related to specific connections may be recovered up-front through ancillary charges, in particular those that involve costs which are incurred as part of feasibility studies and assessment of connection options.

<i>Cost component</i>	<i>Description</i>
	<p>circumstances, as described in Chapters 3 and 4 of this policy. Customers with load below the 100 Amps per phase threshold are exempt from the shared network augmentation charges.</p>
E Requirements above least cost technically acceptable standard (LCTAS) and special requirements	<p>Special requirements may be related to legal or statutory requirements, specific site requirements or other parameters of the job. Examples of above standard requirements include:</p> <ul style="list-style-type: none"> • provision of a chamber substation instead of a padmount substation, higher reliability, better security of supply, excess length of cable to supply a substation at the back of the customer’s block to satisfy architectural requirements, provision of a basement substation, developer requirements for subdivision estate reticulation. <p>Special connection requirements may also be a result of the works scope or parameters rather than customer/developer preferences. For example:</p> <ul style="list-style-type: none"> • difficult ground conditions with high rock content, difficult site access, significant additional costs related to traffic management. <p>Customers requesting a connection service of a higher standard than the LCTAS, or with special requirements, will be required to pay the additional costs. More information is provided in Chapters 3 and 4 of this policy.</p>
F Asset relocation and removal	<p>Relocation/removal of existing shared or dedicated assets where the request to relocate/remove is integral to the connection works. If the relocation or removal is not part of the connection works (for example if a pole relocation is requested by a customer), the work is not covered by Chapter 5A of the NER.</p> <p>These charges will be set on a cost reflective basis, with standard fees applying to typical services (for example a simple relocation of a single dwelling service) while non-typical services will be offered on a quoted basis. The charges will be as approved by the AER in the relevant ACT distribution determination.</p>
G Other ancillary services	<p>The connection may also require other ancillary services – for example a temporary connection or a disconnection. The full list of ancillary services is provided in Attachment A to this policy. Ancillary services</p>

<i>Cost component</i>	<i>Description</i>
	charges are set on a cost reflective basis, with standard fees applying to typical services while non-typical services are offered on a quoted basis. The charges will be as approved by the AER in the relevant ACT distribution determination.

A connection may also require metering services relating to type 5 and type 6 meters. ActewAGL Distribution is an approved metering services provider for type 5 and type 6 meters. Type 1 to 4 meters are provided by accredited metering service providers operating in a contestable market. The metering charges for type 5 and 6 meters will be as approved by the AER in the relevant ACT distribution determination.

The itemised schedule of charges for a connection may also include an amount calculated under ActewAGL Distribution's pioneer scheme. The scheme involves refunds and charges which may apply to extension assets which are paid for by an original customer but are shared with a subsequent customer within 7 years. Details on the pioneer scheme are provided in Chapter 6 of this policy.

ActewAGL Distribution's policy for determining the connection charges for each of the potential cost components shown in Table 2, and the basis on which the connection charges are determined, are described in Chapters 3 and 4 of this policy document. The policy is consistent with the connection charge principles in Chapter 5A of the NER and the AER connection charge guidelines.

3 Basis for determining connection charges

The method ActewAGL Distribution applies in determining connection charges depends on how the connection service is classified by the AER in the relevant ACT distribution determination.⁸

3.1 Standard control services

For the 2014-19 regulatory period the AER has classified most of ActewAGL Distribution's connection services as standard control services.⁹ The costs of providing standard control services are generally recovered through network tariffs. An up-front capital contribution may only be required if provisions for the costs have not already been made through existing distribution use of system charges or a tariff applicable to the connection.¹⁰

Where an up-front capital contribution is required for standard control services, it is calculated using the incremental cost-revenue-test (ICRT). Under this test, ActewAGL Distribution may seek a capital contribution for standard control connection services from a connection applicant if the incremental cost of the standard control connection services exceeds the estimated incremental revenue expected to be derived from the connection.¹¹ Details on the application of the ICRT are provided in Attachment B to this policy. The cost components typically included in the ICRT calculation for different types of connections are explained in Chapter 4 of this policy.

As permitted under clause 5.5 of the AER connection charge guidelines, ActewAGL Distribution offers a schedule of pre-calculated capital contributions for some types of connection services. The pre-calculated charges are based on the application of the ICRT averaged across similar services and expected usage characteristics.

ActewAGL Distribution has pre-calculated capital contributions for the following types of connections:

- Subdivision estate reticulation; and
- Connection of HV customers.

For other types of connections the ICRT is applied on a case-by-case basis.

⁸ This is consistent with the approach set out in the AER connection charge guidelines, Chapters 2 to 5

⁹ AER 2013, *Stage 1 framework and approach paper*, ActewAGL, March

¹⁰ Rules clause 5A.E.1(c)(6)

¹¹ AER connection charge guidelines, clause 5.1.2

3.2 Alternative control services

Connection services may also require ancillary services, such as asset relocations and removals, customer requirements above LCTAS and special customer requirements. The AER has classified these services as alternative control services for the 2014-19 regulatory period (see Attachment A).

The charges for these ancillary services are on either a fixed fee or quoted basis, as specified by the AER in the relevant ACT distribution determination.¹² Fixed fees will generally apply for standard or typical services, where costs can be averaged across similar service characteristics. Where the service varies from the standard type a quote will be provided. For example, service upgrades will be subject to fixed charges unless the specific requirements make the job more complex, for example due to significant obstacles to site access, or distances beyond the typical parameters of a service connection. Where service specifications change or new services are added during the regulatory period, for example as a result of new planning or other regulatory requirements, ActewAGL Distribution will submit to the AER proposed amendments to the relevant model standing offers.¹³

3.3 Negotiated services

For services classified by the AER as negotiated services, the connection charges will be agreed by the connection applicant and ActewAGL Distribution, in accordance with the provisions in Chapter 5A of the NER. ActewAGL Distribution may require an offer fee for negotiation and preparation of a negotiated connection offer.¹⁴ Where a fee is required, that fee must be paid prior to any negotiations and prior to ActewAGL Distribution providing an offer to connect. The fee for preparation of the offer will not exceed the amount in ActewAGL Distribution's price schedule, available at <http://www.actewagl.com.au/About-us/Publications.aspx> (follow Electricity; ACT; Electricity Network Prices).

3.4 Summary

The potential cost components (or aspects of the connection service)¹⁵, the AER classification, and the basis for determining the charges are summarised in Table 3. Details on the charges that may apply for each type of connection are then provided in the Chapter 4 of this policy.

¹² AER connection charge guidelines, clause 4.1.2

¹³ In accordance with clause 5A.B.6 of the NER

¹⁴ As permitted under clause 5A.C.4 of the NER

¹⁵ Clause 6.7A.1(b)(ii) requires the connection policy to set out the "aspects of a connection service" for which a connection charge may apply.

Table 3: AER classification of services and the basis for connection charges

<i>Cost component</i>	<i>AER classification</i>	<i>Basis for connection charges</i>
A Premises connection assets	Standard control*	Where an up-front capital contribution is applied for standard control services, it is calculated using the ICRT for a specific connection or a category of connections. Details on the ICRT and its application to each type of connection are provided in Chapter 4 and Attachment B.
B Extensions	Standard control*	As above
C Design and administration	Standard control*	As above
D Shared network augmentation	Standard control*	Capital contributions for shared network augmentation do not apply to load connections of 100 Amps per phase and below. Customers with load above 100 Amps per phase are required to make a \$/kVA contribution toward the cost of augmentation of shared network assets. More details on the shared network augmentation charge are provided below this table. Shared network augmentation charges may apply to embedded generation connections (other than micro generators <30kW connected as part of the basic connection under the relevant model standing offer). Where shared network augmentation charges apply to embedded generators they are calculated using the ICRT to ensure that any load is taken into account for a connection which includes load as well as generation.
E Customer requirements above the least cost acceptable standard (LCTAS) and special connection requirements	Alternative control	The charges will be set to fully recover the cost of the above standard requirements and special connection requirements. The charges will generally be on a quoted basis.

<i>Cost component</i>	<i>AER classification</i>	<i>Basis for connection charges</i>
F Asset relocations and removals	Alternative control	The charges for these ancillary services are on either a fixed fee or quoted basis, as specified in the relevant ACT distribution determination. [‡] Fixed fees will generally apply for services typical to the category of connection, where costs can be averaged across similar service characteristics. Where the service varies from the standard type a quote will be provided.
G Other ancillary services relating to connections [†]	Alternative control	The charges are levied either on a fixed fee or quoted basis. The charges are as approved by the AER in the relevant ACT distribution determination.

*The standard control service refers to the premises connection assets, extensions, administration and design costs and augmentations which are provided as part of the LCTAS. Additional requirements above LCTAS are classified as alternative control.

[†]The full list of ActewAGL Distribution’s ancillary services is provided in Attachment A to this policy.

[‡]Consistent with the AER connection charge guidelines, clause 4.1.2

3.5 Shared Network Asset Augmentation Charge – Upstream Augmentation

The upstream augmentation charge is not intended to recover the full cost of shared network augmentation. It is intended to provide a pricing signal to discourage customers and developers from requesting excessive capacity to service developments. The charge provides an incentive for customers to request only capacity sufficient to meet their requirements. The charge is levied in \$/kVA where kVA refers to the estimated customer maximum demand. The charge covers partially the costs of future augmentation of distribution substations and 11 kV and 22 kV feeders. Other upstream assets such as zone substations, switching stations and transmission and subtransmission lines are fully funded by ActewAGL Distribution and are not subject to the charge.

The upstream augmentation charge is calculated by first establishing an average (or benchmark) cost per kVA for augmenting:

- * High Voltage (11 kV and 22 kV) feeders; and
- * Distribution substations.

The cost applicable to each asset is adjusted by the relevant diversity factor. The factor takes into account the fact that consumers’ peak demand draws on the capacity of the network at different times. Therefore, the capacity required for many customers is less than the sum of their capacity requirements. To provide a price signal ActewAGL Distribution’s charges are

designed to contribute approximately 25 per cent of the shared network asset augmentation costs.

Developers or customers connecting directly to the HV feeders will pay the upstream augmentation charge applicable for augmenting HV feeders. Developers connecting to a distribution substation will pay the upstream augmentation charges applicable to distribution substations and HV feeders. Developers connecting to the LV circuits would pay the upstream augmentation charge applicable to the distribution substation and HV feeder. If the customer already pays for the upstream asset, such as in the case of dedicated feeders for HV customers, the charge is not levied on those customers to ensure there is no double charging.

The charges for 2015/16, calculated in accordance with clause 5.2.8 of the AER connection charge guidelines, are shown in Table 4. Charges for subsequent years will be escalated by the CPI.¹⁶

Table 4: Upstream augmentation charges 2015/16

	\$/kVA (excl. GST)	\$/kVA (incl. GST)
HV feeders	34.71	38.18
Distribution substations	20.12	22.13
Total	54.83	60.31

The customer's estimated maximum demand will be calculated using the method applied for the ICRT. Details are provided in Attachment B of this policy.

The revenue received from upstream augmentation charges is offset against the regulated asset base. That is, the value of the asset contributed by the customer through the shared network augmentation charge is not included the regulated asset base.¹⁷

¹⁶ As defined in chapter 10 of the NER

¹⁷ Consistent with clause 11.1.1 of the AER connection charge guidelines (Treatment of augmentation assets).

4 Charge components by connection type

The connection charges payable for each type of connection will depend on the outcome of the application of the ICRT and the particular requirements of the connection. If the outcome of the ICRT is that the estimated incremental revenue exceeds the estimated incremental costs, then the connection is said to “pass the ICRT”, so no capital contribution will be required for premises connection assets or network extensions.

The connection types listed in this chapter correspond to the list in Table 1 (in Chapter 2 of this policy). The following legend applies to the tables for each of the connection types.

Legend for connection charges tables in Chapter 4	
✓	Charge applies
X	Charge does not apply or rarely applies
+	Charge may apply depending on the scope and parameters of the connection

4.1 *New single service connection (<100 Amps) residential or commercial customer, greenfield and unserviced blocks, urban location*

Generally these types of connections are classified as basic connections and pass the ICRT. Residential and small commercial customers seeking a basic connection (as defined in Chapter 2 of this policy and the approved MSOs) on unserviced blocks will not be required to make a contribution to the costs of premises connection assets (A), network extensions (B), design and administration (C) and augmentation of shared network assets (D). These costs will be fully recovered in network tariffs. The ICRT will be applied, and a capital contribution required, only in unusual cases. The pioneer scheme does not apply to this type of connection.

Table 5: Breakdown of costs – single service connections to residential or commercial customers, greenfield and unserved blocks, urban location

<i>Cost component</i>	<i>Charge</i>	<i>Comment</i>
A Premises connection assets	X	No charge for LCTAS connection.
B Extensions	X	No charge for LCTAS connection.
C Design and administration	X	No charge for design and administration relating to LCTAS connection.
D Shared network augmentation	X	No charge. The load is below the shared network augmentation charge threshold.
E Customer requirements above LCTAS and special connection requirements	+	May apply but generally does not apply to new connections of this type.
F Asset relocation and removal	+	Generally not relevant to new connections of this type in greenfield locations.
G Other ancillary services	+	Some ancillary service charges may apply.

4.2 New single service connection (<100 Amps) residential or commercial customer, brownfield or already serviced blocks, urban location

Residential or commercial customers seeking a basic single service connection on serviced blocks will generally not be required to make a contribution to the costs of premises connection assets (A), network extensions (B) or design and administration (C) up to the cost equivalent to a new LCTAS connection in a greenfield area. These customers are not required to contribute to the cost of augmentation of shared network assets (D) as they are below the threshold.

New service connections in brownfield areas and already serviced blocks often require additional work due to constrained access to the site and accessibility of the network linkage point. For high volume residential connections a fixed fee reflecting an average additional cost applies. For other types of connections, if the cost of connection is higher than the LCTAS greenfield connection, a contribution equivalent to the additional cost is charged to the customer. That is, the customer seeking a new service connection in brownfield areas receives a rebate equivalent to the cost of the LCTAS greenfield connection.

Standard service upgrades are charged in accordance with the approved ancillary charges. Other ancillary charges may apply for various work components. For example, a new service connection in already serviced blocks may require relocation/removal of the existing service.

Standard service relocations are subject to the AER approved ancillary charges. For above standard services or special requirements quoted charges may apply.

The pioneer scheme does not apply to this type of connection.

Table 6: Breakdown of costs – single service connections (<100 Amps) to residential or commercial customers, brownfield or already serviced blocks

<i>Cost component</i>	<i>Charge</i>	<i>Comment</i>
A Premises connection assets	✓	For a typical brownfield residential connection a fixed fee reflecting a higher cost of connection compared with LCTAS applies. No charge for premises connection if the cost does not exceed the LCTAS greenfield connection. For residential service upgrades, generally a fixed fee will apply. For other types of connection in this category the capital contributions will be based on quoted cost minus the rebate equivalent to LCTAS greenfield connection.
B Extensions	X	Rarely applies to connections of this type.
C Design and administration	X	Rarely applies to connections of this type.
D Shared network augmentation	X	No charge. The load is below the shared network asset charge threshold.
E Customer requirements above LCTAS and special connection requirements	+	Often applies to this type of connection in brownfield areas. Charges will apply on a quoted basis.
F Asset relocation and removal	+	Likely to apply in brownfield areas and already serviced blocks. Fixed fees apply to typical residential asset relocations and removals. Quoted charges apply to other asset relocations and removals.
G Other ancillary services	+	Other ancillary service charges will apply where relevant.

4.3 New single service connection (<100 Amps) residential or commercial load, rural area

The ICRT is applied to standard components of the connection cost: premises connection assets (A), extensions (B) and design and administration (C). If the connection passes the ICRT, the

treatment is the same as for single service connections in an urban area (see section 4.1 above). If the connection does not pass the ICRT, the applicable capital contribution is calculated by applying the ICRT to the connection. A rebate equivalent to the cost of a new greenfield LCTAS connection is applied.

If the customer pays a capital contribution towards the cost of network extension (B), the extension will be subject to the pioneer scheme for a period of 7 years.

Table 7: Breakdown of costs – connection which does NOT pass the ICRT test, new single service connection, residential or commercial load, rural area

<i>Cost component</i>	<i>Charge</i>	<i>Comment</i>
A Premises connection assets	✓	Capital contribution calculated using ICRT, less rebate equivalent to the LCTAS greenfield connection.
B Extension	✓	As above.
C Design and administration	✓	As above.
D Shared network augmentation	X	No charge. The load is below the shared network augmentation charge threshold.
E Customer requirements above LCTAS connection and special connection requirements	+	Generally does not apply, but may apply depending on the specific requirements of the connection.
F Asset relocation and removal	+	Generally does not apply to new connections of this type.
G Other ancillary services	+	Some ancillary service charges may apply.

4.4 LV commercial or residential connection (> 100 Amps) (no distribution substation required)

These connections are provided from an existing substation located in the vicinity of the load through a low voltage cable or overhead line. Generally all connections of this type pass the ICRT, so a capital contribution is not required for connection assets (A), extension (B) and design and administration (C) for the LCTAS connection. A \$/kVA charge is levied towards augmentation of the shared network upstream assets if the load is above 100 Amps per phase.

Charges may apply due to above standard and special requirements (E), asset relocation and removal (F) and other ancillary services (G) depending on the connection requirements.

Generally the pioneer scheme does not apply to this type of connection.

Table 8: Breakdown of costs – (>100 Amps) typical LV commercial or residential connection (no distribution substation required), brownfield or greenfield

<i>Cost component</i>	<i>Charge</i>	<i>Comment</i>
A Premises connection assets	X	No charge for LCTAS connection.
B Extensions	X	No charge for LCTAS connection
C Design and administration	X	No charge for LCTAS connection
D Augmentation shared network	✓	\$/kVA charge applies.
E Customer requirements above the LCTAS connection and special connection requirements	+	May apply depending on customer requirements and special connection requirements.
F Asset relocation and removal	+	Generally not applicable in greenfield areas. Likely to apply in brownfield areas and on already serviced blocks. Usually a quoted service.
G Other ancillary services	+	Some charges may apply depending on the scope of the job. For example, disconnection charges may apply on already serviced blocks.

4.5 LV consumer mains

This is an LV connection provided to a customer through LV consumer mains from the point of entry to a designated location on the customer’s block or from an ActewAGL Distribution substation to a designated location on the customer’s block. With respect to connection charges, this type of connection is treated in the same way as the LV connections described in sections 4.4 and 4.6. However, if the load is below 100 Amps the \$/kVA charges for augmentation of the shared network assets do not apply. ActewAGL Distribution is normally responsible for the installation of premises connection assets, network extensions and augmentations. The customer is expected to install consumer mains and provide a trench/conduit to the boundary of the block to enable a customer’s connection to the network by ActewAGL Distribution.

4.6 LV commercial or residential connection (> 100 Amps) (distribution substation required)

For these connections the distribution substation is provided either as a part of premise connection assets or as part of the network extension, depending on whether the substation is a dedicated asset or a shared network asset.

Typically connections in this category pass the ICRT, so no capital contribution is required for premises connection assets (A), network extension (B), design and administration (C). Generally the pioneer scheme does not apply to this type of connection, because the connections pass the ICRT.

Table 9: Breakdown of costs – typical LV commercial or residential connection >100 Amps (distribution substation required)

<i>Cost component</i>	<i>Charge</i>	<i>Comment</i>
A Premises connection assets	X	No charge for LCTAS connection
B Extensions	X	No charge for LCTAS connection.
C Design and administration	X	No charge for LCTAS connection
D Shared network augmentation	✓	\$/kVA charge applies.
E Customer requirements above LCTAS connection and special connection requirements	+	May apply depending on the customer requirements.
F Asset relocation and removal	+	Generally not applicable in greenfield areas. Likely to apply in brownfield areas and on already serviced blocks. Quoted service.
G Other ancillary services	+	Some charges may apply depending on the scope of the job – for example disconnection charges may apply on already serviced blocks.*

*Network technical enquiry and network study charges and contract negotiation charges may also apply. These charges are more likely to apply to this connection than to other smaller connections. Connections of this type may involve considerable design costs. An upfront design deposit may be requested before design commences.

4.7 HV commercial connections

ActewAGL Distribution offers four different HV tariffs involving different HV and LV ownership and maintenance responsibilities. The lower HV tariffs reflect the fact that HV customers are charged a capital contribution for connection assets (A), extensions (B), design and administration (C). HV customers effectively pay for all the capital works on the dedicated

distribution feeders and distribution substations including increases in capacity/upgrades. The requirement to pay for the LV network depends on the ownership of the LV network assets reflected by the tariff paid by the customer.

Generally the pioneer scheme does not apply, because extension assets which the customer pays for remain dedicated assets.

Table 10: Breakdown of costs – typical HV commercial connection

<i>Cost component</i>	<i>Charge</i>	<i>Comment</i>
A Premises connection assets	✓	Capital contribution. Customer pays for the premise connection assets.
B Extension	✓	Capital contribution. Customer pays for extensions.
C Design and administration	✓	Capital contribution. Customer pays for the design and administration costs
D Augmentation shared network	X	Generally does not apply. \$/kVA charge applies only in relation to assets for which customer does not pay as part of A or B.
E Customer requirements above LCTAS connection and special connection requirements	+	May apply depending on the customer requirements and special connection requirements.
F Asset relocation and removal	+	May apply depending on the location and scope of connection. Likely to apply in brownfield areas and on already serviced blocks.
G Other ancillary services	+	Some charges may apply depending on the scope of the job.*

*Network technical enquiry and network study charges and contract negotiation charges may apply. Connections of this type may involve significant design costs. An upfront design deposit may be requested before design commences.

4.8 Subdivision estate reticulation, residential underground, typical

The reticulation of a subdivision is initiated at the request of the real estate developer. ActewAGL Distribution treats the developer in a way similar to a single load customer.

To reticulate a subdivision estate ActewAGL Distribution has to install network electrical infrastructure, in particular substations, pits or mini pillars and cables. The developer provides civil infrastructure including the trench used for electrical reticulation and other shared services.

The reticulation involves reticulating within the estate from the linkage point with the upstream network to the downstream customer linkage points which are later used to connect individual customers to the network. The downstream linkage point is usually either at the pit or pillar (depending on the type of underground reticulation system employed). The reticulation assets are located between these linkage points.

ActewAGL Distribution assesses whether the subdivision estate is a typical estate. This is done on the basis of the ratio of single residential blocks to multi-unit blocks, network extension requirements and inclusion of non-residential load, such as shops, offices or schools.

If an estate is assessed as a typical estate, a capital contribution in the form of charge per block is applied to each single residential block. Per block capital contributions are applied in a two tier structure: one charge for blocks up to 650 sq m and another for blocks 650 to 1100 sq m. Developments on multi-unit blocks (that is, medium density and higher density developments) usually pass the ICRT. Consequently capital contributions do not apply to multi-unit blocks.

In the case of subdivision estate reticulation the electrical infrastructure within the estate (that is, cables, pillars/pits, substations) are treated in a way similar to connection assets (A) of a load customer.

Any headworks required between the existing network and the estate is considered to be an extension (B). An extension may involve multiple cables installed in single trench for the connection of future estates and customers. Usually the capacity of an extension is taken up by the load within a reasonably short period of time, therefore extensions are generally excluded from the ICRT for a typical estate and consequently they are not subject to a capital contribution. The extension cost (B) is included in the ICRT only if it is used for a single estate and there is no reasonable prospect that it will be used for other estates within 7 years. This typically applies to subdivisions in rural locations. If the developer pays a capital contribution towards an extension for a single subdivision the extension will be subject to the pioneer scheme.

If the subdivision estate reticulation is assessed as a non typical estate, the ICRT is applied to calculate the required capital contribution (see section 4.9 below).

Generally the pioneer scheme does not apply, because extensions (headworks) are not subject to capital contributions for most estates.

Table 11: Breakdown of costs - typical residential subdivision estate reticulation

<i>Cost component</i>	<i>Charge</i>	<i>Comment</i>
A Connection assets (i.e. <i>reticulation assets</i>)	✓	Capital contribution charged on per block basis for single dwelling blocks.
B Extension (ie headworks)	X	Generally no charge. See comment in section 4.8
C Design and administration	✓	As above for the connection assets.
D Augmentation shared network	X	\$/kVA charge does not apply
E Customer requirements above least cost technically acceptable connection and special connection requirements	+	May apply depending on the developer requirements and special reticulation requirements e.g. special mini-pillar offsets or locations, changes in scope by the developer after design commences
F Asset relocation and removal	+	Applicable in many cases due to a need for relocation or removal of the existing assets within the estate. Quoted service
G Other ancillary services	+	Some charges may apply depending on the scope of the job.

*Contract negotiation charges may apply. Connections of this type may involve considerable design costs. An upfront design deposit may be requested before design commences. Additional charges may apply to changes of scope and requirements by developers after design commences

4.9 Subdivision estate reticulation, residential or commercial or mixed load, non typical

If the subdivision estate reticulation is assessed by ActewAGL Distribution as a non typical estate, the ICRT is applied to calculate the required capital contribution. The electrical infrastructure assets within the estate (that is, cables, pillars/pits, substations) are considered to be connection assets (A). Since the developer is treated as a single customer, these assets are considered dedicated assets for the purpose of the estate.

Any headworks required between the existing network and the estate are considered to be extensions (B). Most extensions are built for the use of many retail customers. The cost of headworks (that is, extensions) is generally excluded from the ICRT. Therefore the pioneer scheme usually does not apply to subdivision estates.

The extension cost (B) is included in the ICRT only if it is used for a single estate and there is no reasonable prospect that it will be used for other estates within 7 years. This may apply to

subdivisions in rural locations. If the developer pays a capital contribution towards an extension for a single retail customer, the extension will be subject to the pioneer scheme.

Table 12: Breakdown of costs – non-typical residential, commercial and mixed subdivision estate reticulation.

<i>Cost component</i>	<i>Charge</i>	<i>Comment</i>
A Connection assets (i.e. estate reticulation assets)	✓	Capital contribution. Subject to ICRT.
B Extension (ie. headworks)	X	Generally no charge. See comment in section 4.9.
C Design and administration	✓	As above for the connection assets. Subject to ICRT.
D Augmentation shared network	X	\$/kVA charge does not apply
E Customer requirements above the LCTAS connection and special connection requirements	+	Often applies to non-typical estates due to developer requirements and special reticulation requirements.
F Asset relocation and removal	+	Applicable in many cases, due to need for relocation or removal of the existing assets within the estate. Quoted service.
G Other ancillary services	+	Some charges may apply depending on the scope of the job.*

*The reticulation usually requires considerable investment from ActewAGL Distribution. Contract negotiation charges may apply. Connections of this type may involve considerable design costs. An upfront design deposit may be requested before design commences. Additional charges may apply to changes of scope and changes in requirements by developers.

4.10 Multi-unit block (no substation required)

The connection of a load on multi-unit blocks consists often of two distinct parts. The first part is the connection of the block and, if applicable, the second part is the reticulation of power within the block. Depending on the design, not all multi-unit blocks require internal block reticulation.

The first part, the connection of the multi-unit block, is treated in similar way to the LV connection (no substation required) described in section 4.4 above. The second part, the reticulation within the block, is the responsibility of the developer.

Generally a multi-unit block the connection will pass the ICRT, so no capital contribution charges will apply to the connection assets (A), extension (B) and design and administration (C).

If a developer elects for ActewAGL Distribution to design and construct the reticulation system within the block, the cost of work will be quoted and charged to the developer. If the developer chooses to reticulate the block, they will do it at their own expense.

Some ancillary charges, for example relating to asset acceptance, may apply.

The pioneer scheme usually does not apply to this type of connection.

4.11 Multi-unit block (substation required)

For the treatment of connection of multi-unit blocks when a substation is required refer to section 4.10.

4.12 Extra large block reticulation (multi hectare blocks)

The charges relating to connection and reticulation of the extra large blocks are treated in the same way as reticulation of non typical subdivision estates (see section 4.9).

4.13 Embedded generators up to 30 kW (micro-generators)

(a) Connected as part of the basic connection

If the micro embedded generator is connected as part of a basic connection, the generator connection is made under the relevant MSO. No extensions or augmentation of the existing network are required and consequently there is no capital contribution. If a new meter or replacement meter is required for the generator connection, the customer will be charged a fixed fee for the provision of the compliant meter. A requirement for a new/replacement meter will depend on the existing meter installed on the premises and whether the generator participates in a net or gross feed-in-tariff or buy back scheme.

Similar treatment is extended to any micro generation connection which does not require changes to the existing network other than installation of metering.

Table 13: Breakdown of costs – typical installation of a micro-generator provided as part of a basic connection.

<i>Cost component</i>	<i>Charge</i>	<i>Comment</i>
A Premise connection assets	✓	No charge for the premise connection assets, however a charge for a new/replacement compliant meter may apply
B Extension	+	Generally not relevant to basic connections
C Design and administration	+	Generally not relevant to basic connections
D Augmentation shared network	X	No charge.
E Customer requirements above LCTAS connection and special connection requirements	+	Generally does not apply, but may apply in some circumstances.
F Asset relocation and removal	+	Generally not relevant to basic generator connection
G Other ancillary services	+	Some charges may apply depending on the scope of the job

(b) Not connected as part of a basic connection

If a connection requires modification to the network, the customer may be charged the cost of network modifications, as well as the cost of metering.

If the connection involves an embedded generator and a load, the capital contribution is based on the total incremental cost of the work. The relevant load for the purpose of the cost relating to the shared network is the gross peak demand of the load regardless of the generators expected output.

Generally the pioneer scheme does not apply to this type of connection.

Table 14: Breakdown of costs – typical installation of embedded micro generator which requires modifications to the existing network.

<i>Cost component</i>	<i>Charge</i>	<i>Comment</i>
A Premises connection assets	✓	Charges apply if changes to the connection assets are required. In addition a charge may apply for a new/replacement compliant meter (if applicable).
B Extension	✓	Charges apply if extension of the network is required.
C Design and administration	✓	Charges apply if connection contains a design and administration component
D Augmentation shared network	+	Generally not relevant to the small generators. Generators cover the cost if augmentation required and the generator is the main beneficiary.
E Customer requirements above LCTAS connection and special connection requirements	+	Generally does not apply, but may apply in some cases.
F Asset relocation and removal	+	Generally not relevant to generator connections, but may be required in some cases.
G Other ancillary services	+	Some charges may apply depending on requirements of the connection

4.14 Temporary connections

Temporary connections are usually required to provide electricity supply during construction. Temporary connections may also be required to provide electricity supply to special events.

The costs of providing a temporary connection are recovered from the customer. Standard and typical temporary connections are provided on the fixed fee basis. Larger construction projects may require larger capacity supply arrangement including a requirement for a temporary substation. These larger connections are charged on a quoted basis.

5 Financial guarantees

If ActewAGL Distribution fairly and reasonably assesses that there is a high risk that it may not earn the estimated incremental revenue from a connection applicant and, as a result, the incremental revenues will be less than the incremental costs of the connection, it may require a financial guarantee in the form of a bank guarantee.¹⁸ A financial guarantee will generally only be required in relation to connections that are the subject of a negotiated offer, the cost of the connection funded by ActewAGL Distribution exceeds \$200,000 and there is a significant difference between ActewAGL Distribution's and the customer's load forecasts.

A financial guarantee is a binding legal agreement between ActewAGL Distribution and the customer (which may be a real estate developer) where the customer guarantees to pay ActewAGL Distribution if the connection does not meet, within a specified period, the load required to make the incremental revenue equal to or greater than the incremental cost. The period will nominally be 5 years, although this can be varied on a case by case basis, depending on the nature of the risks involved.

The financial guarantee will be established at the time the connection offer is accepted and prior to the works commencing. The financial guarantee will be in the form of a bank guarantee provided by the customer, or other suitable financial instrument as agreed by ActewAGL Distribution. ActewAGL Distribution is entitled to withdraw from the bank guarantee any shortfall in actual targets, in accordance with the terms stated in the deed and the bank guarantee.

The amount of the financial guarantee will not be greater than the amount of the connection service charge that ActewAGL Distribution would have charged had it forecast incremental revenue using a low risk forecast of the load and adjusted for time cost of money.

Any payments made to ActewAGL Distribution under the financial guarantee scheme must correspond to a difference between the guaranteed load and the actual load. Depending on the type and characteristics of the load, it may be appropriate to assume that the load increases to a guaranteed level over a period of time – for example 1 to 2 years. If the load is below the guaranteed level in one year and exceeds the guaranteed level in another year, relevant over and under adjustments apply.

¹⁸ The AER connection charge guidelines refer to financial guarantees as security fees. Chapter 5A of the Rules instead uses the term financial guarantee.

6 Pioneer scheme

Where a customer has made a capital contribution towards the cost of extension assets, then within the next 7 years if a subsequent customer connects to those extension assets, ActewAGL Distribution will, under the circumstances described below, refund part of the original customer's capital contribution. If the subsequent customer is required to pay a capital contribution toward the extension (as a result of the application of the ICRT) then that customer may also be required to make a contribution towards the refund to the original customer.

6.1 Method for calculating the amount of a refund under the Pioneer Scheme

1. Eligibility

To be eligible for a refund:

- the customer (including a real estate developer) must have paid connection charges for an extension asset installed to connect a single retail customer (including non-registered embedded generator or micro embedded generator).
- the customer is either the current occupier of a premise or the original occupier (which paid for, or for part of, an extension) of the premise. If there is a dispute between the current occupier and the original occupier of a premise as to who is eligible for a refund, if there is no written evidence of an agreement to the contrary, the current occupier of the premise shall be taken to be entitled to any refund.

A customer is ineligible if:

- ActewAGL Distribution built the extension to take a higher capacity than required by the original customer and the capacity required by the new customer (and other subsequent customers) is less than the amount of the additional higher capacity constructed.
- the customer is a real estate developer and paid only for the portion of the total cost attributable to the real estate developer.
- it is 7 or more years since the extension assets were originally installed.

2. Value of assets subject to the pioneer scheme

The value of the extension assets subject to the pioneer scheme (before depreciation) is given by:

$$H = I - J$$

Where: H is the value of the extension assets subject to the pioneer scheme before depreciation;

I is the amount paid by the original customer for the extension assets; and

J is the amount paid by the original customer for a higher standard or higher capacity than the least cost technically acceptable standard or capacity.

The value of assets subject to the pioneer scheme is given by:

$$K = HL$$

Where: K is the depreciated value of the assets subject to the pioneer scheme

L is the depreciation factor given by:

Where: $L = M/N$

M = is the remaining life of the assets (from date of commissioning) in days; and

N = the life of the assets in days (20 years).

3. Amount of the refund to the first customer

The amount of the refund is given by:

$$P = K\gamma QR$$

Where: P is the amount of the refund;

$K\gamma$ is the depreciated value of the asset subject to the pioneer scheme inflated by the increase in the CPI since the initial construction

Q is the subsequent customer's share of the length of the extension asset and is given by:

$$Q = T/U$$

Where: T is the length of asset used by the subsequent customer; and

U is the length of the original asset.

R is the subsequent customer's share of the capacity of the extension asset and is given by:

$$R = S/(V+S)$$

Where: S is the capacity required by the subsequent customer; and

V is the capacity required by the original customer.

If the subsequent customer is required to pay a capital contribution as a result of the application on the ICRT (including the refund) and the total refund is over \$1,000 (\$ 2012), the that customer is to pay the refund to ActewAGL Distribution. If the refund is over \$1,000 (\$ 2012), ActewAGL Distribution will pay the refund to original customer.

4. Subsequent Refunds

For subsequent refunds, the assets subject to the pioneer scheme need to be recorded according to the ownership arrangements.

If a subsequent customer connects to the extension assets, the original customer will now hold two types of assets:

- Assets not shared, the value of which is given by: $W = K\gamma(1-Q)$
- Assets shared with the first customer, the value of which is given by: $X = K\gamma Q(1-R)$

The first customer to subsequently connect has assets which they share with the original owner, the value of which is given by "P", the amount of the refund.

When calculating a subsequent refund, the value of assets (W, X & P) must be depreciated to reflect their remaining life and appreciated for the change in CPI since the previous refund. The depreciation factor applied to each of customer assets is given by:

$$Y = Z/M$$

Where Y is the depreciation factor;

Z is the remaining life of the asset (days) assuming original life of 20 years.

M is the remaining life of the asset (days) at the time of the previous refund.

The amount of the refund for each ownership component of the original asset is to be calculated as for the original asset described in step 3 above.

If the second subsequent customer is required to pay a capital contribution as a result of the application on the ICRT (including the refund) and the total refund is over \$1,000 (\$2012), the new customer is to pay the refund to ActewAGL Distribution. If the refund is over \$1,000 (\$2012), ActewAGL Distribution will pay the refund to the original customer and first subsequent customer and record the assets attributable to each customer.

7 Prepayments

For connections where the estimated connection charges are greater than \$50,000, ActewAGL Distribution requires an advance payment of 50 per cent of the total charges and a bank guarantee for the balance. The bank guarantee is used as payment upon completion of the works. Alternative payment arrangements may apply, as set out in agreed terms between ActewAGL Distribution and the connection applicant.

Full prepayment is required, at the time of formal acceptance of the connection offer, for connections where the estimated connection charges are less than \$50,000.

8 Definitions

Augmentation of a transmission or distribution system means work to enlarge the system or to increase its capacity to transmit or distribute electricity.

Brownfield or already serviced block new connection is a connection of a load on a block which is electrically serviced, but a new service has to be provided due to redevelopment or change in load.

Connection contract means a contract formed by the making and acceptance of a connection offer.

Connection offer means an offer by ActewAGL Distribution to enter into a connection contract with: (a) a retail customer; or (b) a real estate developer.

Connection policy means a document, approved as a connection policy by the AER under Chapter 6, Part E, of the NER 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.

Greenfield or unserviced block new connection refers to a connection of a load on a block which was not previously electrically serviced.

Embedded generator is a generator connected to the distribution network.

Extension means an augmentation that requires the connection of a power line or facility outside the present boundaries of the network owned, controlled or operated by ActewAGL Distribution.

HV customer connection is a load connection for which the linkage point(s) between the network assets and premise connection assets is at 11 kV or 22 kV.

Least Cost Technically Acceptable Standard (LCTAS) refers to the least cost service consistent with ActewAGL Distribution supply security and reliability standards. The LCTAS assumes typical site conditions and job characteristics for the particular category of connection.¹⁹

Linkage points mean points which define different parts of the electrical network. For example an extension relates to assets between a linkage point to the existing network on the upstream side and a linkage point to premises connection assets on the downstream side. The premises connection assets are normally linked to customer installation on the downstream side.

¹⁹ The AER describes the least cost technically acceptable standard as “the cheapest connection method, including both material and labour costs that is consistent with industry practice and meets the requirements of any relevant legislation, guidelines or codes”. See AER 2012, *Connection charge guidelines under Chapter 5A of the NER, Final decision*, June, p. 30.

Micro EG connection means a connection between an embedded generating unit and a distribution network of the kind contemplated by Australian Standard AS 4777 (Grid connection of energy systems via inverters).

Micro embedded generator means a retail customer who operates, or proposes to operate, an embedded generating unit for which a micro EG connection is appropriate.

Model standing offer means a document approved by the AER as a model standing offer to provide basic connection services (see clause 5A.B.3 of the NER) or as a model standing offer to provide standard connection services (see clause 5A.B.5 of the NER).

Premises connection assets means the components of a distribution system used to provide connection services.

Relevant ACT distribution determination means, for this version 2.0 of the connection policy, the AER's determination for ActewAGL Distribution for the subsequent regulatory period 1 July 2015 to 30 June 2019.

Retail customer includes a non-registered embedded generator and a micro embedded generator.

Reticulation assets means electrical assets normally consisting of cables, substations and pillars/pits located between the upstream linkage point to the network and downstream linkage point to which customer connection assets will be connected (normally at a pit or a pillar).

9 Abbreviations

Term	Meaning
AER	Australian Energy Regulator
CT/VT	current transformer/voltage transformer
DUOS	distribution use of system
HV	high voltage
ICRT	incremental cost-revenue-test
kW	Kilowatt
kVA	kilovolt ampere
LCTAS	least cost technically acceptable solution
LV	Low voltage
MSO	Model standing offer
MVA	megavolt ampere
NER	National Electricity Rules
OH	overhead
UG	underground

10 Point of contact

For more information visit <http://www.ActewAGL.com.au> or call 131 493.

11 Disclaimer

While ActewAGL Distribution will periodically review this policy to account for the impact of any future changes to legislation or regulation, ActewAGL Distribution does not make any representation or warranty, express or implied, as to the currency, accuracy, reliability or completeness of this policy, or the information contained in it.

It is the customer's responsibility to ensure that the arrangements applicable to a specific connection are confirmed with ActewAGL Distribution at the time that an application to connect is made.

Attachment A: ActewAGL Distribution’s connection services and ancillary services – AER classification and basis for charging

Table A1 shows ActewAGL Distribution’s connection services and ancillary services²⁰, the AER’s classification (standard control or alternative control) and the basis for charging. For standard control services the basis for charging is as set out in Chapter 3 of this policy, and for alternative control services the charge is either a fee (F) or on a quoted basis (Q), as approved by the AER in the relevant ACT distribution determination.

Table A1 shows existing services as well as those that are under consideration for introduction during the 2014-19 regulatory period to provide appropriate user pays price signals to customers. Table A2 below contains a description of those services from Table A1 which ActewAGL Distribution proposes to provide on a fixed fee basis for 2014/15.

Table A1: ActewAGL Distribution’s services – AER classification and basis for charging

<i>Type of service</i>	<i>AER classification</i>	<i>Basis for charging</i>
Connection Services		
1 Service Connections <=100 Amps (Note 1)	Standard	Chapter 3
New Service - Residential - UG Greenfield [Includes Meter Installation]	Standard	
New Service - Residential - UG Brownfield [Front/Includes Meter Installation]	Standard	
New Service - Residential - UG [Backspine/Includes Meter Installation]	Standard	
New Service - Commercial/Industrial (<=100 Amps) - OH [Includes Meter Installation]	Standard	
New Service - Commercial/Industrial (<=100 Amps) - UG [Front / Includes Meter Installation]	Standard	
New Service - Commercial/Industrial (<=100 Amps) - [Backspine / Includes Meter Installation]	Standard	
New Service - Unmetered – OH	Standard	

²⁰ Metering services are also included in the table. While not covered by Chapter 5A of the Rules and the AER connection charge guidelines, they may be required as part of the connection, and are therefore included here for completeness.

<i>Type of service</i>	<i>AER classification</i>	<i>Basis for charging</i>
New Service - Unmetered – UG	Standard	
2 LV connections	Standard	Chapter 3
LV Connection (>100 Amps) substation required	Standard	
LV Connection (>100 Amps) customer substation not required	Standard	
LV connection – consumer mains	Standard	
3 HV connection	Standard	Chapter 3
Connection (>100 Amps) HV customer	Standard	
4 Subdivision estate reticulation	Standard	Chapter 3
Subdivision estate reticulation residential	Standard	
Subdivision estate reticulation commercial	Standard	
Extra large blocks reticulation (multi -hectare sites)	Standard	
5 Multi occupant sites connection	Standard	Chapter 3
Multi-occupant sites residential or commercial – substation required	Standard	
Multi-occupant sites residential or commercial – no substation required	Standard	
6 Embedded generator connections	Standard	Chapter 3
Embedded generator connection =< 30 kW (which is part of the basic connection).	Standard	
Embedded generator connection =<30 kW (which is not part of the basic connection)	Standard	
Ancillary services		
7 Network technical enquiries, studies and negotiations (See comments at end of this table)	Alternative	
Network technical enquiry (Note 2)	Alternative	F or Q
Network capability assessment (Note 2)	Alternative	F or Q
Network technical studies (Note 2)	Alternative	F or Q
Connection design deposit (Note 3)	Alternative	Q
Connection enquiry (LV connection)	Alternative	F
Connection enquiry (HV connection)	Alternative	F
Negotiated connection offer negotiation charge	Alternative	Q
Negotiated customer contract negotiation fee	Alternative	Q

<i>Type of service</i>	<i>AER classification</i>	<i>Basis for charging</i>
8 Asset relocations, removals, isolation and disconnections (Note 4)		
8.1 Service Relocations (<=100 Amps)		
Residential Service Relocation - OH to OH	Alternative	F or Q
Residential Service Relocation - OH to OH [2 moves]	Alternative	F or Q
Residential Service Relocation - OH to UG	Alternative	F or Q
Residential Service Relocation - UG to UG [Front]	Alternative	F or Q
Residential Service Relocation - UG to UG [Backspine]	Alternative	F or Q
Residential Service Relocation - UG to OH [Front]	Alternative	F or Q
Residential Service Relocation - UG to OH [Backspine]	Alternative	F or Q
8.2 Disconnection for Demolition/Removal (<=100 Amps)	Alternative	
Disconnection – OH	Alternative	F
Disconnection - OH to Temporary	Alternative	F
Disconnection – UG	Alternative	F
Disconnection - UG to Temporary	Alternative	F
Disconnection – UGT	Alternative	F
Disconnection - UGT to Temporary	Alternative	F
Network Isolation - HV	Alternative	F or Q
Network Isolation - LV	Alternative	F or Q
Network Isolation & Drop - LV	Alternative	F or Q
Network Isolation & Drop - HV	Alternative	F or Q
UG Service / Meter Box Isolation < 100 Amps	Alternative	F or Q
Service / MSB Isolation > 100 Amps	Alternative	F or Q
OH Service / MSB Isolation & Drop > 100 Amps	Alternative	F or Q
OH Service / Meter Box Isolation & Drop < 100 Amps	Alternative	F or Q
8.3 Other assets relocations and removals (customer request)	Alternative	F or Q
9 Service Upgrades (when the block is already serviced)	Alternative	
Service 1 Phase to 3 Phase Upgrade - OH [No Cable Change required]	Alternative	F
Service 1 Phase to 3 Phase Upgrade - OH [Service Cable Change Required]	Alternative	F or Q
Service 1 Phase to 3 Phase Upgrade - UG [No Cable Change	Alternative	F

<i>Type of service</i>	<i>AER classification</i>	<i>Basis for charging</i>
required]		
Service 1 Phase to 3 Phase Upgrade - UG [Cable Change Required]	Alternative	F or Q
10 Temporary Supplies	Alternative	
Temporary Supply Connections (<=100 Amps)	Alternative	F or Q
Temporary Supply – OH	Alternative	F or Q
Temporary Supply – UG	Alternative	F or Q
Temporary Supply - UG (permanent location)	Alternative	F
Other temporary supplies (e.g. for complex projects)	Alternative	Q
11 Metering		
Off-Peak Metering (type 5 – type 6)	Alternative	F
New Type 5 - 7 meter installation	Alternative	F
Meter upgrade requested by the customer	Alternative	F
Meter replacement due to faulty meter	Standard	No charge
12 Miscellaneous charges	Alternative	
Consumer Mains Terminations - Substation	Alternative	F or Q
Consumer Mains Terminations - Pillar/Cubicle	Alternative	F or Q
Tiger Tails - LV Service	Alternative	F or Q
Tiger Tails - LV Mains	Alternative	F or Q
Tiger Tails - HV Mains	Alternative	F or Q
Warning Flags - HV Mains	Alternative	F or Q
Substation/Network Asset Access Supervision	Alternative	F or Q
Network data provision – moderate	Alternative	F
Network data provision – large	Alternative	F or Q
Re-commissioning of asset	Alternative	F or Q
Asset acceptance	Alternative	F or Q
Re-scheduled visit (eg. when the site is obstructed or non-compliant)	Alternative	F or Q
Issue copies of electrical drawings	Alternative	F or Q
Underground boring under the driveway	Alternative	F
Underground boring under the footpath	Alternative	F
13 Retail Customer Services		

<i>Type of service</i>	<i>AER classification</i>	<i>Basis for charging</i>
Premise Re-Energisation - after hours	Alternative	F
Premise Re-Energisation - business hours	Alternative	F
Premise De-Energisation - business hours	Alternative	F
Premise De-Energisation - non-payment	Alternative	F
Paid Meter Upgrade / Replacement [Upgrade to TOU]	Alternative	F
Paid Meter Test	Alternative	F
Special Meter Reading	Alternative	F
Field visit only (de-energise site for non payment)	Alternative	F
Single Premise No/Part Supply Response & Investigation	Alternative	No charge

Note 1: Some components of connection work in brownfield areas are charged on a fixed fee basis (see items 526, 527 and 528 in Table A2 below).

Note 2: The fee may apply to connections or connection enquiries which require network studies. Specific fee based charges apply to various size connections of load and embedded generation. For more complex unusual projects a quote or hourly rate is provided.

Note 3: The deposit (7% to 10% of the project cost) is levied prior to the detailed design work on the project commences. The deposit is charged for projects which require considerable design effort in early stages of the project, but there is a risk of the project not going ahead.

Note 4: Standalone asset relocations and removals (for example a request by the customer to relocate a pole) not related to connections are not covered by Chapter 5A of the NER. However, the cost of relocations/removals is included in the connection charges if assets are relocated/removed as part of connection works.

Network technical enquiry/studies charges and design deposits

A network technical study is usually required for a major new connection or a more complex project. The study identifies:

- the preferred option for system augmentation and connection
- the costs for design
- estimated costs for construction for the work to be undertaken.

This is usually an iterative process where the customer considers various load connection options and scenarios and information and feedback are exchanged multiple times between the customer and ActewAGL Distribution before the selection of the preferred connection. Network technical enquiry and studies charges are levied either on a fixed fee basis in accordance with the AER approved ancillary charges or a quotation basis for more complex enquiries/studies.

If a connection requires significant design effort early in the process and, in the assessment of ActewAGL Distribution, there is a significant risk of the connection not going ahead, ActewAGL

Distribution may request a design deposit which will be offset against any other charges if the connection goes ahead.

Table A2 below contains a description of those services from Table A1 which ActewAGL Distribution proposes to provide on a fixed fee basis for 2014/15. The fees will be as approved by the AER in the relevant distribution determination and published on ActewAGL's website by 1 July 2014. The codes in the left hand column correspond to the codes used in the schedule of proposed fees submitted to the AER in January 2014, as part of the transitional regulatory proposal for the 2014/15 transitional regulatory period.

Table A2: Ancillary Services Charged on the Fixed Fee Basis Proposed for 2014/15

Code	Service	Service Description / Scope
501	Re-energise premise – Business Hours	Re-energisation of a premise that is already connected to the network during business hours
502	Re-energise premise – After Hours	Re-energisation of a premise that is already connected to the network during after-hours periods
503	De-energise premise – Business Hours	De-energisation of a premise that is already connected to the network during business hours; excluding where the de-energisation is for debt non-payment
505	De-energise premise for debt non-payment	De-energisation of a premise that is already connected to the network where the de-energisation is for debt non-payment – Anytime
507	Install Interval Meter	Installation of an interval meter (Type 5) on customer request during business hours
509	Install / Replace Meter – Micro Renewable Energy Installation	Installation of additional Type 6 meter or replacement of existing Type 6 meter during business hours to facilitate connection of a Micro Renewable Energy Installation
504	Meter Test (Whole Current) – Business Hours	Meter test for whole current Type 5 – 7 meters only during business hours Fee is refunded if the meter is proven to be faulty
510	Meter Test (CT/VT) – Business Hours	Meter test for meters utilising a CT or VT during business hours Fee is refunded if the meter installation is proven to be faulty
506	Special Meter Read	Out of cycle meter read during business hours Use for the following: <ul style="list-style-type: none"> • Customer Initiated Check Read, • Data validation initiated Check Read - prior to billing, • Data validation Check Read - post billing • Customer initiated additional out-of cycle read for billing purposes • Final read Fee associated with a Check Read is refunded if the original reading is proven to be incorrect

Code	Service	Service Description / Scope
520	Temporary Builders Supply – Overhead (Business Hours)	<p>Installation of a new temporary overhead supply connection including associated metering during business hours; where the service connection complies with the following:</p> <ul style="list-style-type: none"> • Load is <= 100 Amps/Phase • Single or multi-phase • Meter location <= 25m from source network pole • Point of Attachment/Builders Pole supplied and installed by the customer <p>Includes situations where the service connection point of attachment (POA) and meter are in the permanent location</p>
522	Temporary Builders Supply – Underground (Business Hours)	<p>Installation of a new temporary underground supply connection including associated metering during business hours; where the service connection complies with the following:</p> <ul style="list-style-type: none"> • Load is <= 100 Amps/Phase • Single or multi-phase • Meter location <= 15m from source network pole / pillar / pit / cable end • Conduit between meter location and network connection point supplied and installed by the customer <p>Includes situations where the service connection point of entry (POE) and/or meter are in the permanent location</p>
523	New Underground Service Connection – Greenfield	<p>Installation of a new underground service connection, including associated metering, during business hours where the service connection complies with the following:</p> <ul style="list-style-type: none"> • Service connection is the first / initial connection to that block/premise • Load is <= 100 Amps/Phase • Single or multi-phase • Network connection point is located in the street frontage verge • Cable length within block <= 15m • Conduit between the POE/meter location (as applicable) and the property boundary is supplied and installed by the customer • Complete service connection including associated metering can be undertaken in a single visit
524	New Underground Service Connection – Greenfield Cable Only	<p>Installation of the cable component only of a new underground service connection, at the customer’s specific request, during business hours where the service connection complies with the following:</p> <ul style="list-style-type: none"> • Service connection is the first / initial connection to that block/premise • Load is <= 100 Amps/Phase • Single or multi-phase • Network connection point is located in the street frontage verge • Cable length within block <= 15m • Conduit between the POE/meter location (as applicable) and the property boundary is supplied and installed by the customer <p>Use where the customer requires the cable installed for site logistical reasons and is not ready for the metering and final supply connection</p> <p>Customer will be required to submit a new and separate request for the subsequent installation of the metering and final supply connection when the site is ready.</p>

Code	Service	Service Description / Scope
525	New Underground Service Connection – Greenfield Metering Only	<p>Installation of the metering component only of a new underground service connection, at the customer’s specific request, during business hours where the service connection complies with the following:</p> <ul style="list-style-type: none"> • Service connection is the first / initial connection to that block/premise • Load is <= 100 Amps/Phase • Single or multi-phase • The underground cable has already been installed through a previous customer application. New Underground Service Connection – Greenfield Cable Only <p>Use where the customer has previously requested a New Underground Service Connection – Greenfield Cable Only for site logistical reasons and now requires the metering and final supply connection</p>
526	New Overhead Service Connection – Brownfield (Business Hours)	<p>Installation of a new overhead service connection, including associated metering, during business hours; where the service connection complies with the following:</p> <ul style="list-style-type: none"> • Service connection is not the first / initial connection to that block/premise • Load is <= 100 Amps/Phase • Single or multi-phase • Service connection is continuous with a length <= 2 spans &/or 25m from source network pole <p>Typically use in redevelopment scenario only where an underground service connection cannot be achieved.</p>
527	New Underground Service Connection – Brownfield from Front	<p>Installation of an underground service connection, including associated metering, during business hours where the service connection complies with the following:</p> <ul style="list-style-type: none"> • Service connection is not the first / initial connection to that block/premise • Load is <= 100 Amps/Phase • Single or multi-phase • Service connection is continuous with a length <= 25m from network connection point • Network connection point is a pole, pillar or pit located in the street frontage verge • Conduit between the POE/meter location (as applicable) and the network connection point or property boundary is supplied and installed by the customer <p>Where the service connection extends outside the customer property and ActewAGL Distribution is required to undertake additional civil works, fees may apply for the additional work beyond the scope of this item</p> <p>Typically use in redevelopment scenarios such as knockdown/rebuilds and/or dual occupancy premises.</p>

Code	Service	Service Description / Scope
528	New Underground Service Connection – Brownfield from Rear	<p>Installation of an underground service connection, including associated metering, during business hours where the service connection complies with the following:</p> <ul style="list-style-type: none"> • Service connection is not the first / initial connection to that block/premise • Load is ≤ 100 Amps/Phase • Single or multi-phase • Service connection is continuous with a length ≤ 25m from network connection point • Network connection point is a pole located in the section backspine • Conduit between the POE/meter location (as applicable) and the network connection point or property boundary is supplied and installed by the customer <p>Where the service connection extends outside the customer property and ActewAGL Distribution is required to undertake additional civil works, fees may apply for the additional work beyond the scope of this item</p> <p>Typically use in redevelopment scenarios such as knockdown/rebuilds and/or dual occupancy premises.</p>
541	Overhead Service Relocation – Single Visit (Business Hours)	<p>Relocation of an overhead service connection in a single site visit during business hours where the service connection complies with the following:</p> <ul style="list-style-type: none"> • Load ≤ 100 Amps/Phase • Single or multi-phase • Service connection is no more than two spans &/or 25m in length <p>Scope involves:</p> <ul style="list-style-type: none"> • De-energisation, physical disconnection / dismantling then re-attachment, connection and re-energisation • Replacement of overhead service cable if required
542	Overhead Service Relocation – Two Visits (Business Hours)	<p>Relocation of an overhead service connection in two site visits during business hours where the service connection complies with the following:</p> <ul style="list-style-type: none"> • Load ≤ 100 Amps/Phase • Single or multi-phase <ul style="list-style-type: none"> • Service connection is no more than two spans &/or 25m in length <p>Scope involves:</p> <ul style="list-style-type: none"> • De-energisation, physical disconnection / dismantling in first site visit • Re-attachment, connection and re-energisation in second visit • Replacement of overhead service cable if required
543	Overhead Service Upgrade – Service Cable Replacement Not Required	<p>Upgrade of an existing overhead service connection from single to multi-phase where the installed cable does not require replacement and the service connection complies with the following:</p> <ul style="list-style-type: none"> • Load ≤ 100 Amps/Phase • Existing cable is physically able to be connected multi-phase without joints



Code	Service	Service Description / Scope
544	Overhead Service Upgrade – Service Cable Replacement Required	<p>Upgrade of an existing overhead service connection where the installed cable does not meet the increased load requirements (multi-phase or capacity/rating) and the service connection complies with the following:</p> <ul style="list-style-type: none"> • Load \leq 100 Amps/Phase • Service connection is no more than two spans &/or 25m in length <p>Use for single to multi-phase and capacity upgrades</p>
545	Underground Service Upgrade – Service Cable Replacement Not Required	<p>Upgrade of an existing underground service connection from single to multi-phase where the installed cable does not require replacement and the service connection complies with the following:</p> <ul style="list-style-type: none"> • Load \leq 100 Amps/Phase • Existing cable is physically able to be connected multi-phase without joints
546	Underground Service Upgrade – Service Cable Replacement Required	<p>Upgrade of an existing underground service connection where the existing cable does not meet the increased load requirements (multi-phase or capacity/rating) and the service connection complies with the following:</p> <ul style="list-style-type: none"> • Load \leq 100 Amps/Phase • Service connection is no more than 25m in length • Conduit between the meter location and the network connection point or property boundary is supplied and installed by the customer <p>Where the service connection extends outside the customer property and ActewAGL Distribution is required to undertake additional civil works, fees may apply for the additional work outside the scope of this item</p>
547	Underground Service Relocation – Single Visit (Business Hours)	<p>Relocation of an underground service connection, or part thereof, in a single site visit during business hours where the service connection complies with the following:</p> <ul style="list-style-type: none"> • Load \leq 100 Amps/Phase • Single or multi-phase • Service connection is no more than 25m in length <p>Scope involves:</p> <ul style="list-style-type: none"> • De-energisation, physical disconnection/cutting away, installation of new service cable section, jointing and then termination, connection and re-energisation <p>Where the service connection extends outside the customer property and ActewAGL Distribution is required to undertake additional civil works, fees may apply for the additional work outside the scope of this item</p>

Code	Service	Service Description / Scope
548	Install surface mounted point of entry (POE) box	<p>Installation of a surface mounted point of entry box and conduit to ground level on the customer's structure to facilitate installation of a new or relocated underground service connection; where the service connection complies with the following:</p> <ul style="list-style-type: none"> • Load <= 100 Amps/Phase • Single or multi-phase <p>Scope involves:</p> <ul style="list-style-type: none"> • Supply and installation of POE box, conduit and associated fixings <p>Applicable where a recessed POE box cannot be provided by the customer Only use in conjunction with Item 526 New Underground Service – Brownfield and Item 547 Underground Service Relocation</p>
560	Temporary de-energisation – LV (Business Hours)	<p>Temporary de-energisation and re-energisation of LV network infrastructure in business hours to allow safe customer / contractor approach and work in close proximity</p> <p>Scope does not include dismantling of lines or network infrastructure Use for tree pruning, mobile plant operation, oversize loads, construction activities</p>
561	Temporary de-energisation – HV (Business Hours)	<p>Temporary de-energisation and re-energisation of HV network infrastructure in business hours to allow safe customer / contractor approach and work in close proximity</p> <p>Scope does not include dismantling of lines or network infrastructure Use for tree pruning, mobile plant operation, oversize loads, construction activities</p>
562	Supply Abolishment / Removal – Overhead (Business Hours)	<p>Decommissioning and removal of an overhead service connection and associated metering during business hours for service connections that comply with the following:</p> <ul style="list-style-type: none"> • Load <= 100 Amps/Phase • Single or multi-phase • Service connection is no more than two spans &/or 25m in length • Removal of the service connection does not result in a consequential requirement to remove a network pole <p>Use where a property is to be demolished, supply is no longer required, an alternative connection point is to be established / used, or a redundant supply is to be removed.</p>

Code	Service	Service Description / Scope
563	Supply Abolishment / Removal - Underground (Business Hours)	Decommissioning and removal of an underground service connection and associated metering during business hours for service connections which comply with the following: <ul style="list-style-type: none"> • Load <= 100 Amps/Phase • Single or multi-phase • Removal of the service connection does not result in a consequential requirement to remove redundant network mains infrastructure such as a pole, pillar, pit <p>Use where a property is to be demolished, supply is no longer required, an alternative connection point is to be established / used, or a redundant supply is to be removed.</p>
564	Install & Remove Tiger Tails – Establishment (Business Hours)	Installation and removal of “Tiger Tail” covers on overhead lines including service lines, LV & HV during business hours – Establishment fee per site Use in conjunction with Item 565 to determine total service charge
565	Install & Remove Tiger Tails - Per Span (Business Hours)	Installation and removal of “Tiger Tail” covers on overhead lines including service lines, LV & HV during business hours – Length based fee Use in conjunction with Item 564 to determine total service charge
566	Install & Remove Warning Flags – Installation (Business Hours)	Installation and removal of Warning Flags on overhead lines including service lines, LV & HV during business hours – Establishment fee per site Use in conjunction with Item 567 to determine total service charge
567	Install & Remove Tiger Tails - Per Span (Business Hours)	Installation and removal of Warning Flags on overhead lines including service lines, LV & HV – Lengths based fee Use in conjunction with Item 566 to determine total service charge
568	Small Embedded Generation OPEX Fees - Connection Assets	Annual operational and maintenance charges for the dedicated connections assets of small embedded generators (other than residential)
569	Small Embedded Generation OPEX Fees - Shared Network Asset	Annual operational and maintenance charges for the shared network assets associated with small embedded generators (other than residential)
570	PV Connection Enquiry – LV Class 1 (<= 10kW Single Phase / 30kW Three Phase)	Receipt, registration, processing and responding to a connection enquiry for an LV network connection of a Class 1 PV installation with a nameplate rating <= 10kW single phase / 30kW three phase
571	PV Connection Enquiry – LV Class 2 to 5 (> 30kW <= 1500kW Three Phase)	Receipt, registration, processing and responding to a connection enquiry for an LV network connection of a Class 2 - 5 PV installation with a nameplate rating > 30kW single phase and <= 1500kW three phase

Code	Service	Service Description / Scope
572	PV Connection Enquiry – HV	Receipt, registration, processing and responding to a connection enquiry for a HV network connection of a PV installation of any size
573	Provision of data for network technical study for large scale installations	Network technical study, including the provision of network data and an analysis of the results of the study. Initial payment before work proceeds. (See: http://www.actewagl.com.au/~media/ActewAGL/ActewAGL-Files/Products-and-services/Building-and-renovation/For-professionals/CCA0212-48%20guidelines-NoContacts.ashx)
574	Design & Investigation - LV Connection Class 1 PV (<= 10kW Single Phase / 30kW Three Phase)	Network design & investigation / analysis services for an LV network connection of a Class 1 PV installation with a nameplate rating <= 10kW single phase / 30kW three phase.
590	Rescheduled Site Visit – One Person	Wasted site visit for a one person team where the service was not able to be completed on attendance. Includes customer cancellations before the work is completed, Officer unable to access site to complete service on arrival, site not ready for service requested on arrival, site unsafe &/or installation defect prevents service being undertaken or completed including non-compliance with ActewAGL Standards and/or Service & Installation Rules
591	Rescheduled Site Visit – Service Team	Wasted site visit for a Services Team where the service was not able to be completed on attendance. Includes customer cancellations before the work is completed, Team unable to access site to complete service on arrival, site not ready for service requested on arrival, site unsafe &/or installation defect prevents service being undertaken or completed including non-compliance with ActewAGL Standards and/or Service & installation Rules

Attachment B: Incremental cost-revenue-test (ICRT)

ActewAGL Distribution applies an incremental cost-revenue-test (ICRT) to determine the capital contributions that may apply to connection services that the AER has classified as standard control services.

Under the ICRT, ActewAGL Distribution may seek a capital contribution (CC) for standard control connection services from a connection applicant, if the incremental cost of the standard control connection services exceeds the estimated incremental revenue expected to be derived from the standard control connection services ($IR(n=X)$). The incremental cost includes the customer specific connection costs (ICCS) (including costs of extensions and augmentation of premises connection assets at the connection point) and any shared network costs (ICSN) (including costs of augmentation, insofar as it involves more than an extension, attributable to the customer's connection). The ICRT is as follows:

$$CC = ICCS + ICSN - IR(n=X)$$

Where $CC \geq 0$

ICCS = Incremental Cost Customer Specific—the incremental costs incurred by the distribution network service provider for standard control connection services, which are used solely by the connection applicant. This may include extensions and augmentation of premises connection assets at the retail customer's connection point. The ICCS may include costs for: augmentation of premises connection assets at the retail customer's connection point; extension costs; administration costs (including any design and certification costs); and any costs for conducting a tender process. Table 2 in Chapter 2 of this policy provides further details on each of these cost components.

The ICCS will be calculated in accordance with clauses 5.2.1 to 5.2.4 of the AER connection charge guidelines. For connection upgrades and alterations only incremental costs and revenue are taken into account (the cost of the connection upgrade/alteration is compared against the incremental revenue). Only simple high volume types of service upgrades (for example single dwelling) are alternative control.

ICSN = Incremental Cost Shared Network—the costs incurred by ActewAGL Distribution for standard control connection services, which are not used solely by the connection applicant. This may include any augmentation (insofar as it involves more than an extension) attributable to the new connection.

The ICSN will be calculated in accordance with clauses 5.2.1 to 5.2.3 and clauses 5.2.5 to 5.2.11 of the AER connection charge guidelines. As explained in Chapters 3 and 4 of this policy, as a general principle the ICSN term will be zero. However a \$/kVA charge designed as a price signal in relation to augmentation of shared network assets applies to connections larger than 100 Amps per phase. The charge is applied to load customers and developers. **$IR(n=X)$** = Incremental revenue expected to be received from the new connection—the present value of a X year

revenue stream directly attributable to the new connection as described in section 5.3 of the AER connection charge guidelines. X is assumed to be 30 years for residential connections, and 15 years for commercial, unless otherwise agreed by the applicant and ActewAGL Distribution.

The revenue calculation is based on the Distribution Use of System (DUOS) tariff corresponding to the customer category (residential, LV commercial and HV commercial), as determined by the AER in the relevant distribution determination.

The estimates of demand and energy consumption are prepared with reference to existing similar loads taking into account the particular circumstances and load characteristics such as seasonality, load consumption curves, load factors and power factors. In addition, where relevant, the estimates take into account the following:

- For subdivision estates, in particular commercial estates, demand per square metre of land area.
- For residential load including subdivision estates and multi-unit blocks, existing and projected per dwelling energy consumption figures.
- For commercial load, demand and energy consumption per meter of the gross, or if more appropriate net, building floor area.
- For unusual loads, information specific to the connection needs to be obtained from the connection applicant to allow for a bottom-up method estimate of consumption.

To ensure that the estimated revenues and costs are directly comparable, only DUOS tariff components corresponding to asset cost and operational costs relevant to the connection are included in the calculation, consistent with ActewAGL Distribution's cost of service model, and the AER connection charge guideline (clause 5.1.5).

The revenue stream is discounted using the real pre-tax weighted average cost of capital (WACC), as set out in the relevant ACT distribution determination²¹, consistent with clause 5.3.4 of the AER connection charge guideline.

The assumed price path for calculating the incremental revenue is as specified in the AER connection guideline (clause 5.3.5):

(a) use the price path set out in the relevant distribution determination that is applicable at the time of the connection offer, until the end of the relevant distribution determination, and

²¹ The WACC determined by the AER in the transitional distribution determination will apply for calculations made in 2014/15 (the transitional regulatory period), and the WACC determined in the subsequent distribution determination will apply for calculations made from 1 July 2015 to 30 June 2019 (the subsequent regulatory period).

(b) use a flat real price path²² after the end of the relevant distribution determination, for the remaining life of the connection. This flat price path is the expected real DUoS charges in the final year of the regulatory control period.

The following incremental cost components of connection (items A to G from Table 2 in Chapter 2) are taken into account when applying the ICRT:

- (a) For load customers the revenue is compared against the cost of standard components of premises connection assets (A), extensions (B) and design and administration (C)
- (b) For internal reticulation of the extra large multi hectare blocks, the treatment is the same as for (b) above.
- (c) For embedded generator connections other than or micro generators (<30 kW) connected as part of a basic connection, the cost components included in ICRT are connection assets (A), extensions (B) and design and administration (C) and augmentation of shared network assets (D).

²² This is equivalent to being escalated by CPI in nominal terms