DRAFT DECISION

TasNetworks Distribution Determination 2019 to 2024

Attachment 17 Connection policy

September 2018

AUSTRALIAN ENERGY REGULATOR

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Note

This attachment forms part of the AER's draft decision on TasNetworks' 2019–24 distribution determination. It should be read with all other parts of the draft decision.

The draft decision includes the following attachments:

Overview

Attachment 1 – Annual revenue requirement

Attachment 2 – Regulatory asset base

Attachment 3 – Rate of return

Attachment 4 – Regulatory depreciation

Attachment 5 – Capital expenditure

Attachment 6 – Operating expenditure

Attachment 7 – Corporate income tax

Attachment 8 – Efficiency benefit sharing scheme

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Attachment 10 – Service target performance incentive scheme

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Shortened forms

Shortened form	Extended form
ACS	alternative control services
AEMC	Australian Energy Market Commission
AEMO	Australian Energy Market Operator
AER	Australian Energy Regulator
augex	augmentation expenditure
capex	capital expenditure
CCP	Consumer Challenge Panel
CCP 13	Consumer Challenge Panel, sub-panel 13
CESS	capital expenditure sharing scheme
CPI	consumer price index
DRP	debt risk premium
DMIA	demand management innovation allowance
DMIS	demand management incentive scheme
distributor	distribution network service provider
DUoS	distribution use of system
EBSS	efficiency benefit sharing scheme
ERP	equity risk premium
Expenditure Assessment Guideline	Expenditure Forecast Assessment Guideline for Electricity Distribution
F&A	framework and approach
MRP	market risk premium
NEL	national electricity law
NEM	national electricity market
NEO	national electricity objective
NER	national electricity rules
NSP	network service provider

Shortened form	Extended form
opex	operating expenditure
PPI	partial performance indicators
PTRM	post-tax revenue model
RAB	regulatory asset base
RBA	Reserve Bank of Australia
repex	replacement expenditure
RFM	roll forward model
RIN	regulatory information notice
RPP	revenue and pricing principles
SAIDI	system average interruption duration index
SAIFI	system average interruption frequency index
SCS	standard control services
SLCAPM	Sharpe-Lintner capital asset pricing model
STPIS	service target performance incentive scheme
WACC	weighted average cost of capital

17 Connection policy

We are required to approve a connection policy prepared by a distributor under the National Electricity Rules (NER).[1]

A connection policy sets out the nature of connection services offered by a distributor, when connection charges may be payable by retail customers and how those charges are calculated. A connection policy:[2]

- must be consistent with:
    - the connection charge principles set out in chapter 5A of the NER
    - the connection policy requirements set out in part DA of chapter 6 of the NER
    - our connection charge guidelines published under chapter 5A[3], and
- must detail:
    - the categories of persons that may be required to pay a connection charge and the circumstances in which such a requirement may be imposed
    - the aspects of a connection service for which a connection charge may be made
    - the basis on which connection charges are determined
    - the manner in which connection charges are to be paid (or equivalent consideration is to be given)
    - a threshold (based on capacity or any other measure identified in the connection charge guidelines) below which a retail customer (not being non-registered embedded generator or a real estate developer) will not be liable for a connection charge for an augmentation other than an extension.

The AER's connection charge guidelines for electricity retail customers

A connection policy must be consistent with our connection charge guidelines for electricity retail customers to ensure that connection charges:

- are reasonable and take into account the efficient costs of providing the connection services arising from the new connection or connection alteration
- provide, without undue administrative cost, a user-pays signal to reflect the efficient costs of providing the connection services

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1 NER, Part DA of chapter 6.

2 NER, cl. 6.7A.1(b).

3 AER, *Connection charge guideline for electricity retail customers, Under chapter 5A of the National Electricity Rules Version 1.0*, June 2012.

- limit cross-subsidisation of connection costs between different classes (or subclasses) of retail customers
- are competitively neutral, if the connection services are contestable.

17.1 Draft decision

We do not approve TasNetworks' connection policy because:

1. the proposed upstream shared network asset augmentation charge rates[4] are not consistent with our connection charge guideline; and
2. the proposed substation/transformer cost sharing scheme is also not consistent with our connection charge guideline.

17.2 TasNetworks' proposal

TasNetworks' connection policy provides an outline of its connection services, when connection charges may be payable by its retail customers and how those charges are calculated.[5]

17.3 Stakeholder submissions

CCP13 made a submission that:[6]

> It welcomes the TasNetworks connection policy that is designed to ensure a 'user pays' approach and that smaller, vulnerable customers are not required to cross-subsidise new connections for large customers. But it is not just a matter of the full capex costs being borne by new connection. There is also a case for the full opex associated with that connection to be borne by the new connection rather than being part of recovery for standard control services.

Regarding the treatment of opex due to new customers, we would like to clarify that this issue has been taken into consideration when we established our connection charge guideline. Specifically, we clarified this in our "*Issues Paper, AER's preliminary positions on Connection charge guidelines: for accessing the electricity distribution network*" that:[7]

> A new connecting customer imposes not only the immediate cost of connecting to the distribution network, but also ongoing costs in the form of additional operation and maintenance expenses. However, the AER notes that the connection charge principles under clause 5A.E.1

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4 This charge only applies to new customers above certain threshold levels specified in the connection policy, for such larger customers' share of use of the upstream network.

5 TasNetworks, *Distribution Connection Pricing Policy, Regulatory Control Period:1 July 2019 to 30 June 2024, May 2018.*

6 CCP13, *Advice to the Australian Energy Regulator, Response to proposals from TasNetworks for a revenue reset for the 2019–24 regulatory period*, 16 May 2018, p. 39.

7 Page 25 of the Issues Paper, *www.aer.gov.au/networks-pipelines/guidelines-schemes-models-reviews/national-electricity-connection-charge-guideline-2012*

do not explicitly indicate that DNSPs should charge O&M cost as part of the upfront connection charge.

As the AER is proposing to use DUoS to calculate the incremental revenue and DUoS is used to recover both capital and O&M costs, the AER considers it necessary to include an O&M component to the calculation of incremental cost to ensure that O&M cost is netted-off from the cost-revenue-test. Otherwise, the future O&M contributions from the new customer would be used to subsidise their connection cost.

17.4 AER's assessment approach

We examined the proposed connection policy against the requirements of Part DA of chapter 6 as stated above—whether it:

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

In addition, we also examined whether:

- other connection related charges included in the connection policy, such as metering installation charges, are consistent with the service classification of this preliminary determination
- the connection policy contains terms that are not fair and reasonable.

17.5 Reasons for draft decision

We have not approved the proposed connection policy because:

- Attachment 10 of the proposed connection policy contains some conditions that are not consistent with the AER connection charges guideline. In particular, TasNetworks proposed to charge subsequent developers the sunk cost (on a per capacity basis) where larger transformers are installed by TasNetworks in anticipation of future demands in response to the first mover developer. Once included in TasNetworks' asset base after construction, it should only be charging new customers based on the upstream charge rates as explained in section 17.5.1. This attachment and the reference to this attachment on page 17 of the proposed policy should be removed.
- As explained in the following section, the proposed charge rates for upstream augmentation costs also need refinement.

17.5.1 Marginal cost for shared network augmentation

TasNetworks proposed a marginal cost of $1081 and $907 per kVA for 2019-20 for low voltage mains connections for residential and new business customers respectively. This rate is indexed to CPI for each of subsequent regulatory years. We note that these new rates are significantly higher than the corresponding current rates of $387 and $325 per kVA for 2018-19. Significant increases in the charge rates for high

voltage, distribution transformer, and zone substation connections were also proposed by TasNetworks.

In response to our questions on why the proposed unit rates for upstream augmentation charges are significantly higher than those for the current regulatory period, TasNetworks advised that:[8]

- it discovered an anomaly with the assumptions underpinning the unit rates for upstream augmentation for the current regulatory period (2017-19). The input value for capacity added through an augmentation investment were considered locally rather than the net upstream capacity increase. This resulted in an underestimation of the actual upstream capacity cost.
- It has determined the new unit rate as the average cost of adding a unit of capacity to the shared network as reflected by the incremental forecast capital expenditure as planned in TasNetworks' 10 year program of work, divided by the associated forecast incremental capacity that each project will provide.
- It has recalculated the unit charge rates taking into the expected connection lives[9] of business and residential customers as shown below.

Table: Augmentation rates for real estate developers (constructing residential subdivision)

For connections at the following Network Element	2019-20	2020-21	2021-22	2022-23	2023-24
	Unit Rate ($/kVA)	Unit Rate ($/kVA)	Unit Rate ($/kVA)	Unit Rate ($/kVA)	Unit Rate ($/kVA)
Subtransmission	-	-	-	-	-
High voltage feeder	122	125	128	132	135
Distribution transformer	565	579	593	608	623
Low voltage mains	622	638	654	670	687
Zone substations	20	20	21	21	22

[8] TasNetworks, *Response to AER Information Request #016*, 2 May 2018 and further subsequent clarification 1 August 2018.

[9] It is necessary to apply an adjustment factor to the full cost of augmentation corresponding to each customer's assumed connection life to ensure that TasNetworks do not over recover its cost. For example, business customers are assumed to stay connected for 15 years. Hence, TasNetworks should expect to receive the upstream charge every 15 year. The NPV of all subsequent charges every 15 years should equal that of the full augmentation cost.

Table: Augmentation rates for new business customers (including real estate developers constructing commercial subdivisions)

For connections at the following Network Element	2019-20	2020-21	2021-22	2022-23	2023-24
	Unit Rate ($/kVA)	Unit Rate ($/kVA)	Unit Rate ($/kVA)	Unit Rate ($/kVA)	Unit Rate ($/kVA)
Subtransmission	-	-	-	-	-
High voltage feeder	50	52	53	54	55
Distribution transformer	232	238	244	250	256
Low voltage mains	256	262	269	276	282
Zone substations	8	8	9	9	9

We consider that the revised per unit upstream shared network asset augmentation charge rates reasonable. For example, the proposed charge rates for connecting at low voltage mains level—where the connection will incur the full upstream costs—of $622 and $256 per kVA for residential and business customers respectively for 2019-20 are reasonable, because this rate is:

- significantly lower than the Productivity Commission's findings in 2013 that the long run marginal cost[10] of delivering an additional kW to an end user during peak periods was in the range of $150 to $220 per year for distribution infrastructure costs; equivalent to about $1910-$2800 per kVA.[11]
- lower than similar rates for CitiPower in Victoria (at $728 and $523 for low voltage residential and business customers respectively).[12]
- lower than the similar rates for SA Power Networks, at $781 for residential customers within metro area, and $1236 for country areas.[13]
- further, the shared network augmentation charge rates only apply to the part of the customers' demand above the charging threshold of 100 Amps.

The above revised upstream charge rates have been inserted into TasNetworks proposed connection policy.

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10 It measures the annualised cost of supplying the required capacity over the life of the asset.

11 Productivity Commission 2013, *the costs and benefits of demand management for households, Supplement to inquiry report on Electricity Network Regulatory Frameworks, 9 April 2013*, p. 22. These rates are equivalent to about $1910-$2800 per kVA asset cost based on 5.85 per cent WACC and 50 years asset life.

12 AER, *Guidance Paper: The AER'S Conclusion on the Benchmark Upstream Augmentation Charge Rates for CitiPower's Network, 25 June 2010*, p. 5, escalated to present day value.

13 *www.sapowernetworks.com.au/public/download.jsp?id=23837*

17.6 AER approved connection policy

We have modified TasNetworks' proposed connection policy to reflect the above draft decision on this matter.[14] This revised connection policy is appended to this chapter.

[14] Rule 6.12.3(j)(2) provides that we may amend the proposed connection policy to the extent necessary to enable it to be approved in accordance with the Rules.

A AER approved connection policy for TasNetworks

Distribution Connection Pricing Policy

Regulatory Control Period: 1 July 2019 to 30 June 2024

Showing amendments by the AER

Authorisations

Action	Name and title	Date

Responsibilities

This document is the responsibility of the Revenue Reset Team, Tasmanian Networks Pty Ltd, ABN 24 167 357 299 (hereafter referred to as "TasNetworks").

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Table of Contents

1 Introduction

TasNetworks operates the electricity distribution network across mainland Tasmania and is licensed to provide customer connection services in accordance with the provisions of the electricity laws.

Customer connection services are those customer initiated services, or works, associated with the:

- establishment of a new connection to TasNetworks' distribution network;
- modification of an existing connection to TasNetworks' distribution network; or
- extension or augmentation of TasNetworks' distribution network in support of a new or modified connection.

This policy provides the principles that will apply when a connection applicant seeks a new or modified connection to TasNetworks' distribution network.

This policy further establishes the requirements for the provision of customer connection services and sets out the circumstances in which TasNetworks will require a connection applicant, including a real estate developer, to pay a connection charge and establishes the basis for determining those connection charges.

Connection charges are payments made by persons intending to connect or alter their connection to TasNetworks' distribution network to:

- enable those persons to access network services under the standard suite of network tariffs;
- ensure, where appropriate, that costs for that particular connection are borne by the party requesting the connection, and not shared across the entire customer base;
- share the cost of works that have previously been funded by other customers; and
- reduce the likelihood of making uneconomic (inefficient) connections.

To the extent applicable, this policy is consistent with the connection charge principles set out in:

- Part E (Connection Charges) of Chapter 5A of the Rules;
- Part DA (Connection Policies) of Chapter 6 of the Rules;
- the AER's Connection Charge Guidelines for electricity retail customers, published in accordance with clause 5A.E.3 of the Rules; and
- any determination made by the AER in relation to the fees that TasNetworks can charge for the provision of connection services during a regulatory control period.

This policy should be read in conjunction with TasNetworks':

- Service and Installation Rules;

- credit policy; and
- connection guidelines for specific connection types (eg micro generation).

There are a number of terms appearing in this policy that have the meaning given to them in the Glossary.

2 Scope

This policy applies to all connections to TasNetworks' distribution network, including:

- residential and business customers seeking a new supply;
- small (embedded) generators connecting directly to the distribution network (for example the installation of solar photo voltaic panels);
- modifications or alterations to existing customer and embedded generator connections; and
- developers constructing residential and non-residential subdivisions.

This policy also covers requests for other connection related services, for example, to remove or relocate TasNetworks distribution assets, or the provision of public lighting schemes.

This policy ends at the customer point of supply. Electrical infrastructure beyond this point is referred to as private mains and the responsibility of the customer.

3 Connection requirements

TasNetworks will, in accordance with the applicable laws, provide access (connection) to its distribution network for any party that requests access on fair and reasonable terms. The electricity laws also prescribe the processes to be followed when creating a new connection or modifying an existing connection to the TasNetworks' distribution network.

The electricity laws establish a set of regulatory obligations governing the sale and supply of electricity to all customers that are connected to the TasNetworks' distribution network. In consequence, TasNetworks must:

- provide access to the distribution network to those parties that request new connections, which may:
    - involve extension and augmentation of the existing TasNetworks' distribution network; and
    - require the party requesting the new connection to contribute towards the cost of making that connection; and
- modify existing connections to the distribution network to accommodate requests to meet the altered requirements of connected parties, which may:
    - involve extension and augmentation of the existing distribution network; and
    - require the party requesting the modified connection to contribute towards the cost of making any necessary changes to the TasNetworks' distribution network.

Important connection principles which guide the application of this policy are detailed in Attachment 1.

3.1 Connection contract – establishing or modifying connection

TasNetworks will, in accordance with the applicable laws, establish a connection contract with each connection applicant that is establishing or modifying a connection to the TasNetworks' distribution network. There are generally two types of connection contracts that will be formed between TasNetworks and a connection applicant:

1. Standard connection contracts – that must be approved by the AER and can be accepted by a connection applicant, by either:

(a) accepting the terms and conditions of the standard connection contract when they make application for a new or modified connection (referred to as an expedited process); or

(b) formally receiving and accepting a connection offer from TasNetworks. The electricity laws require that both the offer and the acceptance must be in writing and this process can delay the final connection.

2. Negotiated connection contracts – where TasNetworks and a connection applicant negotiate the terms and conditions of the connection offer. TasNetworks will make a formal offer to the connection applicant for their acceptance.

3.2 Types of connection contracts

The electricity laws define the types of connection contracts that will apply for the provision of connection services. TasNetworks has adopted two types of connection contracts and the type of connection contract applicable will depend on the nature of the required connection and whether sufficient network capacity is available. The two types of connection contracts TasNetworks offers are:

1. Basic connection contracts; or
2. Negotiated connection contracts.

The above contracts relate to the construction works necessary to establish a connection to our network. After the new connection is energised, your contractual relationship with us is defined by a Standard Connection Contract as specified by the National Energy Retail Rules.

3.2.1 Standard offers

The electricity laws require TasNetworks to develop model standing offers (standard offers) for the provision of basic connection services and these standard offers must be approved by the AER. TasNetworks has developed a number of standard offers that specify the terms and conditions for the provision of a basic connection service.

There are a number of points to note regarding standard offers.

1. A standard offer is subject to a number of pre-conditions, including that TasNetworks agrees that a connection applicant can be connected via the standard offer.
2. If a connection applicant does not wish to accept the terms and conditions of a standard offer they are able to negotiate a connection offer.
3. Where a connection applicant chooses to negotiate a connection offer, fees may apply as a component of the preparation and finalisation of that negotiated connection offer.

The electricity laws allow for the development of standard offers for the provision of other standard connection services. TasNetworks has not identified any other standard connection services for which a standard offer will apply. However further standard offers may be introduced at a later date.

3.2.1.1 Basic connection

TasNetworks has a number of standard offers for the provision of basic connection services.

Basic connection services encompass the provision of new or modified connections, such as the provision of a new overhead service wire or the upgrading of the customer connection from single phase to multi-phase.

Figure 1 – Basic connection

TasNetworks is required to provide a connection offer to a connection applicant within 10 business days of the connection applicant submitting a satisfactorily completed application form.

TasNetworks can offer an expedited process for a basic connection service where the connection applicant accepts the terms and conditions as published at the time of submitting a completed application.

Where a connection applicant has elected to expedite the provision of a connection service, and the connection is suitable for a basic connection service, TasNetworks will complete that connection within the timeframe stated in the standard offer. This timeframe will commence following the application being approved by TasNetworks for the provision of the requested service.

If the connection is not suitable for a basic connection service, TasNetworks will advise the connection applicant within 10 business days that the application will be managed as a negotiated connection offer.

Copies of TasNetworks' standard connection contracts, detailing the terms and conditions associated with the provision of a basic connection service, are available on the TasNetworks website.

3.2.2 Negotiated connection offer

The electricity laws provide guidance to TasNetworks on the processes that should be followed, and the information that should be provided, when negotiating a connection service.

Negotiated connection offers apply to all connections not covered by a basic connection service and will generally apply where:

- there is no supply at the property or nearby;
- there is insufficient capacity available to facilitate the connection;
- a customer does not accept the standing offer for a basic connection service; or
- a customer seeks to connect to a portion of the distribution network that was previously funded by another customer (refer to section 4.4 of this policy).

TasNetworks must advise the connection applicant within 20 business days of receiving an application if there is any additional information that must be supplied prior to TasNetworks making an offer.

TasNetworks must use its 'best endeavours' to provide a negotiated connection offer within 65 business days of a connection applicant lodging a completed application.

In calculating the 65 business day response period, time taken for the customer to provide any requested additional information is excluded. This may for example, include the time taken for a customer to provide a formal design to TasNetworks, if the design is being prepared by an Authorised Electrical Designer.

TasNetworks' negotiated connection offer will, where applicable, include the following details about the connection charge:

- any applicable connection charge;
- ancillary costs associated with providing the offer;
- cost of connection assets;
- cost of extension services;
- details of any augmentation charge;
- details of any charges relating to a Developer Mains Scheme; and
- any incremental revenue rebate, including any estimates used for consumption and demand.

Note:

Where the connection applicant has elected for an Accredited Electrical Designer and/or Accredited Electrical Constructor to complete part of the extension services required for their connection, the cost of extensions services in the connection offer will only relate to any costs incurred by TasNetworks to connect the new extension works to the existing distribution network. The costs do not include any charges payable by the connection applicant to the Accredited Electrical Designer and/or Accredited Electrical Constructor.

3.3 Connection concepts

There are a number of services and assets required to facilitate connection to the distribution network. Together these services are referred to as 'connection project services'.

A customer seeking a new or modified connection to the distribution network may require the provision of one or more of the following connection project services:

- a basic connection service;
- a major connection service;
- an extension service; or
- an augmentation service.

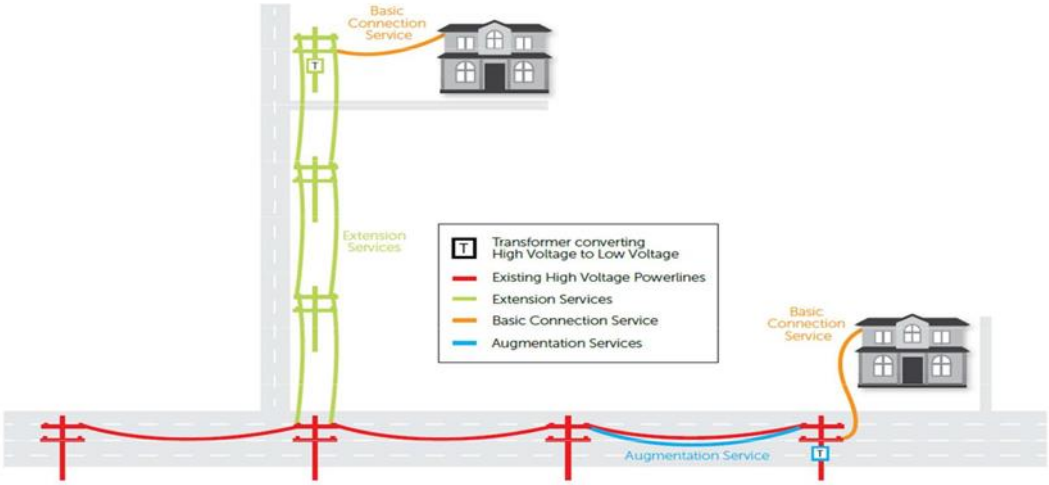

Figure 2 – Example of a basic connection service, an extension service and an augmentation service

A customer seeking larger, more complex, connections may also require the provision of one or more of the following additional services:

- a temporary connection service;
- an asset relocation service;
- an asset removal service; or
- a street lighting service.

The delivery of these connection project services is achieved by means of the following customer project works:

- a basic customer project – where only a basic connection service is required;
- a standard customer project – where a basic connection service will also require the provision of extension service and may include an augmentation service; and
- a complex customer project – where a major connection service may also require the provision of extension service and may include an augmentation service.

This is illustrated in Table 1.

Table 1: Types of connection projects

Customer project	Basic connection service	Major connection service	Extension service	Augmentation service
Basic customer project	Yes	No	No	No
Standard customer project	Yes	No	May include	May include
Complex customer project	No	Yes	May include	May include

4 Policy

4.1 Charging principles

A connection applicant requesting a new or modified connection to the distribution network is to make a contribution (pay a connection charge) towards that connection.

The value of the connection charge should be calculated based on the optimally sized assets (least cost and technically acceptable assets) required for the new or modified connection and where applicable, take account of any incremental network revenue that is generated by that connection. Operations and maintenance components will not be included in any calculation of charges, or considered in the assessment of incremental revenues associated with the provision of connection services.

Flexible payment models are provided to support customer connections to the distribution network.

A prudential requirement may be put in place in conjunction with any connection charges that are required.

A customer that has paid a connection charge towards the cost of a connection service may be eligible for a refund of a portion of that connection charge should another customer subsequently connect to that part of the distribution network provided solely in respect of the original connection. Similarly a customer may be required to contribute to costs of works previously funded by another customer.

Important charging principles which guide the application of this policy are detailed in Attachment 1.

4.2 The steps in calculating customer charges

The approach to charging for customer project works depends on the nature of the service provided and a range of regulatory requirements.

Under the Connection Charge Guidelines, there are a number of requirements that may affect the costs of customer project works. The charge that a connection applicant will pay to TasNetworks is also dependent on the classification of the required works and any rebates that may apply. Important parameters underlying the Regulator's methodology for calculating charges for connection and related services are briefly listed below.

- Charges relating to the services where the assets are for a particular customer and regulated outside the revenue allowance set by the regulator are to be calculated separately. These are known as alternative control services (ACS).
- Charges relating to services that provide assets that are shared by all customers and are recovered through the revenue allowance, and ultimately network tariffs, are to be calculated separately. These are known as standard control services (SCS).

- Each connecting customer that will provide additional revenue, in the form of network tariff charges, will receive a rebate, or a reduction, in their standard control services connection charges, to reflect this new revenue stream. This is known as an incremental revenue rebate (**IRR**).
- There are also charges for the assets that have been previously funded by another customer as their dedicated connection assets. Because of a newly connecting customer, these assets will now form part of the shared distribution network. These are known as developer mains charges (**DM**).

The amount of any such charge is to be determined in accordance with the formula included in Attachment 1, and summarised in Table 2 below.

For more information see the AER's website at www.aer.gov.au for fact sheets and the Connection Charge Guideline.

Table 2: Customer connection charges

Charge		Category	Service Provided
=	ACS	**Alternative control service charge** Charges for any connection-related services provided only to serve that customer.	The following are services funded directly by the customer: • connection application charges • connection design charges • all basic connection services • augmentation services (large embedded generation only)
+	add		
	SCS	**Standard control service charge** Charges for connection and connection-related services that may serve: • only that customer and/or • a number of customers and form part of the shared distribution network. May include rates for existing network capacity.	This will include a charge for: • major connection services • extension services required to facilitate connection to the existing network • augmentation services in the shared network that will service that customer
-	less		
	IRR	**Incremental revenue rebate** A reduction in charges for future revenue.	A rebate equal to the present value of the estimated future revenue stream received from the connecting customer through the application of network tariffs.
+	add		
	DM	**Developer mains charges** Charges for connection-related services that were funded by another customer.	The contribution to refund an existing customer who previously funded the construction of connection-related assets.

4.2.1 Calculating customer specific charges for services classified as alternative control services

The first step is to determine whether there are any applicable customer specific charges. These are charges for connection-related services provided only to serve that customer and are not included as a component of the network tariffs charged to all customers.

Charges are calculated based on rates for particular services and/or input costs, in accordance with the methodology approved by the AER.

4.2.2 Calculating charges for standard control services that may form a component of the shared distribution network

There are two steps in calculating customer connection charges for those assets that may form part of the shared distribution network, namely:

1. Adding the costs of the connection and connection related services. These include charges for:
    (a) major connection services;
    (b) extension services; and
    (c) augmentation services.
2. Subtracting any applicable incremental revenue rebate from the amount calculated in in step 1.

Note:

The result of this calculation cannot be less than zero.

4.2.2.1 Major connection services

Major connection services necessitate the construction of assets that will form the connection assets required by that connection applicant to connect to the distribution network. These assets are particular to that customer and do not form part of the shared distribution network.

This could include:

- switches and cables that form the bridge between the shared distribution network (connection point) and the connecting property (point of supply));
- a dedicated transformer where the network is overhead; and
- a dedicated substation where the network is underground.

4.2.2.2 Extension services

Extension services necessitate the construction of the assets that are required to connect a connection applicant, that are beyond the boundaries of the existing distribution network and may form part of the shared distribution network.

This could include:

- new poles and wires between the existing shared distribution network and the connecting property (up to the connection point);
- a new transformer where the network is overhead; and
- a new substation where the network is underground.

Extension services are generally calculated on a full cost recovery basis.

4.2.2.3 Augmentation services

A connection applicant may be required to pay an augmentation charge, where their electricity demand is in excess of the applicable augmentation threshold allowance.

This charge may be required where TasNetworks is required to augment the shared distribution network to accommodate the connection, or where the customer is required to contribute to previous capacity built into the network.

Developers have generally funded the full cost a new Transformer/substation where required within a new subdivision (noting the transformer/substation has been sized to meet their needs). ~~In some situations however there may be spare capacity which can be used to support neighbouring developments, which can lead to some inequities. For these reasons from **01 January 2016** a new cost sharing approach was introduced as part of the connection choice reforms. Refer to attachment 10 for guidelines.~~

The charges for network augmentation are based on the average cost of augmentation in the distribution network for each unit of added capacity (in demand) multiplied by the demand estimate (kVA) of the connection applicant.

The augmentation threshold allowance

TasNetworks is required to set an augmentation threshold such that connecting customers with an estimated demand below this threshold will be exempt from any augmentation charges.

The augmentation threshold allowance is:

(a) 25 kVA where a connection applicant's premises are supplied from the Single Wire Earth Return (SWER) network; and

(b) 70 kVA for all other instances.

Note:

Customers with a basic connection project are exempt from augmentation charges

Calculating the augmentation charge

A connection applicant's augmentation charge will be calculated by multiplying the connection applicant's demand and the sum of the applicable augmentation rates.

Detail on the calculation of augmentation charges is provided in Attachment 2.

4.3 Incremental revenue rebate

Most customers making a new connection to the distribution network will contribute to TasNetworks' network tariff revenues over time. An assessment of this incremental revenue is undertaken and offset against any contribution by the connecting customer. The revenue assessment will consider the relevant incremental revenue arising from the new connection.

The rebate applicable to a connection applicant towards the cost of the connection assets, extension and augmentation will be the present value (PV) of the forecast incremental revenue TasNetworks expects to receive from the connection over the following time periods:

- Residential customers – the PV of 30 years of annual incremental revenue.
- All other customers – the PV of 15 years of annual incremental revenue or as otherwise agreed ie where a more reasonable estimate of connection life is used.

Detail on the incremental revenue rebate is provided in Attachment 3.

4.3.1 Revenue rebate for real estate developments

A real estate developer is treated as a single customer for the purposes of calculating the incremental revenue for a development.

The incremental revenue rebate for real estate developments will be determined by TasNetworks and include the total amount of incremental revenue expected to be received from all of the sites/connection services within a real estate development.

In calculating the incremental revenue for a real estate development, consideration will be given to the demand to be applied to the individual residential sites in the development, the use of alternative energy sources, the expected revenue from non-residential sites and the expected take-up rate for connection services within a development.

4.4 Developer mains charge

The electricity laws require TasNetworks to operate a pioneer scheme. A pioneer scheme requires TasNetworks to refund any portion of a customer's connection charge that contributed towards extension assets, which are subsequently used (or shared) by a new connection applicant(s). TasNetworks uses the term Developer Mains Scheme in preference to pioneer scheme.

Under TasNetworks' Developer Mains Scheme, refunds will be provided where another customer connection is supplied using those assets within seven years of the construction and energisation of the originally constructed assets. The cost of the Developer Mains Scheme assets and, consequently, the applicable refund will be depreciated using a straight-line method over a 20 year period.

In addition, a customer's refund will take into account the portion of the shared Developer Mains Scheme assets (or extension) and the respective electricity demand used by the initial and subsequent customer(s).

Detail on TasNetworks' Developer Mains Scheme is provided in Attachment 4.

5 Customer Projects

5.1 Basic customer projects

The majority of TasNetworks' customers will only require a basic connection service to connect to the distribution network. These connections do not involve any network extension or augmentation, or contribution to a Developer Mains Scheme, but are a simple connection to the existing distribution network, either through an overhead or underground connection service. These connections are referred to as basic customer projects.

A basic customer project means a customer only requires a basic connection service to connect or alter their connection to the distribution network. A basic connection service requires the provision of a new, or the modification of, a service from the point of supply to connect a home, business or other premises to the distribution network.

Where the customer is located on the opposite side of the road from the shared overhead distribution network, the basic connection service may require the provision of a 'cross over' pole and service wire. TasNetworks will provide this cross-over service at no charge to the customer.

5.2 Standard customer projects

In some circumstances a customer may require a basic connection service and additional connection services to connect or modify their connection to the shared distribution network; or may have to contribute to a Developer Mains Scheme. For example TasNetworks may be required to extend the network up to the customer's connection point or augment the shared distribution network to connect the customer. This may involve the installation of a dedicated transformer if the network in the area is high voltage. These types of connection works are referred to as standard customer projects.

A customer requesting a connection service that requires an extension service should pay the direct costs associated with the provision of those assets, less any incremental revenue rebate.

Standard customer projects are always exempt from augmentation charges as they do not meet the augmentation threshold (this includes residential customers with standard customer projects).

5.2.1 Transformers

In some circumstances the connection of a customer requiring a standard customer project, may also require the provision of a new transformer as part of extension assets. For example where the density of customer connections is low, TasNetworks does not usually have any low voltage distribution network and relies on the provision of connection services by means of an extension to the high voltage network and/or the installation of an extension transformer.

Where the provision of extension services requires the installation of a transformer to service that connection, the customer connection charge for extension services is calculated in the following manner.

1. For low consumption installations (excludes residential connections) – total extension costs are calculated and the customer's incremental revenue rebate is applied against the total extension costs, including the installed transformer costs.
2. For all other customers – the customer's incremental revenue rebate is firstly checked against the installed transformer costs. Any installed transformer costs that are in excess of the incremental revenue rebate are to be subtracted from the total extension services charges.

Details of the calculation method and the components that are to be included as part of the calculation of the installed transformer costs are provided in Attachment 5.

5.3 Complex customer projects

Connections for large customers generally require a major connection service to connect to the existing distribution network.

In some circumstances to connect a customer to the existing distribution network may also require an extension service up to the connection point, or an augmentation service. These types of connections do not qualify as a basic connection service as their load requirements generally require connection at high voltage or are in excess of 100 amps per phase, low voltage.

These services are referred to as complex customer projects. A customer requesting a complex customer project should pay the direct costs associated with the provision of their connection service (including any dedicated transformer requirements) and any extension and augmentation services, less any incremental revenue rebate.

A large customer connection is required to contribute to the augmentation charge based on their expected maximum demand. Further information on augmentation charges is provided in Attachment 2.

5.4 Irrigation projects

In line with guidance from the State Government, TasNetworks will continue to support concessional arrangements for irrigation customer projects to underpin continued economic development of this sector.

The cost associated with the provision of required transformer capacity necessary to meet the pumping loads of irrigation customers and related irrigator equipment is generally the largest component of extension services charges. Where the provision of extension services requires the installation of a dedicated transformer(s) to service the irrigation connection, the irrigator connection charge for extension services will not include the installed costs of any dedicated transformer.

Details of the components that are to be included as part of the calculation of the installed transformer costs are provided in Attachment 5.

Other connection charges for irrigation projects are as per the size of the connection and whether the connection requirement(s) is equivalent to a basic, standard or complex customer project.

An irrigator requiring the equivalent of a basic customer project is required to pay the applicable connection charge.

An irrigator requesting a connection service that requires extension services (other than transformers) should pay the direct costs associated with the provision of those assets, less any incremental revenue rebate.

Irrigation projects below the augmentation threshold are exempt from any augmentation charges.

Irrigation projects above the augmentation threshold are required to contribute towards any augmentation services based on their expected maximum demand. Further information on augmentation charges is provided in Attachment 2.

5.5 Real estate developer connections

A real estate development is a development where:

1. two or more property titles are created from one or more allotments; or
2. multi-tenanted sites are constructed that contain three or more retail customers.

A developer requesting electricity reticulation for a new subdivision or development may require:

- the provision of connection services (major or basic);
- extension services;
- augmentation services, and
- street lighting services.

By their nature, developer connections will be a complex customer project.

Any developer requesting a complex customer project should pay the direct costs associated with the provision of the services required to accommodate that connection and any extension and augmentation services required, less any incremental revenue rebate.

For the purposes of this policy:

1. TasNetworks will deal with a developer that is seeking to develop a site for future use by electricity customers, as if that developer were a single customer for the purpose of calculating the customer connection charge (i.e. TasNetworks will take into account the load requested and any revenue assessment applicable); and

2. where a development is to proceed in stages, each stage will be considered as a separate project, provided the connection of that stage occurs more than five years after the connection of the previous stage.

The customer connection charges and incremental revenue rebate applicable for developers will depend on the level of infrastructure installed, the anticipated load of the final end-use customers and the expected take-up within the development.

For simplicity a pre-calculated assessment of the incremental revenue rebate applicable will generally apply, however alternative estimates may be negotiated, where initial estimates or the pre-calculated rate can't be agreed.

Where TasNetworks requires infrastructure (substations/ transformers) to be installed to a greater capacity than that required for a specific development or stage of a development, the real estate developer will only be required to fund the infrastructure required for that development. This will typically occur where future development is likely beyond the boundaries of the current development or stage of the development and it is prudent to provide additional capacity within the distribution network for these future connections.

TasNetworks may require the real estate developer to fund the extension of the high voltage network costs through their subdivision to cater for subsequent developers. These assets will be classified as a developer mains and the developer may be entitled to a refund in the future should another developer connect to these assets.

Developer projects will generally fall into three main categories, as requested by the developer, being serviced allotments, serviceable allotments and multi-tenanted allotments. These categories are described in more detail in Attachment 6.

5.6 Embedded generator connections

The approach to charging for the provision of embedded generation connections is similar to other connections and depends on whether the generation is classified as a:

- micro embedded generation connection; or
- large embedded generation connection.

The classification of an embedded generator is undertaken in accordance with Australian Standard AS 4777.

The following principles will apply for the provision of connection services for embedded generators.

- Micro embedded generation connections will be either a standard or basic customer project.
- Large embedded generation connections will be a complex customer project.

Solar (photo voltaic) connections account for the vast majority of micro embedded generation connections and generally require a basic connection service. Customers may also incur costs in order to comply with technical standards for their embedded generation.

All embedded generators are required to pay for any extension services that are necessary to facilitate their connection.

Large embedded generation connections are required to pay for any augmentation services. This is consistent with charging arrangements with other generation and specifically non-registered embedded generation. Sections 5A.E.1(b)(2) and 5A.E.3(c)(4) of the Rules provide that:

> Where an embedded generator requests the removal of a network constraint, and that removal necessitates the augmentation of the existing distribution network, the generator is to pay the full cost for the augmentation. Where the large embedded generator does not seek the removal of a network constraint, the generator's export to the network may instead be constrained.

There is no revenue associated with embedded generator connections, as the electricity laws do not allow TasNetworks to apply network tariff use of system charges to generators, therefore the incremental revenue rebate will not apply to these connections.

If the connection applicant is seeking a new load connection as well as the connection of a generator, the connection charge will be calculated based on the total cost of the works required to support both the generation (electricity output) and load components of the connection service, and there is no revenue rebate associated with the generation component.

A micro embedded generator requesting a modification to an existing connection should pay the direct costs associated with any modification of the connection assets required to accommodate that request.

A large embedded generator requesting a modification to an existing connection should pay the direct costs associated with any modification of connection assets required to accommodate that request and the direct costs associated with any augmentation services and extension services required to accommodate that request.

Embedded generators that are classified as registered participants, as defined in the Rules, and embedded generation connections above 10 MW, will have their applications assessed in accordance with Chapter 5 of the Rules.

5.7 Connection charging summary

Table 3 summarises the charging approach to connections services.

Table 3: Connection charging summary

Charge =	Component	Basic customer projects (residential, small business)	Standard customer projects (residential, small business, micro embedded generation)	Complex customer projects (large business, large embedded generation)	Complex customer projects (developer subdivisions)	Irrigation customer projects (irrigation)
ACS	Basic connection service	✓	✓	×	✓	✓ If applicable
+ SCS	Major connection service	×	×	✓	✓	✓ If applicable
	plus Extension services	×	✓	✓	✓	✓
	Dedicated Transformation / Substation	×	* To level of revenue assessment	✓	✓	× ++
	plus Augmentation services (*where in excess of augmentation threshold*)	×	×	✓	✓	✓ +++
	Transformer/substation upgrade	×	×	✓	✓	× ++
- IRR	less Incremental revenue rebate	×	✓ ⊗	✓ ⊗	✓	✓
+ DM	Contribution reimbursement towards any previous development	×	✓	✓	✓	✓

* Low Consumption Installations pay for transformation because they do not contribute required revenues

++ Reflects State Government policy – treatment of irrigation connections

+++ Irrigation projects with demand below the augmentation threshold (equivalent of a basic or standard customer project) are not required to contribute to augmentation services

⊗ Embedded generation will have an incremental revenue rebate of zero

6 Other connection related services

A customer project may require other services, for example, to remove or relocate existing assets or for the provision of public lighting schemes.

These services are typically provided where the nature and scope of the service is specific to an individual customer's project, and varies from customer to customer. As a consequence, the cost of providing the services cannot be estimated without first knowing the customer's specific requirements. It is not possible, therefore, to set a generic total fixed fee in advance for these services.

The following non-standard services may include, but are not limited to:

- temporary connection services;
- asset removal services;
- asset relocation services;
- above standard services; and
- street lighting services.

6.1 Temporary Connections

The connection charge associated with a temporary installation should include costs associated with:

- The installation of the connection assets required to connect the temporary installation.
- The removal of the connection assets associated with the temporary installation.
- The return (in good order) of any reusable equipment provided free of charge by TasNetworks (to a nominated TasNetworks depot or location).

A security fee or deposit may be charged for the security of this equipment in accordance with TasNetworks' Credit Policy.

Typical temporary connections, for example building sites, are provided on a fixed fee basis. Larger construction projects requiring temporary connection to the distribution network will be charged on a quoted basis.

6.2 Asset removal services

In some instances the provision of a connection service may necessitate the removal of some existing components of the distribution network. The provision of this removal service is additional to the provision of the connection service.

As this is an additional service to that being provided for connection, it is also an additional charge to the connection applicant.

The charge for the removal of existing distribution assets is to include all costs associated with the removal and disposal of the assets, less the depreciated value of any reusable materials.

6.3 Asset relocation services

In some instances the provision of a connection service may necessitate the relocation of some existing components of the distribution network. The provision of this relocation service is additional to the provision of the connection service.

As this is an additional service to that required for connection, it is also an additional charge to the connection applicant.

Asset relocation services are also commonly requested by parties other than a connection applicant such as a road authority or local council.

The charge for the relocation of existing distribution assets is to include all costs associated with the removal and disposal of assets, the construction costs of the new installed assets, less the accumulated depreciation of the assets that were removed.

Where TasNetworks chooses to upgrade, or augment, the newly constructed assets, the additional costs of this upgrade will be borne by TasNetworks.

6.4 Above standard services

Customers may choose to have TasNetworks construct assets to a higher specification than the least cost technically acceptable solution proposed by TasNetworks. The provision of these assets is an above standard service and is additional to the provision of the connection service.

As this is an additional service to that being provided for connection, it is also an additional charge to the connection applicant.

6.5 Street lighting services

6.5.1 Public lighting

The provision of public lighting in subdivisions, at the request of a developer (and in accordance with any council requirements) is additional to the provision of the connection service. These services are classified alternative control services and will be separately itemised as part of the connection offer.

6.5.2 Private contract lighting

Customers can request the installation of private contract lighting near their premises for example at the entrance of a driveway (and in accordance with any council requirements) at full cost to those customers.

6.6 Cost recovery for other connection related services

The provision of other connection related services is to be calculated in accordance with rates established in the AER's final distribution determination. Where no specific rates are specified, all other charges will be determined on a cost recovery basis.

6.7 Asset replacement

The cost of replacing assets at the end of their useful life will be borne by TasNetworks.

The replacement or removal of a customer's connection assets that are in serviceable condition at the request of that customer is considered as a request to modify that customer's existing connection.

6.8 Group applications for connection

Nothing in this policy prevents customers equitably sharing the costs of connection works common to each prospective customer's development.

6.9 Easements

TasNetworks will require an easement to be registered on a property title to ensure TasNetworks can lawfully perform the activities defined by the easement in respect to its distribution infrastructure.

Further detail on the requirements for easements is included under Attachment 7.

7 Other charges

7.1 Pre-connection services

Pre-connection services are the tasks associated with the administration of the connection application process and the preparation and finalisation of any asset construction design. While these costs are a precursor in establishing the final connection they will form a component of the costs that should be borne by a connecting customer.

7.1.1 Application and design fees

Where a customer's application requires a formal design to determine specific requirements for extension and augmentation services, the customer will be charged appropriate fees to cover the reasonably incurred expenses in assessing the application, preparing a design and making the connection offer.

The fee applicable will depend on the size and complexity of the proposed connection and subsequent design work and engineering studies to be carried out.

The connection applicant will be liable to pay all reasonable invoiced costs whether or not the final connection offer is agreed or accepted.

7.2 Application of overheads

Connection costs and charges include an allocation of overheads, which is determined by the application of TasNetworks' cost allocation methodology (CAM). Amongst other things, the CAM assigns overhead costs to a range of different services. TasNetworks' CAM is approved by the AER.

Rates are updated annually based on forecasts and can vary year on year.

7.3 Basic customer project charges

A customer is liable for a connection charge upon acceptance of the connection offer for a basic customer project.

Generally the customer will not be invoiced for any connection charges until after the connection has been established.

In most cases it is the customer's electricity retailer that will charge the customer for the connection, and pass payment to TasNetworks.

7.4 Standard and complex customer project charges

For standard and complex customer projects, depending on the timeframe for construction, a connection offer may require full or partial upfront payment and may include additional payments.

Generally the timing of payments depends on whether the total amount of the connection charge is less than a threshold amount, which is $5,811 for 2019-20,[1][2] and whether;

(a) the construction work will not commence for three months or more after the connection offer is accepted; or

(b) the construction work can be logically segmented into distinct stages of construction.

If construction work is of the nature described in (a):

- TasNetworks can require payment at the time the connection offer is accepted for the costs that have been incurred and prepayment for any sunk costs that will be incurred immediately after the connection offer is accepted.
- The prepayment may include but is not limited to:
    - the costs of specialised or non-standard assets which need to be ordered by the distribution network service provider in advance and would not normally be required to perform a connection; and
    - design and administration costs.
- The balance of a connection charge that has not been recovered may be recovered no more than one month prior to the commencement of the construction work.

For connection services requiring multiple distinct stages of construction as contemplated in (b):

- TasNetworks will only require partial prepayment of the connection charge, prior to each construction stage (generally one month prior). Each prepayment will be reasonably reflective of the costs that will be incurred in each construction stage.
- A payment schedule will be included in the offer letter indicating the amount and the due date for payments.
- TasNetworks may negotiate alternative flexible payment arrangements with the connection applicant where appropriate.

In general, full payment must be received prior to final connection and energisation of the customer's premises, unless otherwise agreed with TasNetworks.

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[1] The threshold will be indexed annually on 1 July for the movement in the consumer price index (CPI). The CPI used is the Australian Bureau of Statistics' (ABS) Consumer Price Index All Groups, Weighted Average of Eight Capital Cities, March to March Quarter, (ABS Catalogue 6401.0).

[2] For the purposes of this draft Distribution Connection Pricing Policy future changes to CPI are set at 2.45 per cent consistent with the assumptions in TasNetworks' Regulatory Proposal. Once this document has been approved by the AER, the figure for 2019-20 will be updated with actual CPI prior to the commencement of that financial year and this footnote will be deleted.

8 Security fee

TasNetworks may require a security fee where TasNetworks believes there is a high risk of not collecting the estimated incremental revenue calculated as part of a connection offer (refer to section 4.3 of this policy and Attachment 3 for details about how the incremental revenue rebate is calculated). In practice this would generally be limited to large customer or developer connections where an incremental revenue rebate may fund substantial elements of a customer's extension, connection and/or augmentation services.

A security fee may be in the form of either a prepayment, a financial guarantee (bank guarantee), or a connection charge.

If applicable, a security fee will be included as a condition of acceptance of the connection offer.

TasNetworks' requirements for a security fee will accord with the principles under part 10 of the Connection Charge Guideline. At a minimum:

(a) The amount of the security fee will not be greater than the amount of the incremental revenue rebate which TasNetworks assesses as having a high risk of not being recovered.

(b) The security fee will not exceed the present value of the incremental costs TasNetworks will incur in undertaking any extension or augmentation services.

(c) Where the security fee is provided as an upfront payment, TasNetworks will rebate the security fee via annual instalments, with the annual rebate being the:

- interest earned on the security, calculated at the cost of debt approved by the AER; plus
- the lower of:
  - actual incremental revenue received from the customer for the year; and
  - the security fee that was paid for that year.

(d) Where the security fee has been provided as an upfront payment, TasNetworks will pay interest on the security fee, commensurate with the cost of debt approved by the AER. Interest is not payable on security held in the form of a bank guarantee.

(e) TasNetworks will not recover more from the security fee scheme than the total estimated incremental revenue. If the actual incremental revenue realised over the period of the security fee scheme exceeds the estimated incremental revenue, TasNetworks will refund the security fee in full.

(f) The connection applicant will not be rebated an amount greater than the security fee deposit plus interest, over the security fee period.

9 Dispute resolution

The following process will be adopted for resolution of any customer dispute relating to the provision of connection services.

1. An attempt will be made to resolve the dispute in accordance with TasNetworks' internal dispute resolution policy.
2. If the matter is not resolved to the satisfaction of the customer, the matter will be referred to the Energy Ombudsman Tasmania for resolution.
3. If the matter remains unresolved, the matter will be referred to the AER for final resolution.

The customer is entitled to seek to have the AER determine a dispute with TasNetworks. Details of how the AER will determine the dispute or terminate proceedings are set out in Part G of Chapter 5A of the Rules.

10 Connection Choice

Connection applicants requesting standard and complex customer projects that require an extension of TasNetworks' distribution network are able to choose the party that will undertake the design and construction components of the 'Contestable Works' portion of the extension works.

The 'Contestable Works' portion of extension works are those assets required to connect the connection applicant to the existing distribution network, where those assets can be built in isolation from TasNetworks' distribution network (Contestable Works).

Those parts of the extension works that relate to assets required to connect the contestable portion of the extension works to the existing distribution network must be performed by TasNetworks (Non-contestable Works).

Connection applicants can choose either TasNetworks, or an Accredited Electrical Designer to design, and/or an Accredited Electrical Constructor to construct, the 'Contestable Works' portion of the extension works.

TasNetworks is responsible for developing the scope of Contestable Works, reviewing and approving designs, auditing construction, completing work on the distribution network and completing the final connection of all works to the existing distribution network.

Any contractor that has both the technical capabilities and the safe systems of work to perform the requirements for design and/or construction may apply to TasNetworks for authorisation through the TasNetworks' accreditation schemes.

Connection applicants will still be required to comply with the connection process in accordance with Chapter 5A of the Rules.

Detail on the Connection Choice program is provided in Attachment 8.

11 Management of policy

The General Manager Customer Engagement and Network Operations administers the development, revision and publication of this policy.

12 References

- National Electricity Rules
- National Energy Customer Framework
- *Electricity Supply Industry Act 1995 (Tas)*
- Tasmanian Electricity Code
- TasNetworks' Credit Policy
- TasNetworks' Design and Construction manuals and standards
- TasNetworks' Service and Installation Rules

13 Disclaimer

While TasNetworks will periodically review this policy to account for the impact of any future changes to legislation or regulation, TasNetworks 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 investment are confirmed with TasNetworks at the time that an application to connect is made.

14 Glossary

Unless the contrary intention appears the following definitions will apply throughout this policy.

Accredited Electrical Constructor

An external service provider that has been accredited by TasNetworks to undertake the construction of Contestable Works.

Accredited Electrical Designer

An external service provider that has been accredited by TasNetworks to undertake the design of Contestable Works.

AER

Australian Energy Regulator

Asset relocation service

The removal and relocation of existing distribution network assets where requested by a customer or where required to meet obligations.

Asset removal service

The removal of existing distribution network assets where requested by a customer or where required to meet obligations.

Augmentation service

Works to enlarge or increase the capacity of the existing distribution network (overhead and/or underground). This could include:

- A new or higher capacity transformer where the network is overhead.
- A new or higher capacity substation where the network is underground.
- Higher capacity poles and wires, which may include higher capacity conductor or an upgrade from single wire earth return (SWER) line to a three phase line.

Basic connection services

The provision of new or modified connection assets for a home, business or other premises:

- that operate at low voltage
- that are rated at no greater than 100 Amps per phase
- that do not require the completion of a formal design and
- that can be charged with a standard fee.

Connect, Connection, Connected

To form a physical link to or through the distribution network so as to allow the supply of electricity between electrical systems.

Connection alteration

An alteration to an existing connection including an addition, upgrade, extension, expansion, augmentation or any other kind of alteration. For the avoidance of doubt a connection alteration is not the same as a network augmentation for the purposes of calculating connection charges.

Connection assets

Those components of the distribution system that are used to provide connection services solely for a single customer. That is, those assets forming the connection between the connection point and the point of supply.

Connection applicant

Means an applicant for a connection service for one of the following customer types:

(a) retail customer;

(b) retailer or other person acting on behalf of a retail customer; or

(c) real estate developer.

Connection Charge Guidelines

The guidelines published by the AER in accordance with section 5A.E.3 of the Rules

Connection charges

Financial contributions by a customer or developer towards the costs associated with the creation of a new or modified connection to TasNetworks' distribution network or augmentation of the distribution network to support a new or modified connection.

Connection contract

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

Connection offer

Means an offer by TasNetworks to enter into a connection contract with a:

(a) retail customer;

(b) retailer or other person acting on behalf of a retail customer; or

(c) real estate developer.

Connection point

The point where the connection assets connect to either the existing distribution network or assets forming an extension service.

Connection establishment services

Means either or both of the following:

- a service relating to a new connection between the existing distribution network and a premises and;
- a service relating to a connection alteration for a premises.

Connection works

The total works to connect a customer, including connection assets, network extensions and any network augmentation.

Customer

A person, including a developer, who requires customer project services.

Customer premises

Includes any building or part of a building, any structure or part of a structure, any land (whether built on or not) and any river, lake or other waters.

Developer, real estate developer

A person or entity who constructs subdivisions to allow the future provision of connection services to prospective customers.

Developer Mains Scheme (DM)

Includes any part of the distribution network:

- that necessitated an extension to the distribution network; and
- which was installed and has existed for less than seven years; and
- for which TasNetworks has required payment of a connection charge; and
- which was previously part of the connection assets of a single customer; and
- that requires payment of a connection charge greater than a threshold amount, which is $1,162 for 2019-20.[3] [4]

[3] The threshold will be indexed annually on 1 July for the movement in the CPI. The CPI used is the ABS' Consumer Price Index All Groups, Weighted Average of Eight Capital Cities, March to March Quarter, (ABS Catalogue 6401.0).

[4] For the purposes of this draft Distribution Connection Pricing Policy future changes to CPI are set at 2.45 per cent consistent with the assumptions in TasNetworks' Regulatory Proposal. Once this document has been approved by the AER, the figure for 2019-20 will be updated with actual CPI prior to the commencement of that financial year and this footnote will be deleted.

Developer Mains Scheme register

The register held by TasNetworks listing the full details of all existing Developer Main Schemes.

Direct costs

Those costs attributable to the customer project services associated with the creation of a new connection or modification of an existing connection to TasNetworks' distribution network, but only to the extent that those costs refer to optimally-sized infrastructure to effect the connection.

Distribution network

The distribution network as defined in section 3A of the ESI Act and owned and operated by TasNetworks under the terms of its licence issued by the Regulator under section 17 of the ESI Act.

Electricity laws

Includes the following:

- *Electricity Supply Industry Act 1995 (Tas)*
- National Electricity Law
- National Electricity Rules
- National Energy Retail Law
- National Energy Retail Regulations
- National Energy Retail Rules
- Tasmanian Electricity Code

Embedded generator

A person who engages in the activity of owning, controlling, or operating a generating system that supplies electricity to, or who otherwise supplies electricity to, a distribution network and who holds or is deemed to hold a licence or has been exempted from the requirement to obtain a licence under a regulation of the ESI Act.

ESI Act

Electricity Supply Industry Act 1995 (Tas).

Extension service

The provision of network assets beyond the existing boundaries of the distribution network, and up to the connection point that are required to connect a customer.

This could include:

- New poles and wires between the existing distribution network and the connecting property (up to the connection point).

- A new transformer where the network is overhead.
- A new substation where the network is underground.

High voltage (HV)

As defined in the ESI Act – generally greater than 1,000 Volts or higher.

Irrigation customer

A customer in respect of an installation for which all or a significant part (> 90%) of the anticipated load is required for the purposes of pumping water:

- to irrigate crops or pasture; or
- that is subsequently used as part of an irrigation scheme to irrigate crops or pasture.

Large customer

A customer is a large customer in respect of an installation if that installation is not a residential installation and takes supply at:

- high voltage; or
- low voltage at greater than 100 Amps per phase.

Large embedded generator

A generator that is not a micro embedded generator.

Load connection

A connection other than for a generator.

Low consumption installation

An installation for which the anticipated normal consumption is equal to or below 3,000 kWh per annum, but excluding a principal residential installation.

Low voltage (LV)

As defined in the ESI Act, generally less than 1,000 Volts.

Major connection service

The provision of a new or modified connection for a home, business or other premises to the existing distribution network, where that connection:

- is at either higher voltage or greater than 100 Amps per phase or low voltage; and
- requires the completion of a formal design; and
- a standard fee cannot be charged.

Micro embedded generator

A generator of the type contemplated by Australian Standard AS 4777 "Grid Connection of Energy Systems via Inverters". Often a PV (solar) system classifies as a Micro generator.

National Electricity Law (NEL)

The National Electricity Law contained in the Schedule (as amended from time to time) to the *National Electricity (South Australia) Act 1996 (South Australia)*.

National Electricity Rules

Has the same meaning as in the National Electricity Law.

National Energy Retail Law (NERL)

The National Energy Retail Law contained in the Schedule (as amended from time to time) to the *National Energy Retail Law (South Australia) Act 2011 (South Australia)*.

National Energy Retail Regulations

The Regulations published by the parliament of South Australia in accordance under section 12 of the National Energy Retail Law and the *National Energy Retail Law (South Australia) Act 2011 (South Australia)*.

National Energy Retail Rules (NERR)

Has the same meaning as in the National Energy Retail Law.

Point of Supply

Has the same meaning as in the Tasmanian Electricity Code

Prospective customer

A customer that is reasonably expected to connect an installation to the distribution network.

Prudential requirement

An arrangement to minimise the financial risks associated with a request for connection works.

Residential

An installation that is primarily used for residential purposes.

Retail Customer

Includes a non-registered embedded generator and a micro embedded generator.

Rules

National Electricity Rules

Shared distribution network

The distribution network owned by TasNetworks that can provide services to a number of customers.

Standard Connection Contract

Has the same meaning as in the National Energy Retail Law

Street lighting service

Provision of street lighting at the request of a customer, which may be to meet the requirements of a road authority (such as local council or State Growth).

Tasmanian Electricity Code (TEC)

Has the same meaning as "Code" in the ESI Act, and as issued by the Tasmanian Economic Regulator.

Temporary installation

An installation that is intended to exist for a period of less than 12 months.

Attachment 1: Connection and charging principles

Connection principles

The following principles are based on the Rules, adapted to TasNetworks' requirements, and will be used to guide the application of this policy:

1. This policy should be applied fairly and consistently in all cases.
2. An installation should be provided with only one point of supply.
3. TasNetworks will construct the least cost technically acceptable solution for TasNetworks and the entire customer base, necessary to meet the customer's requirements, unless otherwise requested by the connection applicant.
4. The choice of design approach and construction materials rests with TasNetworks.
5. If a change to design is requested by TasNetworks after an offer has been made, consideration will be given to ensure a change to design doesn't unfairly render the connection applicant worse off.
6. TasNetworks will build and operate the distribution network in accordance with good electricity industry practice. Where TasNetworks determines that supplementary network infrastructure should be installed to meet reliability standards, this work may be considered a network augmentation and generally funded by TasNetworks.
    (a) For example – to ensure that load transfer capacity is retained between feeders for a customer within a particular reliability area, a third feeder may need to be extended for connection within a new substation and this cost would be considered a network augmentation.
7. TasNetworks will connect customers utilising the existing distribution network infrastructure wherever possible, including avoiding connections across private property. Where an alternate service is requested by the customer, this service should be treated as an above standard service.
8. For all standard and complex customer projects, TasNetworks will undertake a revenue assessment taking into account an estimate of the connection applicant's anticipated consumption and demand.
9. All new basic connection services will be expedited (meaning the applicant is deemed to have accepted the model standing offer on application for the requested service).
10. All modifications to existing connections qualifying as basic connection services will be expedited.
11. Those customers who dot accept the standing offer for a basic connection service will be connected as a negotiated service

Charging principles

The following principles will be used to guide the application of this policy:

1. The intention of this policy is to appropriately share between all stakeholders the costs associated with the construction of the electrical infrastructure necessary to provide connection services.
2. The application of this policy should be simple, transparent and consistent in its application and meet the prescribed requirements under the Connection Charge Guidelines.
3. Charges for connection services should be reasonable and provide, without undue administrative cost, a user pays signal taking into account the efficient costs of providing the connection services arising from the new or modified connection, including extending and/ or augmenting the distribution network.
4. Charges for other customer project services should be reasonable and, without undue administrative cost, take into account the efficient costs of providing the services for the customer.
5. The connection of a new customer, or modification of an existing connection to the distribution network to meet the changed requirement of a customer, should not impose undue costs upon other customers of the shared distribution network. There should be limited cross-subsidisation of connection costs between different classes (or subclasses) of customer.
6. Connection charges will enable connection applicants to access network services under the standard suite of network tariffs.
7. Charges for components of a connection service that are classified by the AER as negotiated services or are unclassified will be calculated in accordance with section 3 of the Connection Charge Guideline.
8. Charges for components of a connection service that are classified by the AER as alternative control services will be calculated in accordance with section 4 of the Connection Charge Guideline.

Connection charge

In accordance with the Connection Charge Guidelines, the amount of any connection charge is to be determined in accordance with the following formula:

Connection Charge = ACS + SCS + DM

Where:

ACS —is the total charge payable to TasNetworks for all relevant alternative control connection services

SCS—is the total capital contribution (CC) payable to TasNetworks for all relevant standard control connection services.

DM —is the total charge payable to TasNetworks to account for any Developer Main Schemes applying to the assets to which the connection applicant connects.

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

Where:

CC = Capital Contribution for standard control services and $CC \geq 0$

ICCS = Incremental Cost Customer Specific—the incremental costs incurred by TasNetworks for standard control connection services, which are used solely by the connection applicant. This typically includes any major connection services, extension services or alterations to those connection services.

ICSN = Incremental Cost Shared Network—the costs incurred by the TasNetworks 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 service) attributable to the new connection.

IRR(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 (Incremental Revenue Rebate).

Attachment 2: Augmentation charges

Calculation of an augmentation charge

The following sections detail the methodology that will be adopted by TasNetworks to calculate any augmentation charge (referred to in the Connection Charge Guidelines as a charge towards the incremental costs of the shared network (ICSN)).

The augmentation charge is determined on the basis of unit rates, as follows:

Augmentation charge = Unit Rate x Demand Estimate

Where:

Unit Rate =	Average cost of augmentation (other than an extension beyond a standard service line) per unit of added capacity, expressed as $/kVA
Demand Estimate =	Estimated maximum demand at the connection point, measured in kVA Generally the demand estimate will be based primarily upon the content of the connection application submitted by the customer or developer. However, TasNetworks reserves the right to use other methodologies where the information is not consistent with the load patterns of similar connection types for example.

Demand estimate subject to an augmentation charge

A connection applicant's maximum demand (in kVA) will be subject to an augmentation charge taking into account the applicable augmentation threshold allowance.

This means the connection applicant's demand up to the threshold will not be included in the calculation of an augmentation charge.

TasNetworks' Augmentation threshold allowance is:

(a) 25 kVA where a connection applicant's installation is supplied from the Single Wire Earth Return (SWER) network; and

(b) 70 kVA for all other instances.

Application to new connections (including real estate developer) – a connection applicant's maximum demand (in kVA) subject to an augmentation charge is the value specified by the customer (this should be reflective of the maximum demand that would be expected to apply for the customer's connection) minus the augmentation threshold allowance as stated above.

Application to Connection upgrades – the connection applicant's demand (in kVA) subject to an augmentation charge is based on the full increase in demand arising from the upgrade.

Unit rates

The unit rates to determine the augmentation charge are set out in the following tables.

A customer's augmentation charge will be calculated by multiplying the customer's demand by the sum of the applicable augmentation rates as detailed in Table 4 and

Table 5 below.

Table 4: Augmentation rates for real estate developers (constructing residential subdivision)

Network Element	2019-20 Unit Rate ($/kVA)	2020-21 Unit Rate ($/kVA)	2021-22 Unit Rate ($/kVA)	2022-23 Unit Rate ($/kVA)	2023-24 Unit Rate ($/kVA)	Comments
Full unit rate						
Subtransmission	-	-	-	-	-	No additional capacity requirements forecast.
High voltage feeder	122 ~~294~~	125 ~~302~~	128 ~~309~~	132 ~~317~~	135 ~~325~~	Applies if the connection is supplied via a shared distribution high voltage feeder or via a dedicated transformer.
Distribution transformer	565 ~~1,130~~	579 ~~1,158~~	593 ~~1,187~~	608 ~~1,217~~	623 ~~1,247~~	Applies if connection is via the low voltage transformer terminals of a shared distribution transformer.
Low voltage mains	622 ~~1,081~~	638 ~~1,108~~	654 ~~1,136~~	670 ~~1,164~~	687 ~~1,194~~	Applies if the connection is via shared low voltage mains, eg connected to the terminals of a low voltage service pillar
Zone substations	20 ~~34~~	20 ~~35~~	21 ~~36~~	21 ~~37~~	22 ~~38~~	Additional to the applicable rate above and would apply if the demand is greater than 10% of the substation capacity.
~~Total unit rate~~	~~2,539~~	~~2,603~~	~~2,668~~	~~2,735~~	~~2,804~~	

Table 5: Augmentation rates for new business customers (including real estate developers constructing commercial subdivisions)

Network Element	2019-20 Unit Rate ($/kVA)	2020-21 Unit Rate ($/kVA)	2021-22 Unit Rate ($/kVA)	2022-23 Unit Rate ($/kVA)	2023-24 Unit Rate ($/kVA)	Comments
Full unit rate						
Subtransmission	-	-	-	-	-	No additional capacity requirements forecast.
High voltage feeder	50 ~~247~~	52 ~~253~~	53 ~~259~~	54 ~~266~~	55 ~~273~~	Applies if the connection is supplied via a shared distribution high voltage feeder or via a dedicated transformer.
Distribution transformer	232 ~~948~~	238 ~~971~~	244 ~~996~~	250 ~~1,021~~	256 ~~1,046~~	Applies if connection is via the low voltage transformer terminals of a shared distribution transformer.
Low voltage mains	256 ~~907~~	262 ~~930~~	269 ~~953~~	276 ~~977~~	282 ~~1,001~~	Applies if the connection is via shared low voltage mains, eg connected to the terminals of a low voltage service pillar
Zone substations	8 ~~29~~	8 ~~30~~	9 ~~30~~	9 ~~31~~	9 ~~32~~	Additional to the applicable rate above and would apply if the demand is greater than 10% of the substation capacity.
~~Total unit rate~~	~~2,131~~	~~2,184~~	~~2,238~~	~~2,295~~	~~2,352~~	

Provisional estimates for connection charges

Where TasNetworks and the connection applicant (other than a real estate developer) cannot reach agreement on the estimated demand for use in determining the connection charge payable for the connection point, TasNetworks will apply a provisional estimate.

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

Example

Large Customer Connection (complex customer project)

Customer requests 1,000 kVA connection in November 2019 which requires both high voltage augmentation works and a dedicated transformer as part of their extension services.

Demand estimate 1,000 kVA

Threshold allowance 70 kVA

Unit rate (HV) $247/kVA

The customer's contribution to the augmentation service is calculated by multiplying the demand estimate above the threshold allowance, by the applicable augmentation rate.

Contribution to augmentation service = (demand estimate – threshold allowance) x unit rate
= (1,000 – 70) x 247
= $229,710

Please note the final connection charge applicable to the connection will take into account an applicable Incremental Revenue Rebate.

Attachment 3: Revenue assessment

In accordance with chapter 5.3 of the Connection Charge Guideline, an estimate of the incremental revenue to be derived from a new or upgraded customer connection, or real estate development, will be assessed and taken into account in the connection offer.

There are five key elements that must be considered when undertaking this assessment.

1. The incremental revenue is the revenue attributable to the customer's connection and will be based on the expected distribution use of system charges recoverable from the connection applicant.
2. The incremental revenue must exclude revenue associated with the operation and maintenance, and augmentation of the distribution network.
3. The revenue estimate should use a 30 year connection life for residential customers and 15 years for business customers as a starting point.
4. The real pre-tax WACC rate applying during the current regulatory control period will be used to discount the revenue stream.
5. When estimating a connection applicant's incremental revenue, any calculation must:
    (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
    (b) use a flat real price path after the end of the relevant distribution determination, for the remaining life of the connection. This flat price path is the expected real network tariff charges in the final year of the regulatory control period.

To simplify the process for customers a pre-calculated assessment, applicable for small, medium and large customers, will be taken into account in finalising a connection offer.

In some circumstances a 15 year assumed connection life may not be appropriate for non-residential customers. In these circumstances TasNetworks may, acting in good faith, apply an alternative assumed connection period for that connection service.

A connection charge for all standard control connection services will only be required 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. No refunds are payable where the incremental revenue for the standard control connection service exceeds the incremental cost of the standard control connection services.

Note:

Where a connection applicant has chosen to source their works from an Accredited Electrical Designer and/or Accredited Electrical Constructor, there may be instances where TasNetworks is required to rebate a connection applicant the value of the incremental revenue rebate.

Estimating consumption and demand

Generally, consumption and demand estimates will be based primarily upon the content of the connection application submitted by the customer.

However, TasNetworks reserves the right to use other methodologies where the information provided is not consistent with similar connection types. TasNetworks will only use such estimates with agreement from the customer.

Provisional estimates for connection charges

Where TasNetworks and the connection applicant (other than a real estate developer) cannot reach agreement on the estimated demand and consumption for use in determining the connection charge payable for the connection point, TasNetworks will apply a provisional estimate.

Where a provisional estimate has been used to determine a connection charge, the connection applicant may be subject to an additional charge or a refund, for the difference between the actual consumption and demand and provisional estimates of consumption and demand. TasNetworks will assess the additional charge or refund payable within three (3) years of the connection being energised. The amount of the additional charge or refund will be the difference between the actual connection charge paid and that calculated based on the actual demand and consumption.

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

Attachment 4: Developer Mains Scheme

TasNetworks' Developer Mains Scheme requires customers to make reimbursements as part of their connection charge for connection works that provide a connection to their premises and which have been previously funded by another customer within a seven year period. TasNetworks will then refund the contribution to the customers eligible for a refund according to their share of the line or substation.

If:

1. within seven years an extension service ceases to be dedicated to the exclusive use of a customer; and
2. the customer is entitled, in accordance with the Connection Charge Guideline, to a refund of connection charges;

TasNetworks will make the refund and may recover the amount of the refund, by way of a connection charge, from the new users of the asset(s).

Applicability

The Developer Mains Scheme applies to all extension services which were funded by a customer and which will be used by another customer to connect to the distribution network within seven years from the original connection.

This scheme applies to all new or modified connections provided on or after 1 July 2017 that have attracted a contribution via a connection charge. The scheme will not be applied retrospectively to any connection previously provided, or to any part of the distribution network that existed before 1 July 2017. Existing schemes will transition to the new policy to ensure consistency with the Connection Charge Guidelines.

The scheme will calculate the contribution from a subsequent customer and refund to each customer already connected to an extension by:

(a) taking into account the length of line of the assets a subsequent customer uses of an extension asset relative to other customers already connected to the extension;

(b) taking into account the amount of electricity demand used by a subsequent customer uses relative to other customers already connected to the extension; and

(c) depreciating extension assets over 20 years using a straight line depreciation method.

In accordance with the Connection Charge Guidelines, the scheme will not apply if the contribution from a connecting customer is less than a threshold amount, which is $1,162 for 2019-20.[5] [6] .

To clarify, if no contributions are required because this threshold has not been reached, no refunds will be provided under the scheme. If no refunds are provided to customers already connected to the extension because of this threshold, TasNetworks will not charge the connecting customer for any costs calculated in accordance with this scheme.

If an Authorised Electrical Developer builds an extension and the cost of the extension is unknown to TasNetworks, TasNetworks will establish the scheme using an estimate of the amount TasNetworks would have charged the original customer to build the extension.

If an original customer requests a connection to be constructed to a higher standard or capacity than the least cost technically acceptable standard, then only the cost of constructing the connection to the least cost technically acceptable standard or capacity will be subject to the scheme.

Customer specific assets that other new customers will not be using are not included in the scheme

If TasNetworks requires an extension be built to a higher standard or capacity than required by an original customer, other than a real estate developer, the original customer will only pay for the extension to the standard required or capacity for its connection service and only the extension necessary for the original customer will be subject to the scheme.

If TasNetworks requires an extension to be built to a higher standard or capacity than required by a real estate developer, and TasNetworks charges a capital contribution for extension services to the network to allow for forecast load growth—as allowed by clause 5A.E.1(c) of the Connection Charge Guidelines—then the extension will be subject to the scheme, unless:

> The real estate developer and TasNetworks agree, as allowed by clause 5A.E.1(c), that TasNetworks only charge the real estate developer for the portion of the total cost attributable to the real estate developer.

[5] The threshold will be indexed annually on 1 July for the movement in the CPI. The CPI used is the ABS' Consumer Price Index All Groups, Weighted Average of Eight Capital Cities, March to March Quarter, (ABS Catalogue 6401.0).

[6] For the purposes of this draft Distribution Connection Pricing Policy future changes to CPI are set at 2.45 per cent consistent with the assumptions in TasNetworks' Regulatory Proposal. Once this document has been approved by the AER, the figure for 2019-20 will be updated with actual CPI prior to the commencement of that financial year and this footnote will be deleted.

Establishment and administration of schemes

A Developer Mains Scheme will be established and administered in accordance with the Connection Charge Guidelines. If the original customer's works included a distribution line and a substation, then one Developer Mains Scheme will be established for the distribution line and a separate Developer Mains Scheme will be established for the substation.

TasNetworks will bear the cost of establishing and administering any Developer Mains Schemes.

Reimbursements

Where a new customer pays an amount under a Developer Mains Scheme, that amount will, as soon as practicable after receiving that amount, be repaid to the current owner of the premises to which the original customer's works were connected.

Where two or more parties constitute the original customer, the repayment must be divided between those customers in accordance with the proportions in which they funded the works and consistent with the Connection Charge Guidelines.

Developers constructing subdivisions that are connected to a Developer Main Scheme, contribute to the Developer Mains Scheme, based on being a single customer.

When a new customer connects to the distribution network and a refund is required to customers already connected to the extension prior to receiving full payment from the connecting customer, TasNetworks will refund those customers the amount determined under this scheme and recover the applicable charge from the connecting customer.

Obligation to notify

All new customers who apply for customer connection services and who may be obliged to make reimbursements under an existing Developer Mains Scheme, will be advised of the existence of the Developer Mains Scheme and that as connecting customers they may be obliged to contribute towards reimbursement.

The current owner of the premises, to which a Developer Mains Scheme applies, will be advised of the existence of the Developer Mains Scheme and that they may be entitled to receive a reimbursement for subsequent connections.

Developer Mains Scheme exclusions

Temporary installations connected to the network are not required to contribute to the cost of the Developer Mains Scheme.

Augmentation services are generally excluded from Developer Mains Schemes since customers are only required to contribute their share of the costs. However, if a circumstance arises where augmentation services that have attracted a customer capital contribution should qualify for a re-imbursement, they may be considered a Developer Mains Scheme.

Developer Main Scheme reimbursement calculation:

Contribution required by a newly connecting customer – network extension

The contribution by a subsequent customer to network extension works previously funded by the original customer will be based on the physical attributes of the extension assets and the demand of a subsequent customer. The following sets out the method for calculating contributions and reimbursements provided for under the Developer Mains Scheme.

(a) Contributions

1. Calculate depreciated value of extension

   Depreciated value = Cost of original customer's extension x depreciation factor

   Where:

   Cost of original customer's extension – Where the original network extension was partially funded by a capital contribution, the amount of capital contribution paid by the original customer.

   Depreciation factor – Apply straight line depreciation to extension assets, over a twenty year asset life. The depreciation factor is determined as follows:

$$\frac{20 - \text{asset age of extension (years)}}{20}$$

   For example:

   Actual asset age is 2 years

   Depreciation factor is (20-2) / 20 or 0.9

2. Calculate share of the extension

   (i) For that part of the extension used by all connected customers, the share of the extension is:

$$\frac{\text{Length of original customer's extension to be used by all connected customers}}{\text{Total length of original customer's extension}}$$

   (ii) For those parts of the extension used by the newly connected customer and other connected customers, the share of the extension is:

$$\frac{\text{Length of original customer's extension to be used by multiple customers}}{\text{Total length of original customer's extension}}$$

   It may be necessary to repeat Step 2(ii) a number of times if multiple customers are connected to at various points along the extension.

   Where:

   Length of original customer's extension – The route length of the original customer's extension (this is nominally the number of spans for overhead extensions).

Length of original customer's extension used by all connected customers – The route length of the original customer's extension to which all customers are connected.

Length of original customer's extension used by multiple customers – The route length of the original customer's extension to which some, but not all, customers are connected.

3. Calculate share of electricity demand

(i) For that part of the extension used by all connected customers, the share of the electricity demand is:

$$\frac{\text{Demand required by new customer}}{\text{Sum of demand required by all customers connected to the extension}}$$

(ii) For those parts of the extension used by the newly connected customer and other connected customers, the share of the extension is:

$$\frac{\text{Demand required by new customer}}{\text{Sum of demand required by the customers connected to that share of the extension}}$$

It may be necessary to repeat Step 3(ii) a number of times if multiple customers are connected to at various points along the extension.

A customer's share of electricity demand will be treated equally with existing customers where the asset has been designed to the least cost standard and the subsequent customers derive similar network benefit.

In circumstances where a significant new load is connected to an extension or the original extension was built to a higher standard, the new customer's agreed maximum demand will be taken in account. In effect the new/existing demand is generally only considered where the subsequent customer's connection could be met by a lower rated line.

4. Calculate contribution for each share of the extension

(i) For that part of the extension used by all connected customers, the contribution for that share of the extension is:

Step 1 x Step 2(i) x Step 3(i)

(ii) For those parts of the extension used by the newly connected customer and other connected customers, the contribution for that share of the extension is:

Step 1 x Step 2(ii) x Step 3(ii)

It may be necessary to repeat Step 4(ii) a number of times if multiple customers are connected to at various points along the extension.

The total contribution will be the addition of Step 4(i) + Step 4(ii).

(b) Reimbursements

For the contribution that has been calculated for each share of the extension that is used by the newly connecting customer, the contribution will be refunded to the existing customer(s) that share that portion of the extension with the newly connecting customer, based upon their share of the demand for that section.

Refund for each shared section of the extension is therefore:

$$\frac{\text{Contribution by newly connecting customer} \times \text{Demand of customer entitled to a refund}}{\text{Total demand of all customers entitled to refund for that section}}$$

Contribution required by a newly connecting customer – substation

The contribution by a subsequent customer to substation works previously funded by the original customer will be based on the demand of a subsequent customer relative to other customers already connected to the substation.

(a) Contributions

1. Calculate depreciated value of extension

   Depreciated value = Cost of original customer's extension x depreciation factor

2. Calculate share of electricity demand

   Share of demand = Demand required by new customer / Sum of demand required by all customers connected to substation

3. Calculate contribution for each share of the extension

   The contribution for a newly connecting customer = Step 1 x Step 2

(b) Reimbursements

For the contribution that has been calculated for the newly connecting customer, the contribution will be refunded to the existing customer(s) based upon their share of the demand for that section.

Refund for each shared section of the extension is therefore:

$$\frac{\text{Contribution by newly connecting customer} \times \text{Demand of customer entitled to a refund}}{\text{Total demand of all customers entitled to refund}}$$

Example: Application of the Developer Main Scheme

The original customer (Customer A) requires a four span line extension and provides a contribution toward that extension of $20,000. Customer A demand is assumed to be 70 kVA.

A second customer (Customer B) connects to the line 2 years after Customer A. Customer B only uses the first span of the extension and demand is assumed to be 70 kVA.

Calculations of contributions and re-imbursements would be as follows.

Customer B

1. Calculate depreciated value of extension

Depreciated value = Cost of extension x depreciation factor

= $20,000 x (20 – 2) / 20

= $18,000

2. Calculate share of the extension

Share of extension = Length of extension used by Customer B / Total length of extension

= 1 / 4

= 0.25

3. Calculate share of electricity demand

Share of demand = each customer derive similar benefits from the line therefore this factor is shared equally.

= 0.50 used to split the cost by the number of customers only

4. Calculate contribution for Customer B

Contribution by B = Step 1 x Step 2 x Step 3

= $18,000 x 0.25 x 0.5

= $2,250

Customer A

In this case the refund due to Customer A equals the contribution provide by Customer B.

A third customer (Customer C) connects to the line 3 years after Customer A. Customer C uses the first three spans of the extension and demand is assumed to be 70 kVA. This means that Customer C shares one span with both Customers A & B and two additional spans with only Customer A.

Calculations of contributions and re-imbursements would be as follows.

Customer C

1. Calculate depreciated value of extension

Depreciated value = Cost of extension x depreciation factor

= $20,000 x (20 – 3) / 20

= $17,000

2. Calculate share of the extension used by all customers

(a) Share of extension used by A, B and C

Share of extension = Length of extension used by Customers A, B & C / Total length of extension

= 1 / 4

= 0.25

(b) Share of extension used by A and C

Share of extension = Length of extension used by Customers A & C / Total length of extension

= 2 / 4

= 0.50

3. Calculate share of electricity demand

(a) Share of extension used by A, B and C

Share of demand = split the cost by the number of customers only (since derive common benefit)

= 0.33 (3 customers)

(b) Share of extension used by A and C

Share of demand = split the cost by the number of customers only since derive only (since derive common benefit

= 0.50 (2 customers)

4. Calculate contribution for Customer C

Contribution by C = (Step 1 x Step 2a x Step 3a) + (Step 1 x Step 2a x Step 2b)

= ($17,000 x 0.25 x 0.33) + ($17,000 x 0.50 x 0.50)

= $1,417 + $ 4,250

= $5,667

Customer A

The refund due to Customer A is made up of the components of the contribution that Customer C has provided for that section C shares with A & B and that section C shares only with A. The refund due for that section shared between A, B & C will be equal to the contribution by C shared between A & B based upon their common use of the line. The refund for that section shared between A & C will be equal to the contribution by C.

Section shared by A, B & C

Refund to A = Contribution by C x Demand of A / (Demand of A + Demand of B)

= $1,417 x 0.5

= $708.50

Section shared by A & C

Refund to A	=	Contribution by C
	=	$4,250
Total refund to A	=	$708.50 + $4,250
	=	$4,958.50

Customer B

The refund due to Customer B is made up of the components of the contribution that Customer C has provided for that section C shares with A & B. The refund due for that section shared between A, B & C will be equal to the contribution by C shared between A & B based upon their demands.

Section shared by A, B & C

Refund to B	=	Contribution by C x Demand of B / (Demand of A + Demand of B)
	=	$1,417 x 0.5
	=	$708.50

Attachment 5: Transformer costs

Extension services involving the installation of a transformer

Under TasNetworks' previous policy, customers requiring a standard customer project, with the exception of low consumption installations, were exempt from funding any transformers required as part of their extension services. This approach is inconsistent with the Connection Charge Guidelines, which provide that customers are to contribute towards customer specific connection costs, including transformers.

The price impact of moving to full cost reflectivity for individual customers is significant. This is particularly true for small rural customers, as the cost of a transformer could add significantly to their individual connection charges.

A transitional approach has therefore been adopted for the majority of customers to move toward a fully cost-reflective approach.

With the exception of low consumption installations, the following steps are to be adopted when calculating the extension services charges for all other customers.

1. The installed costs of the transformer are to be calculated separately from the other extension services costs.
2. The incremental revenue rebate is to be calculated and checked against the calculated transformer installation costs.
3. Where the incremental revenue rebate is:
    (a) less than, or equal to, the calculated transformer installation costs, the transformer installation costs in excess of the incremental revenue rebate are to be subtracted from the total extension services charges; or
    (b) greater than the calculated transformer installation costs, the full transformer installation costs are to be included in the total extension services charges.
4. The incremental revenue rebate is then applied to the extension services charges that have been calculated in accordance with step 3 above.

Installed transformer costs

Overhead transformers

The following components are considered to be part of the installation costs of an overhead transformer:

- the transformer;
- the high voltage transformer fuses;
- the low voltage transformer fuses;
- any support assets associated with the fuses; and

- transformer earthing.

Note for clarification

The costs of supplying and installing any pole to which the transformer is attached are not part of the installation costs of an overhead transformer.

Ground type substations

The following components are considered to be part of the installation costs of ground type substations:

- the transformer;
- the high voltage switchgear;
- the low voltage switchgear and board;
- the substation enclosure and plinth (padmount); and
- transformer earthing.

Note for clarification

In addition to these costs a customer may need to fund specific requirements such as the costs associated with the construction of a building type substation, any installed fire suppression systems and fire doors.

Attachment 6: Developer connections

Developer projects will generally fall into three main categories, as requested by the developer.

Serviced allotments

In general, all new residential subdivisions provide serviced allotments. Developers providing serviced allotments will install all relevant underground or overhead electricity infrastructure necessary to facilitate the final connection of prospective customers. Relevant infrastructure will include the installation of backbone high voltage and low voltage network, transformers or substations, cabinets or turrets, street lighting and any other specific developer requirements. Land redevelopment sites will be treated in the same manner as a new development.

Prospective customers in a serviced allotment will generally only require a final connection service (basic or major depending on specific load requirements) to connect within the development.

The incremental revenue rebate for serviced developments will be based upon the typical customer loads of the prospective customers.

A real estate developer may request serviced allotments for a commercial subdivision, however generally the final load requirements of prospective customers is not known to the developer and therefore only backbone infrastructure is provided (refer to the following section on serviceable allotments for further information).

Serviceable allotments

Serviceable allotments are generally provided as part of a commercial development.

Serviceable allotments exclude the provision of the assets that are necessary to facilitate the final connection of prospective customers such as transformers or substations and cabinets or turrets. Developers will only provide the backbone infrastructure which generally comprises the high voltage network and its associated infrastructure.

Prospective customers will need to make an individual application for a connection service that will satisfy the specific electrical demand required for the connection and will therefore also be entitled to an individual incremental revenue rebate for that connection.

As the future revenue for the connecting customers is unknown, and each customer will receive their own incremental revenue rebate, developers will not receive any incremental revenue rebate for the provision of serviceable allotments.

Multi-tenanted allotments

Multi-tenanted allotments generally means TasNetworks provides a single service into a development and a corporation or property owner will be responsible for the low voltage service mains to individual customers within the property.

These developments typically include:

- apartment blocks,
- strata units,
- mixed use multi-levelled property, or
- retirement villages and the like.

Prospective customers will generally not require the provision of any connection service to receive their electricity. In these instances, connection service charges and incremental revenue rebates will be calculated in accordance with a total maximum demand for the site supplied by the developer in the same manner as for an individual retail customer's connection project.

Attachment 7: Easements

Requirement for an easement over private property

An easement is to be registered on a property title to ensure TasNetworks can lawfully perform the activities defined by the easement in respect to its distribution infrastructure.

Easements are required where:

- the construction of distribution infrastructure is required to provide customer project services and a portion of that distribution infrastructure crosses third party titled land owned by the Crown, Local Government or any other entity, or individual(s); and
- the distribution infrastructure will be located on property owned by the customer requesting a connection to the distribution network.

Design and construction

The distribution network will, wherever reasonably possible, be designed and constructed such that the distribution infrastructure to connect a customer crosses only:

- public land; and/ or
- property owned by the customer served by that distribution infrastructure.

Easements over property owned by a third party

In the event that distribution infrastructure to connect a customer must cross property owned by a third party, the responsibility for obtaining the easement from the third party on behalf of TasNetworks rests with the customer requesting the connection.

The conditions of the easement over the property owned by the third party should be in accordance with TasNetworks standard easement terms.

Construction of distribution infrastructure not to start without required easements

Construction of distribution infrastructure to connect a customer will not commence without the acquisition of any required easements or a legal undertaking thereof.

Costs associated with easements over private property

All costs for the acquiring of an easement associated with distribution infrastructure to connect a customer are the responsibility of the customer making the request for connection. This includes meeting costs associated with acquiring an easement over property of a third party.

Attachment 8: Connection Choice

Scoping required extension works

Where a connection applicant elects to use an Accredited Electrical Designer or Accredited Electrical Constructor, following the receipt of required information and payment of the applicable fee, TasNetworks will develop a scope for Contestable Works. TasNetworks may also prepare a second scope for any augmentation works required on the existing Network to accommodate the new connection (this work cannot be done by an Accredited Electrical Designer or an Accredited Electrical Constructor).

The purpose of the scopes is to set out the general design considerations and operating requirements for the works required to allow connection to the distribution network, including:

- connection voltage;
- minimum asset sizes;
- any other technical details or equipment requirements (including requirements for compatibility with the distribution network); and
- details of any additional work required (e.g. provisions for future developments).

These scopes are based on TasNetworks' Technical Requirements and Standards.

Where the TasNetworks' scope includes technical requirements for electrical infrastructure to be installed to a higher standard, or capacity, than a least cost, technically suitable solution, then TasNetworks will make arrangements to fund the additional cost of achieving the higher standard or capacity.

Timeframe for developing a scope of the extension works

Where practicable, TasNetworks will provide the scope to a connection applicant within 10 business days of receiving the connection application. Where the complexity of the scope means that this is not practicable, TasNetworks will agree a reasonable alternative timeframe with the connection applicant.

Choosing an Accredited Electrical Designer or Accredited Electrical Constructor

Using the scope provided, a connection applicant can choose to engage an Accredited Electrical Designer or an Accredited Electrical Constructor directly, or run their own tender process to engage an Accredited Electrical Designer for the design, and/or an Accredited Electrical Constructor for the construction, of the Contestable Works.

Any tender process undertaken will be the responsibility of the connection applicant.

There are critical stages of the connection process where TasNetworks will need to liaise with the connection applicant from design through to energisation and vesting of the assets on completion of the Contestable Works. It is important that there is adequate co-ordination of activities to ensure negotiated or agreed timeframes can be met.

Key aspects of the process must be discussed and agreed between TasNetworks and the connection applicant before commencing design and/or construction, including:

- the design of the extension including design terms and conditions;
- the program of works for construction of the extension;
- construction terms and conditions;
- fees and charges to be paid by the connection applicant to TasNetworks;
- securities or warranties required by TasNetworks in relation to the Contestable Works and constructed assets; and
- ownership and risk, including the transfer or vesting of the constructed assets to TasNetworks on completion of the Contestable Works.

The customer is responsible for ensuring that its contractual arrangements with their Accredited Electrical Designer or Accredited Electrical Constructor appropriately address the matters set out above.

Accepting the Extension Works

TasNetworks will only accept a design and/or construction of Contestable Works where:

1. the Contestable Work is completed by an Accredited Electrical Designer or an Accredited Electrical Constructor;
2. TasNetworks' design audit confirms the proposed design of the Contestable Assets conforms with the scope provided by TasNetworks; and
3. TasNetworks' construction audit confirms the construction of the Contestable Assets conforms to the approved design, the construction manuals (including requirements about Network compatibility) and all construction terms have been met.

Dispute resolution

Where a connection applicant has a dispute with TasNetworks relating to the provision of connection services, such disputes will be managed in accordance with section 9 of this policy or as otherwise contractually agreed.

Where a connection applicant has a dispute with an Accredited Electrical Designer or an Accredited Electrical Constructor, this is a matter between those parties, TasNetworks is not responsible for managing the dispute.

Attachment 9: Theoretical examples

The following examples are only intended to demonstrate how a connection charge is calculated in accordance with this Policy. These are fictitious examples and should not be relied on for estimating costs of a new connection project.

Example 1 – standard customer project

- Application requires completion of a formal design and offer – assume $1,000 application fees and design service charges
- Applicant requires a new overhead line extension to connect to the network at a total cost of $10,000
- As part of the extension the connection requires a new transformer at $8,000
- Final connection is below 100 amps per phase – therefore basic connection service charge applicable.
- No augmentation services are applicable
- Incremental Revenue Rebate – assumed to be $1,200
- No reimbursements are required but the value of the line extension contributed by the customer will be registered as a developer mains

Charge		Category			Service Provided
=	ACS	Alternative control service charge (ACS)	$1,000 $700		• Application fees and Design services • Basic Connection Service
		Total Contribution to ACS	**$1,700**	**$1,700**	
+	add		add	add	
	SCS	Standard control service charge (SCS)	$10,000 $1,200		• Extension service (overhead line) • $8,000 Extension transformer *Note the customer contribution to an extension transformer is up to the value of the rebate only ($1,200) final connection 100 amps or below*
			$11,200		
-	less		less		
	IRR	Incremental revenue rebate	$1,200		• Incremental revenue rebate
		Total Contribution to SCS	**$10,000**	**$10,000**	
+	add		add	add	
	DM	Developer mains charges	$0	$0	Note a developer mains will be registered in the owner's name for $10,000 and the customer may be entitled to a refund if another customer connects to the new line (time periods apply)
Total charges paid by the customer				**$11,700**	

Example 2 – complex customer project

- Application requires completion of a formal design and offer – assume $2,000 application fees and design service charges
- Applicant requires a new underground line extension to connect to the network at a total cost of $25,000
- As part of the extension the connection requires a new dedicated ground mounted substation at $60,000
- Final connection is above 500 amps at low voltage– therefore major connection service charges applicable
- No augmentation services are applicable – refer section 4.2.2.3 for more information
- Incremental Revenue Rebate – assumed to be $20,000
- No reimbursements are required but the value of the underground line extension contributed by the customer will be registered as a developer mains

Charge		Category			Service Provided
=	ACS	Alternative control service charge (ACS)	$2,000		• Application fees and Design services
		Total Contribution to ACS	$2,000	$2,000	
+	add		add	add	
	SCS	Standard control service charge (SCS)	$4,000 $25,000 $60,000		• Major connection service • Extension service (overhead line) • Extension substation
			$89,000		
-	less		less		
	IRR	Incremental revenue rebate	$20,000		• Incremental revenue rebate
		Total Contribution to SCS	$69,000	$69,000	
+	add		add	add	
	DM	Developer mains charges	$0	$0	Note a developer mains will be registered in the owner's name for $25,000 and the customer may be entitled to a refund if another customer connects to the new line (time periods apply)
Total charges paid by the customer				$71,000	

Attachment 10: Guideline Substation/Transformer Cost Sharing

As per the current and future connections pricing policy developers are required to contribute the direct costs associated with the provision of services in new subdivisions. This includes LV and HV backbone infrastructure (including transformation) required to accommodate the development and any extension and augmentation services. From 2017 Developers may also be entitled to an incremental revenue rebate where provision is made for fully serviced lots.

Developers have generally funded the full cost a new Transformer/substation where required within a new subdivision (noting the transformer/substation has been sized to meet their needs).

In some situations however there may be spare capacity which can be used to support neighbouring developments, which can lead to some inequities.

For these reasons from **01 January 2016** a new cost sharing approach was introduced as part of the connection choice reforms.

Note– this approach should be considered for complex customer projects where customers may be seeking a major connection service and which requires funding of a new transformer or substation or drawing on a capacity funded by another customer or developer.

From section 4 of the Developer Guideline:

4.3.1 Additional requirements

There may be occasions where TasNetworks request a larger transformer to be installed with a greater capacity than that which is required by the particular subdivision or stage of the subdivision. There may also be occasions where only low voltage internal reticulation is required within the subdivision or stage, and this can be supplied from a previously installed transformer, funded by another Developer.

It is appropriate therefore that the installation cost of **new transformers (installed from 01 January 2016**) is shared equitably between Developers. TasNetworks has developed unit rates that will guide the payment applicable to a Developer to reimburse installed costs associated with sourcing a larger transformer.

Requests by TasNetworks for larger transformer or substation within subdivision:

TasNetworks has developed unit rates that will guide the payment applicable to a Developer to reimburse installed costs associated with sourcing a larger transformer.

Note: This reimbursement however is on the proviso that the spare capacity can be used to supply subsequent lots or by TasNetworks for supply to foreseeable infrastructure.

~~This means spare capacity funding from 1 January 2016 will be by TasNetworks (where it has been assessed that it may be possible to use in future stages or in the adjacent distribution network).~~

~~If we need to connect a number of subsequent lots to a substation or transformer installed 01 January 2016, then that customer will be charged the appropriate pro-rata cost and the reimbursement goes back to TasNetworks.~~

~~Estimating demand:~~

~~The amount applicable will be calculated using a Transformer Capacity Standard for a distribution substation and an Amps Allowance per lot allowed in the design of the electrical reticulation for the urban residential subdivision or stage.~~

~~Residential:~~

~~In a standard residential subdivision we should assess required transformer capacity pro-rata on a per lot basis. So if the sub will supply 90 lots and the developer is connecting 30 lots, they will pay 1/3rd the unit rate.~~

~~Alternatively ADMD maybe used as appropriate for example where there are mixed loads. ie a 6kVA capacity may be used per lot and this may reduce to 4kVA for strata developments (noting Network Planning rules state that the transformer can only be loaded to 80% of full load capacity for new connections) Or~~

~~As advised by developer (TN must agree)~~

~~Commercial (if applicable):~~

~~As advised by developer (TN must agree)~~

~~Other information:~~

~~Webmap:~~

~~Details of transformer installed dates will need to be maintained in Webmap for use in the calculation.~~