



POWER NETWORKS CAPITAL CONTRIBUTIONS POLICY

EFFECTIVE FROM 1 JULY 2014

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1 Scope

This Capital Contributions Policy sets out the general principles and arrangements for Power Networks providing new or upgraded Network Access Services to Network Users. A Network User has the meaning set out in section 4 of this Policy.

This Policy applies to all Network Users and should be referenced in all Access Agreements entered into between Power Networks and Network Users, whether the terms of their supply are set out in Power Networks' Standard Form Agreement or in a Formal Access Agreement.

This Policy only applies in Regulated Areas, as the Electricity Networks (Third Party Access) Code (Code) only applies in Regulated Areas.

2 Introduction

This Policy sets out the principles that the Power Networks Business Unit (Power Networks) of Power and Water Corporation will apply in levying a Capital Contribution on a Network User for any new or upgraded Network Access Service.

This Policy has been developed in accordance with the *Electricity Networks (Third Party Access) Act* (Act) and the Code contained within the Act and is intended to be referred to in all Access Agreements entered into between Power Networks and a Network User. This Policy has also been developed with regard for the *Planning Act* as it relates to developer contributions.

The Policy's objectives are:

- To provide appropriate economic pricing signals to Network Users that reflect the true cost of connection to Power Networks' electricity networks or any new or upgraded Network Access Services;
- To ensure the commercial viability of connections made to Power Networks' electricity networks, in order to provide a return to the shareholders commensurate with the required investment; and
- To ensure more equitable outcomes for both new and existing Network Users.

3 Further Information

For further information about this Policy, please contact:

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4 Definitions

Access Agreement means a contract or agreement for the provision of Network Access Services entered into between a Network Provider and a Network User under the Code, and includes an award made by an arbitrator for the same purpose. Access Agreements entered into between Power Networks and an Individual Network User are termed a Customer Connection Agreement, and could be in the form of an individually negotiated Formal Access Agreement or a Standard Form Agreement.

Access Application means an access application made under clause 10 of the Code.

Access Offer means an offer made by the Network Provider to an access applicant to provide Network Access Services (and includes any modification to a previous offer).

Accredited Service Provider is a service provider who has been accredited by Power Networks in accordance with its relevant policies to design, construct, install and commission Connection Assets and Network System Assets.

Act is the *Electricity Networks (Third Party Access) Act*.

Capital Contribution is a financial contribution made – or the equivalent in the form of contributed assets – by a Network User to Power Networks towards the cost of designing, constructing, installing and commissioning Connection Assets or Network System Assets to provide new or upgraded Network Access Services to a Network User.

Code means the Electricity Networks (Third Party Access) Code contained in the Schedule to the Act.

Connection Equipment or Connection Assets mean all of the electrical equipment that is used only in order to transfer electricity to or from the Electricity Network at the relevant Connection Point and includes any transformers or switchgear at the relevant point or which is installed to support or to provide backup to such electrical equipment as is necessary for that transfer.

Connection Point means a point at which electricity is transferred to or from an Electricity Network to a Network User, as defined by Power Networks.

Connection Service in relation to a Connection Point, means the establishment and maintenance of that Connection Point.

Dedicated Connection Asset means a Connection Asset for a single Network User. Refer to the diagram in Schedule 3 for examples of Dedicated Connection Assets.

Developer means a person (who/which may be a natural person or a corporation) who arranges Connection Services for a Load User or the reticulation of a Development to allow the provision of Connection Services to expected future Load Users.

Development includes Subdivisions, Multi-Dwelling Developments, amalgamations, or rezoning/specific use developments.

Distribution Line or Distribution Asset means a line or other distribution asset operating at a nominal voltage of less than 66 kV.

Early Works Agreement means an agreement entered into between Power and Water and the Network User prior to entering into an Access Agreement. An Early Works Agreement may be required if Power Networks assesses there is reasonable risk that an extension or upgrade will not proceed, and if Power Networks assess that significant costs are likely to be incurred during the design phase of the project. It enables Power and Water to identify the nature and extent of the works, and for this purpose for Power and Water to carry out the early works.

Electricity Network means the Connection Assets and Network System Assets which together are operated by the Network Provider for the purposes of transporting electricity from generators of electricity to a transfer point or to consumers of electricity.

Formal Access Agreement means an Access Agreement entered into between Power Networks and a Large Individual Network User or a Generator User. By agreement of both parties, Power Networks may apply the Standard Form Agreement to Large Individual Network Users or Generators.

Generator User means a Network User who has been granted access to the electricity network by the network provider and who supplies electricity into the electricity network at an entry point.

Individual Network User means a Network User that is an existing or potential end-use customer.

Large Individual Network User means an Individual Network User that satisfies either of the below criteria:

- A high voltage connection and a projected (or actual) demand of 4MVA or greater; or
- Is connected to (or seeking connection to) a dedicated supply that is different or remote or separate from the remainder of the supply network.

The identification of these Network Users will be at the sole discretion of Power Networks.

Load User means a person who has been granted access to the electricity network by the Network Provider and who takes electricity from the electricity network at an exit point.

Multi-Dwelling Development is:

- A building or proposed building that is under strata title; or
- A building or proposed building, or set of such buildings, in relation to which distinct parts are occupied, or designed to be occupied, by two or more separate businesses or residences or for other separate purposes.

Network Access Services means the services provided to Network Users by a Network Provider, whether in the form of Connection Services or use of network services.

Network Provider means the Power Networks business unit of Power and Water Corporation.

Network System Assets means the apparatus, equipment, plant and building used to convey, and control the conveyance of, electricity.

Network User means a person, whether a Load User or a Generator User, who has been granted access to the Electricity Network by the Network Provider in order to transport electrical energy to or from a particular point and includes, for the purposes of this Policy, any of:

- An existing or potential licensed electricity retailer that has, or is seeking to establish, an Access Agreement with Power Networks;
- An existing or potential end-use customer that seeks a new or upgraded Connection Service at a Connection Point; and
- An existing or potential licensed electricity generator user that seeks a new or upgraded Connection Service at a Connection Point.

Original Network User is, for the purposes of sharing Capital Contributions, the first Network User that makes a Capital Contribution towards works associated with a new or upgraded Connection Service at a Connection Point.

Planning Act is the Northern Territory *Planning Act*.

Planning Horizon means for future works:

- Distribution Networks (up to 11/22 kV) - 5 years; and
- Zone Substations and Transmission Networks - 10 years.

Power Networks means the Power Networks business unit of Power and Water Corporation, which holds a licence from the Utilities Commission authorising the distribution and transmission of electricity under section 22 of the *Electricity Reform Act*.

Regulated Area means an area within the Northern Territory that is subject to the Code. As set out in Schedule 2 of the Power and Water Corporation's Network Licence, the Regulated Area covers the Electricity Network owned and/or operated by Power and Water Corporation within the geographic areas associated with the cities and townships within the limits of the existing shared grid network at:

- Darwin (city, suburbs and surrounding rural areas);
- Katherine (township and surrounding rural areas);
- Darwin-Katherine Transmission Line (132kV) which extends from the network 132kV bus at Channel Island Power Station to a 132/22kV substation adjacent to the Katherine Power Station, with a 132/22kV substation at Manton, Batchelor and a 132/66kV substation at Pine Creek;
- Tennant Creek (township and surrounding rural areas); and
- Alice Springs (township and surrounding rural areas).

Regulator means the authority, officer or person to which or whom the functions of the regulator under the Code are assigned by the Act.

Regulatory Control Period means the period between major network pricing reviews during which time the network price regulation methodology used in setting prices is held constant.

Small Individual Network User means an Individual Network User that has a low voltage connection and/or a projected (or actual) demand less than 4MVA.

Standard Form Agreement means the standard form of Access Agreement entered into between Power Networks and all Network Users other than Large Individual Network Users or Generator Users (unless otherwise agreed by both parties).

Subdivision has the meaning set out in the *Planning Act*.

Subsequent New Network User is, for the purposes of sharing Capital Contributions, any Network User that:

- Seeks a new or upgraded Connection Service at a Connection Point;
- Benefits from the works upon which an Original Network User paid a Capital Contribution; and
- Applies within five years of the Original Network User making the Capital Contribution.

Technical Code means the Network Connection Technical Code developed by Power Networks in accordance with the requirements of section 9(2) of the Code.

Upstream Shared Asset means a Network System Asset that is used in the conveyance of electricity to more than one Network User. Refer to the diagram in Schedule 3 for examples of Upstream Shared Assets.

5 General Principles

This section of the policy sets out general principles that apply to determining and levying Capital Contributions.

5.1 Types of Capital Contributions

A Capital Contribution can be made by a Network User in the form of:

- a) An upfront financial payment to Power Networks, where Power Networks undertakes works required to provide new or upgraded Network Access Services to a Network User; or
- b) The transfer of ownership of Connection Assets or Network System Assets to Power Networks from a Network User that has procured and funded the installation or construction of the assets by an Accredited Service Provider; or
- c) A combination of (a) and (b).

5.2 Network User's Choices

Subject to approval by Power Networks, a Network User may elect whether it will make a Capital Contribution in the form of contributed assets; or a financial payment; or a combination of both.

5.3 Types of Works

Power Networks may require a Network User to make a Capital Contribution where:

- The provision of Network Access Services to the Network User requires new or upgraded Connection Assets or Upstream Shared Assets (involving asset augmentation or extension of connection equipment); and
- The cost of these assets (including design, construction, installation and commissioning) cannot be fully recovered by Power Networks through future tariff revenue over a period of time determined by Power Networks in accordance with this Policy.

5.4 Ownership of Assets

Power Networks will own all of the Connection Assets and Network Service Assets that have been funded by Capital Contributions, regardless of whether the Capital Contribution is made by the Network User as a financial payment, or as a contributed asset, or both.

5.5 Easements

The Network User seeking the provision of Network Access Services will create registered electricity easements in favour of Power and Water, as required, for the accommodation of the necessary network assets, in accordance with Power Networks' *Guidelines for Developers of Subdivisions and Electricity Infrastructure* (NP020).

The costs associated with establishing registered easements will be met by the Network User.

5.6 Sizing of Assets

Power Networks will determine the level of the payment or nature of the works required from a Network User through a Capital Contribution based on the closest available standard size which is at or greater than the optimally sized asset that is needed to meet the Network User's requirements for Network Access Services. That is, the Capital Contribution will be based on:

- a) The optimally sized asset required by the Network User if it corresponds to a standard size asset that can be installed and commissioned; or, where it is not the case;
- b) The closest higher standard size to the optimally sized asset required to service the Network User.

Power Networks may decide to build assets with a greater capacity than the Network User requires, in order to service the future needs of Power Networks or its customers. Power Networks will fund the incremental costs of any greater capacity on a basis agreed in writing with the Network User.

A Network User will transfer the ownership of any contributed assets to Power Networks at no cost to Power Networks.

5.7 Standards of Works

All works to Connection Assets and Network System Assets that are required to provide new or improved Network Access Services to a Network User must be undertaken in accordance with the Technical Code, relevant network planning criteria and other requirements reasonably required by Power Networks.

Power Networks may grant derogations from the above requirements if it considers it reasonable to do so.

5.8 Calculating the Capital Contribution

In accordance with the requirements of clause 80(4) of the Code, Power Networks will limit the amount of any Capital Contribution to that required to make a new or upgraded connection commercially viable. The general test of commercial viability will be whether the cost of the Connection Assets plus a proportionate share of the cost of augmenting Upstream Shared Assets can be recovered through regulated tariffs that apply to existing Network Users or to the Network User in question over a period of time.

Network connections are grouped into four classes, for the purpose of application of the Capital Contributions Policy, as follows:

1. Developer;
2. Large Individual Network User;
3. Small Individual Network User; and
4. Generator User.

The arrangements for calculating Capital Contributions follow the same principles but differ in detail, according to the class of connection to the network. These arrangements are summarised in the following Table and described in the sections below.

Table 1: Application of Capital Contributions by Class of Network Connection

Class of network connection	Funding of Dedicated Connection Assets	Funding of augmentation of Upstream Shared Assets
1. Developer (section 7)	Developer to contribute all costs associated with assets downstream of the connection point to the shared network	Funded by Power Networks, subject to section 7.2. A prudential guarantee may be sought (section 5.11)
2. Large Individual Network User (section 8)	Network User to contribute: PV (Dedicated Connection Asset cost) <i>plus</i> PV (proportion of cost to augment Upstream Shared Assets) <i>less</i> PV (expected revenue) less shared network costs (section 5.8.1) A prudential guarantee may be sought (section 5.11)	
3. Small Individual Network User (section 9)		
4. Generator User (section 10)	Network User to contribute the full cost of Dedicated Connection Assets	Network User to contribute cost of augmenting Upstream Shared Assets (may be proportionately funded by Power Networks)

Power Networks may also charge for design costs incurred when an extension or upgrade does not proceed. A prudential guarantee may be required from the Network User to insure Power Networks against this.

These categories of connection and the Capital Contributions arrangements for each are described in sections 7 to 10 of this Policy.

5.8.1 NPV approach to determining Capital Contributions

The maximum amount of a Capital Contribution will be the shortfall in the viability of the required works, based on the present value of the costs associated with the connection, less the present value of the projected future tariff revenues earned from the connection offset by the shared network costs. That is:

$$\text{Capital Contribution} = PV(\text{attributed costs of connection}) - [PV(\text{expected revenue}) \text{ less shared network costs}]$$

Where:

a) The “attributed costs of connection” is calculated as:

- The full capital cost of the (optimal) Connection Assets and the Network System Assets dedicated to an individual Network User; and
- An apportionment of the incremental costs of any new shared (optimal) Connection Assets and Upstream Shared Assets that are designated to that particular connection and would not have been incurred within Power Networks ordinary Planning Horizon but for that connection having occurred,

where the optimisation is determined subject to section 5.6 above.

Capital costs includes “restoration costs” which are the present value of those costs associated with the future removal of connection assets consequent to a Network User no longer requiring the use of those assets. Restoration costs will not be applied by Power Networks to the calculation of the contribution for connections in regulated

areas unless the probability of assets being stranded at the expiry of a connection is determined by Power Networks to be high.

At Power Networks' discretion, where projected operating and maintenance expenses attributed to the connection:

- Are significant; and
- Have not been allowed for within the current Regulatory Control Period,

an "operating and maintenance expense" may be included in the Capital Contribution calculation, based on the projected efficient operating and maintenance expense of the Connection Assets and Network System Assets dedicated to the Network User.

b) The "expected revenue" is determined based on:

- The "customer tariff" that is actually charged or chargeable to the Network User, which may be different to the general network tariff schedule in circumstances where a discount for that particular Network User has been negotiated;
- The projected incremental future electricity consumption in kWh and demand in kVA (where applicable) by the Network User attributable to the new works.

To calculate the expected revenue component in the Capital Contribution calculation, Large Individual Network Users will be required to submit the projected incremental future electricity consumption in kWh and demand in kVA attributable to the new works. In instances where Power Networks does not consider that the consumption and/or demand projections provided by the Network User are reasonable, or indicative of that Network User's likely usage, Power Networks may alter these values at its discretion.

For Small Individual Network Users, Power Networks will apply a default consumption profile and a default demand profile (if applicable). In some instances, Power Networks may consider applying consumption and/or demand projections provided by the Network User. The decision to apply consumption and/or demand projections provided by the Network User will be at the sole discretion of Power Networks.

Default residential and commercial consumption and demand profiles will be developed annually by Power Networks, based on the average NT residential and commercial consumption and demand from the previous financial year.

c) The "shared network costs" is the attribution of incremental network tariff revenue from the Network User to the costs of the existing shared network, calculated as 50% of the PV of "expected revenue".

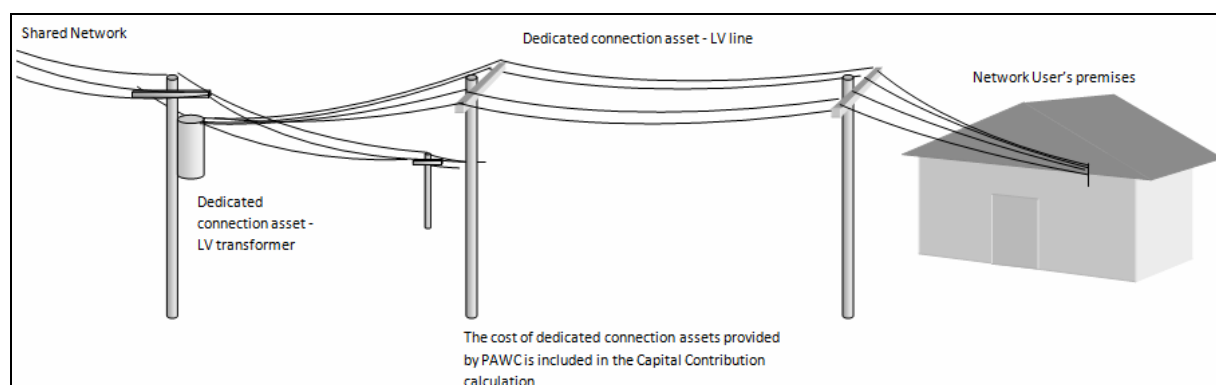
d) The "PV", meaning "present value", is calculated using generally accepted financial principles using:

- A weighted average cost of capital calculated in a manner consistent with the methodology applied by the Regulator in setting the weighted average price cap for the current Regulatory Control Period, updated for changes in parameter values since the time of the regulator's third Regulatory Control Period decision and the provisions of clause 80(6) of the Code;
- An investment timeframe of 15 years. Power Networks may choose to apply a shorter PV assessment period if it reasonably considers that the project is characterised by:

- i) A short asset life or risk of asset stranding, meaning that the assets may not be used by the Network User, or future Network Users at that site, for the standard investment timeframe of 15 years; or
- ii) A high risk of default in relation to an otherwise economic connection, which might mean that Power Networks will not recover the assumed revenue from that connection over the full term of the standard investment timeframes.

A Capital Contribution will only be levied if the outcome of the application of the above formula is a positive value (i.e. where a revenue shortfall is expected). In such a case, the value of the contribution charge will not exceed this amount.

The following diagram is an example of typical Dedicated Connection Assets that would be included in a typical Capital Contribution calculation.



5.9 Disputes over Contribution Calculation

For the purposes of calculating a Capital Contribution under section 5.8 for works undertaken by Power Networks, the capital costs will be valued at their quoted cost, subject to sizing variations applying under section 5.6.

Where the works form part of an Access Application or Access Agreement in accordance with clause 31 of the Code, unresolved disputes over the amount of the Capital Contribution will be dealt with under the resolution procedures contained in Chapter 4 of the Code. Similarly, it is Power Networks' intention to apply the procedures of Chapter 4 to disputes that arise where there is no Access Application or Access Agreement between the parties.

5.10 Timing of Payments

For works undertaken by Power Networks, the financial payment of the Capital Contribution will be recovered through a single up-front payment from the Network User to Power Networks before it commences the related works, unless otherwise negotiated between the Network User and Power Networks.

In the case of works that are physically contributed to Power Networks, and that are installed with excess capacity at Power Networks' request, payment for the cost of the excess capacity will take place at a time agreed to by Power Networks and the party undertaking the works.

In the case of Capital Contributions made through contributed assets, ownership will transfer to Power Networks once the new assets have been completed and commissioned and all of the necessary inspections and testings have been completed.

5.11 Prudential Requirements

In accordance with clause 79(4) of the Code, Power Networks may impose a prudential requirement on a Network User in relation to a new or upgraded connection, such as in the form of a financial guarantee.

If Power Networks assesses there is a reasonable risk that it may not earn the incremental revenue on which the application for the provision of Network Access Services was based, Power Networks may require a Network User to provide to Power Networks an unconditional, irrevocable bank guarantee (or equivalent financial instrument), in terms acceptable to Power Networks, guaranteeing the portion of new revenue that is expected to come from providing Network Access Services to the Network User.

This may apply where:

- a) The Network User applying to Power Networks for the provision of Network Access Services is a Large Individual Network User; or
- b) The forecast capital costs associated with connecting the Network User and, where applicable, augmenting the shared network, exceed \$100,000 for any Network User.

If Power Networks assesses there is reasonable risk that an extension or upgrade will not proceed, Power Networks may require a Network User to enter into an Early Works Agreement and provide to Power Networks an unconditional, irrevocable bank guarantee (or equivalent financial instrument), in terms acceptable to Power Networks, to cover the costs incurred by Power Networks during the design phase of the project.

If Power Networks assesses that significant costs are likely to be incurred in augmenting the Connection Assets or Upstream Shared Assets of a Development to accommodate a Developer's proposed demand, Power Networks may require the Developer to provide to Power Networks an unconditional, irrevocable bank guarantee (or equivalent financial instrument), in terms acceptable to Power Networks.

Where a Network User is required to provide security under this clause, the Network User will be required to provide such security before the commencement of works to connect the Network User to Power Networks' network.

6 Sharing of Capital Contributions

6.1 Cost-Sharing Generally

Capital contributions will be shared amongst Subsequent New Network Users who connect within five years of the Original Network User making the Capital Contribution and that benefit from the works on which an Original Network User paid the contribution, i.e. when Power Networks provides Network Access Services to a new Network User using all or part of the Original Network User's works.

In addition to contributing to the cost of any specific connection works or network augmentations, a new Network User who connects within five years of the original works completion is liable to pay Power Networks a proportion of the costs of the Original Network User's works. Power Networks will then pay this amount, in the form of a rebate, to the current owner of the premises (at that time) to which the Original Network User's works were connected. The current owner of the property may or may not be the Original Network User, as the property may have been sold between the connection of the Original Network User and the connection of the Subsequent New Network User.

Where two or more Network Users have jointly procured and/or funded the original works, the rebates by Power Networks will be divided between those Network Users in accordance with the proportions in which they procured and/or funded the works.

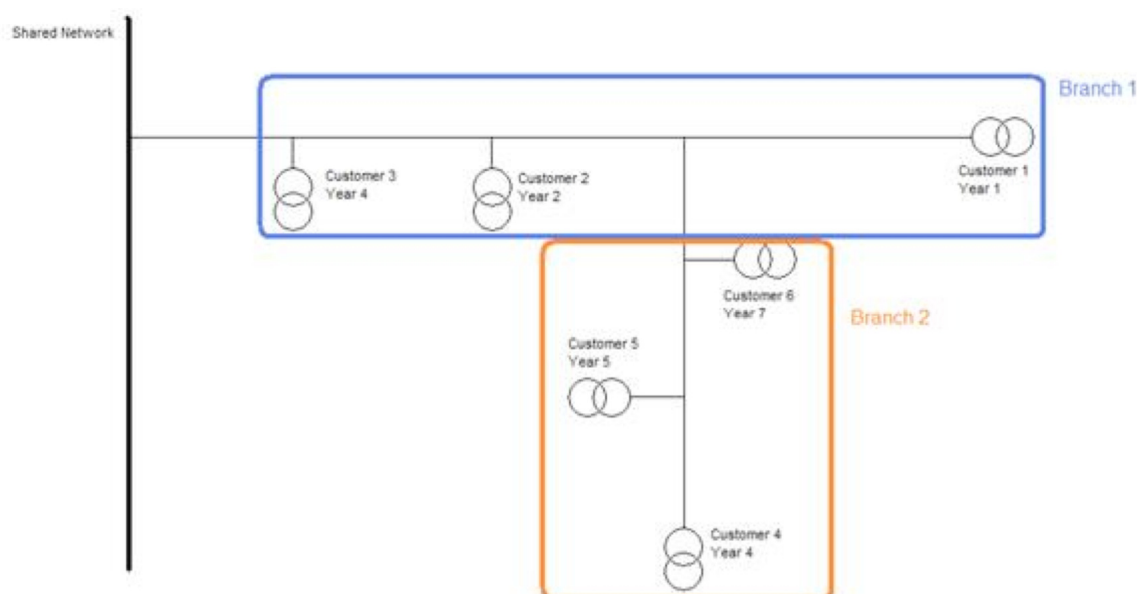
Power Networks will notify all new Network Users (or the Accredited Service Providers of new Network Users) who apply to Power Networks for Network Access Services and who may be obliged to make rebates under an existing rebate scheme, of the existence of rebate arrangements and that connecting Network Users may be obliged to contribute towards the rebate. Power Networks will notify the Original Network User(s) or the current owner of the premises (at that time) to which the Original Network User's works were connected, of the existence of rebate arrangements and that they may be entitled to receive a rebate.

A Capital Contribution may still apply to any connection assets dedicated to the Subsequent New Network User(s).

A worked example of a Capital Contribution cost sharing calculation is set out in Schedule 2 of this Policy.

6.2 Limitations to Cost Sharing

Cost sharing will only apply to Network Users directly connected to the same extension or "branch". Network Users within each branch do not share costs or receive rebates from Network Users within any other branch. The only exception is the first Network User within each subsequent branch. The first Network User within each subsequent branch must still share costs and rebates with Network Users in the branch it is connected to (so long as it is still within the five year sharing period). The following diagram illustrates this principle:



Within Branch 1, Customer 1 is the Original Network User, and Customers 2 and 3 are the Subsequent New Network Users. Customer 4 is also a Subsequent New Network User within Branch 1 because it is the first customer to connect to Branch 2. Consequently, Customer 4 would share costs and rebates with Customers 1, 2 and 3 for its share of Branch 1.

However, Customers 5 and 6 will not share costs and rebates with Customers 1, 2 and 3 in any way, as they are connected within Branch 2. Instead, Customers 5 and 6 share costs and rebates with Customer 4 for their share of Branch 2. This is because within Branch 2, Customer 4 is considered to be the Original Network User, and Customers 5 and 6 are the Subsequent New Network Users.

6.3 Exemptions

The following exemptions will apply to the sharing of Capital Contributions:

- Where the Original Network User:
 - Was a Large Individual Network User; and
 - Made a Capital Contribution towards works associated with a new or upgraded Connection Service at a Connection Point,cost sharing will only apply to subsequent new Large Individual Network Users. All other Network Users will be exempt from paying a proportion of the Original Network User's works; and
- All Developers (including strata title developers) are not eligible to receive rebates as Original Network Users. Rebates paid by Developers are regarded as payments on behalf of the occupants of the Development and no further rebates are required from those occupants when they apply for connection of load.

6.4 Calculation of Cost-Sharing Rebate

This section sets out how cost-sharing rebate will be calculated, having regard for the different categories of assets that may be utilised by Subsequent New Network Users. In all instances, Power Networks will perform the cost-sharing rebate calculations using its Capital Contributions model, which will accept the relevant inputs and perform the necessary calculations in accordance with this clause.

6.4.1 Distribution Lines

Where the Original Network User's works is a Distribution Line, the rebate for the Nth Network User (C_N) is calculated in accordance with the following formula:

$$C_N = \left(\text{Previous Contribution} - \frac{U_N C_{OC}}{L_{OC}} \times \left[\sum_{i=0}^{N_p-N-1} \frac{L_{(N_p-i-1)} - L_{(N_p-i)}}{\sum_{j=0}^{N_p-i-1} U_j} \right] \right) \times \frac{CP_{Im}}{CPI_{orig}}$$

where:

The Previous Contribution refers to the previous Capital Contribution paid by the Nth Network User, net of all rebates calculated in accordance with this clause;

C_{OC} – refers to the Capital Contribution paid for the Original Network User's works. There are two scenarios that will be considered, namely where:

- i. Power Networks carried out the Original Network User's works, in which case C_{OC} will be the actual Capital Contribution paid; and
- ii. An Accredited Service Provider carried out the Original Network User's works, in which case C_{OC} will be the Capital Contribution that Power Networks would have charged to carry out those works.

N_p – refers to the number of Prospective Network Users, which represents the total number of Network Users (including the Original Network User) who will utilise the Original Network User's works. This value will be determined and will take into account all relevant factors including (but not limited to):

- i. the capability of the proposed works;
- ii. the current number of properties that could potentially utilise those works;
- iii. the current zoning of the area and any re-zoning proposals;
- iv. any proposed Development applications; and
- v. historical patterns of Network User connections in similar areas.

L_x – refers to the length of Original Network User's works used by the X^{th} Subsequent New Network User (in km). For the purposes of the sharing calculation, $X = 0$ represents the Original Network User, $X = 1$ is the first Subsequent New Network User upstream of the Original Network User, $X = 2$ is the next Subsequent New Network User upstream of the first Subsequent New Network User, and so on. The exception is $X = N_p$, which represents the connection point of the extension with the shared network. Consequently, for $X = N_p$, $L_{N_p} = 0$. This ordering is performed automatically by the Capital Contribution model.

L_{oc} – refers to the total length of Original Network User's works (in km).

U_x – refers to the X^{th} Subsequent New Network User's load (in kVA as specified in the Subsequent New Network User's application for Network Access Services). For the purposes of the sharing calculation, $X = 0$ represents the Original Network User, $X = 1$ is the first Subsequent New Network User upstream of the Original Network User, $X = 2$ is the next Subsequent New Network User upstream of the first Subsequent New Network User, and so on. This ordering is performed automatically by the Capital Contribution model.

CPI_{orig} – refers to the average of the consumer price index (all groups, all capital cities) published by the Australian Bureau of Statistics (ABS), for the previous four quarters immediately prior to the date that the Original Network User's works are completed.

CPI_m – refers to the average of the consumer price index (all groups, all capital cities) published by the ABS, for the previous four quarters immediately prior to the date of the Subsequent New Network User's application for Network Access Services in year m.

No CPI adjustments are made where the beginning of the relevant period for the calculation of CPI_m is less than 12 months after the end of the relevant period for the calculation of CPI_{orig} .

In the event that all the relevant information to calculate CPI_m has not been published by the ABS at the time of a Subsequent New Network User's application for Network Access Services,

then the most recent available rates will be used, i.e. the rates applicable to the previous quarter.

6.4.2 Assets other than Distribution Lines

Where the Original Network User's works are (or include) works other than a distribution line, the rebate will be calculated in accordance with the following formula:

$$\frac{C_{OC}}{N_P} \times \frac{CPI_m}{CPI_{orig}}$$

where:

C_{OC} , N_P , CPI_{orig} and CPI_m are as defined in the pre-calculated rebate in the Distribution Lines section above.

7 Developers

This section applies to all Developments.

For all Developments, including amalgamations and rezoning, the Developer will be responsible for meeting the following costs:

- All connection assets dedicated to the Development, from the point of connection to the shared network. Connection assets are gifted to Power Networks and maintained and operated by Power Networks; and
- Network costs associated with the provision of the connection, including design certification, contract inspection, final connection and commissioning costs.

If significant costs are likely to be incurred in augmenting the Connection Assets or Upstream Shared Assets to accommodate the Network User's proposed demand, a prudential guarantee may be sought from the Network User consistent with the provisions of section 5.11 of this Policy.

7.1 Dedicated Assets

All dedicated assets will be provided and fully paid for by the Developer seeking the provision of Network Access Services to a Development. These assets include, but are not limited to:

- All low voltage (LV) reticulation within (and dedicated to) the Development;
- Any additional construction required to service new lots within a Development;
- The distribution substations (including design and construction);
- All electrical design works;
- All trenching within the Development (unless it only contains Power Networks funded assets); and
- All other conduits as directed by Power Networks.

In addition to providing, designing and constructing the distribution substation when required to service the Development, the Network User will provide, and fully pay for up-front, a suitable site within the Development to accommodate the distribution substation and distribution equipment. If this is not possible the Network User must procure a site outside the property. The Network User will also fund any additional distribution substation capacity or

additional distribution substation(s) they request which are over and above that required to supply their base load.

All reticulation systems with a Development will be designed and constructed in accordance with Power Networks' *Design and Construction of Network Assets – General Requirements* (NP001.1). The Network User will provide all reticulation intended for handover to Power Networks, including extensions into battle axe lots.

The design, project management and construction associated with these works must meet Power Networks' standards and be performed by accredited consultants and contractors (Accredited Service Providers).

7.2 Upstream Shared Assets

If the existing upstream shared distribution network is not capable of supplying the electrical load of the Development and augmentation of upstream assets is required, and/or a new zone substation and associated distribution or transmission line extension needs to be established to supply the Development, Power Networks will perform and pay for the cost of the augmentation or extension work, including the construction of any zone substation and distribution or transmission line infrastructure, if it has been allowed for within Power Networks Planning Horizon. This includes land to accommodate the zone substation and easements (as appropriate) for the transmission line supplying the zone substation.

Generally the principles are:

1. If the shared network works are beyond the Planning Horizon, then the Network User will be required to contribute the full cost of the new installed capacity required to service its load; and
2. If the shared network works are within the Planning Horizon, but are outside the commencement date of the next Regulatory Control Period, then the Network User will be required to pay the cost of advancement of the works.

8 Large Individual Network Users

All Large Individual Network Users seeking the provision of Network Access Services will be required to enter into a Formal Access Agreement with Power Networks, unless otherwise agreed by both parties. In negotiating the Access Agreement, Power Networks and the Network User will agree upon the scope of works and Capital Contribution required to enable the provision of Network Access Services, including any Dedicated Connection Assets and augmentation to the Upstream Shared Assets.

The Capital Contribution required will be determined using the NPV approach set out in section 5.8.1.

For Upstream Shared Assets where Power Networks decides to install network assets with capacity above the optimal size to supply the Large Individual Network User, the Capital Contribution calculation will only apply to the proportion of assets required by the Network User.

In addition, Power Networks may impose a prudential requirement, consistent with the provisions of section 5.11 of this Policy.

9 Small Individual Network Users

For Small Individual Network Users, the Capital Contribution will be determined using the NPV approach set out in section 5.8.1.

If significant costs are likely to be incurred in augmenting the Connection Assets or Upstream Shared Assets to accommodate the Network User's proposed demand, a prudential guarantee may be sought from the Network User consistent with the provisions of section 5.11 of this Policy.

10 Generator Users

All Generator Users seeking the provision of Network Access Services will be required to enter into a Formal Access Agreement with Power Networks, unless otherwise agreed by both parties. In negotiating the Access Agreement, Power Networks and the Generator User will agree upon the scope of works and any Capital Contribution required to enable the provision of Network Access Services, including any Dedicated Connection Assets and augmentation to the Upstream Shared Assets.

Where Power Networks is engaged to perform these works, these costs will be included in the Capital Contribution calculation in section 5.8.

In the following situations, the Capital Contribution calculation will only apply to the proportion of assets required by the Generator User:

- a) Where Power Networks agrees to install network assets with capacity above the optimal size to supply the Generator User; or
- b) Where other existing Network Users will benefit from the connection and/or augmentation works.

Power Networks may fund on a proportional basis network assets with a capacity above the optimal size required by the Generator User where other Network Users may benefit from the connection or augmentations works (to the shared Network).

11 Above Standard Services (Quoted Services)

If a Network User requires any above standard Connection Assets or Network System Assets (such as additional connection assets, undergrounding or provision of three phase supply), and where Power Networks is engaged to perform the upgrading works, the Network User will pay for the entire cost of the work upfront, consistent with the charging methodology approved by the Regulator for Alternative Control Services - Quoted Services. This methodology is set out in the Regulator's Approval Instrument for Power Networks' Network Access Tariffs, as per the following link:

http://www.nt.gov.au/ntt/utilicom/electricity/networks_pricing.shtml

11.1 Additional Connection Assets

Additional connection assets or an additional point of connection to the network may be provided for reliability purposes or at the Network User's request. The Network User will be required to contribute to any additional connection work necessary to provide an alternative electricity supply arrangement for increased reliability or Network User's additional point of supply, such as:

- Emergency low voltage network supply to a dedicated substation; or

- Alternative high voltage supply from a different zone substation or feeders; and
- An additional transformer and associated recoverable equipment.

11.2 Conversion of Overhead to Underground Reticulation

Where underground reticulation is to be provided, at the request of the Network User, where overhead reticulation already exists, the Network User will:

- a) Install suitable underground service mains from the nearest point of supply as directed to the switchboard or point of attachment;
- b) Install appropriate distribution pillar with required electricity easement where applicable; and
- c) Relocate and/or remove any redundant existing distribution overhead mains and substations mains to accommodate the Network User's request.

The costs associated with providing underground reticulation to an existing overhead serviced lot will be met by the Network User.

11.3 Conversion of Single Phase to Three Phase Supply

If a Network User requires a connection with more phases than are available from the network in the vicinity, the connection works will include construction of the additional dedicated phases from the connection point on the network where the required phase configuration exists.

For example, if the existing low voltage distribution mains in the public roadway are capable of supplying the required number of phases then the connection works would be the additional service mains and meters dedicated to the installation. Otherwise if the existing low voltage distribution mains are not capable of supplying the required number of phases, the connection works will be the dedicated extensions required to reach the nearest network with the required number of phases. This could involve an additional phase of high voltage mains, an augmentation of the substation transformer (either the shared network or dedicated transformer) and additional phases of low voltage distribution mains.

Where augmentation of the existing network assets are required as result of the conversion of a Network User's connection from single phase to three phase, the connection works will include the construction and/or installation of these new assets required to meet the Network User's demand.

12 Information required from a Network User

This section considers the information that a Network User must provide to Power Networks in order to receive a new or upgraded Network Access Service.

12.1 Nature of the Information to be Provided

Large Individual Network Users and Generator Users seeking access to the network are required to lodge an Access Application for a Formal Access Agreement containing the information set out in Schedule 2 of the Code.

Power Networks Access Offer to a Network User must contain, where appropriate, the information set out in Schedule 3 of the Code, including the amount of any Capital Contribution payable by the Network User. Schedule 4 of the Code sets out the indicative terms and conditions of an Access Agreement.

A Network User seeking new or upgraded Network Access Services through a Formal Access Agreement will therefore provide in its Access Application the information Power Networks requires to determine the amount of any Capital Contribution.

The terms of supply for all Network Users other than Large Individual Network Users and Generator Users are set out in Power Networks' Standard Form Agreement.

A Network User that is seeking new or upgraded Network Access Services, but is not required to lodge an Access Application, must complete Power Networks' Capital Contributions application form.

12.2 Provision of Accurate Information

A Network User seeking new or upgraded Network Access Services must provide accurate information to Power Networks to enable Power Networks to determine the appropriate level of payment or nature of works required from the Network User through a Capital Contribution.

Any failure by the Network User to provide accurate information may be a breach of the Act, the Code and the Network User's Access Agreement and may attract the penalties and sanctions provided for under those documents.

13 Contracting for Capital Contributions

In accordance with Schedules 3 and 4 of the Code, any Access Offer made to a Network User and, if this is accepted, any Access Agreement agreed between the parties, will detail the terms and conditions on which:

- a) Power Networks will provide new or upgraded Network Access Services; and
- b) The Network User will make a Capital Contribution to Power Networks.

14 Regulatory Approval of this Policy

In accordance with clauses 62(1) and 81 of the Code, Power Networks will submit this Policy to the Regulator for approval prior to the commencement of each Regulatory Control Period. Power Networks may amend this Policy from time to time during a Regulatory Control Period, with amendments being subject to the Regulator's approval in each case.

15 Compliance with this Policy

Power Networks will complete a "Capital Contributions Return Form" of the kind set out in Schedule 1 for each new Capital Contribution levied in accordance with this Policy.

Power Networks will submit these forms as part of the Power Networks Annual Licence Return due by 1 December each year for review by the Regulator to enable it to oversee the application of this Policy in accordance with clause 62(1) of the Code.

Schedule 1 - Capital Contributions Return Form

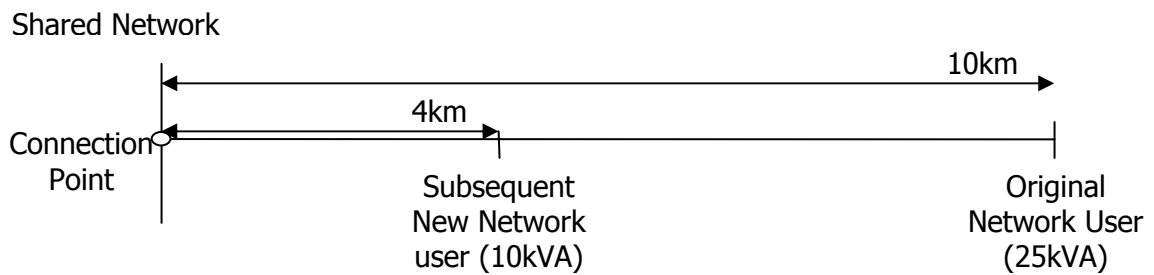
Name of Project	
Class of Network Connection	
Region	
Applicant for new customer connection – Network User ID – Invoice Number	
Type of Works	
Location of Works	
Type of Capital Contribution	
Party Undertaking the Works	
Expected Investment Timeframe (years)	
Present Value of Capital Costs	
Present Value of Operating and Maintenance Expense	
Present Value of Tariff Revenue less Shared Network Costs	
Maximum Allowable Capital Contribution Charge	
Actual Capital Contribution Charged	

Schedule 2 - Capital Contribution Sharing Worked Example

A 10km high voltage (HV) extension (L_{oc}) was constructed to service an Original Network User's three-phase 25kVA load. No shared network augmentation was required. The Original Network User made a Capital Contribution (C_{oc}) of \$1M.

Two years later, a Subsequent New Network User applies for Network Access Services to their property, which is located adjacent to the Original Network User's HV extension, at a distance of 4km (L_1) from the HV extension connection point to the shared network. The Subsequent New Network User's expected load is 10kVA, and there is sufficient capacity in the existing extension and shared network to meet this additional load.

This situation is depicted diagrammatically below:



What Capital Contribution must the Subsequent New Network User pay Power Networks, and what is the rebate that Power Networks must pay to the Original Network User?

The Subsequent New Network User shares the first 4km of the extension with the Original Network User, therefore the Capital Contribution for this portion of the extension must be shared equally between the Original and Subsequent New Network Users. The Subsequent New Network User does not make a contribution for the remaining 6km of the extension.

For the purposes of this example, the average of the CPI (all groups, all capital cities) for the previous four quarters immediately prior to the date that the Original Network User's works are completed is 165, and the average of the CPI (all groups, all capital cities) for the previous four quarters immediately prior to the date of the Subsequent New Network User's application for Network Access Services is 170.

In this example, N_p equals 2, as there are two Network Users sharing the extension. Also, $L_{N_p} = L_2 = 0$, and the "Previous Contribution" for the Subsequent New Network User is \$0. Also: $L_0 = 10\text{km}$, $L_1 = 4\text{km}$, $U_0 = 25\text{kVA}$ and $U_1 = 10\text{kVA}$.

So, using the formula set out above, the Subsequent New Network User's rebate, (C_1) is:

$$\begin{aligned}
C_1 &= 0 - \left(\frac{10\text{kVA} \times \$1\text{M}}{10\text{km}} \times \left[\frac{\sum_{i=0}^{2-1-1} L_{(2-i-1)} - L_{(2-i)}}{\sum_{j=0}^{2-i-1} U_j} \right] \times \frac{170}{165} \right) \\
&= - \left(\frac{10\text{kVA} \times \$1\text{M}}{10\text{km}} \times \left[\frac{\sum_{i=0}^0 L_{(1-i)} - L_{(2-i)}}{\sum_{j=0}^{1-i} U_j} \right] \times \frac{170}{165} \right) \\
&= - \left(\frac{10\text{kVA} \times \$1\text{M}}{10\text{km}} \times \left[\frac{L_1 - L_2}{U_0 + U_1} \right] \times \frac{170}{165} \right) \\
&= - \left(\frac{10\text{kVA} \times \$1\text{M}}{10\text{km}} \times \left[\frac{4\text{km} - 0\text{km}}{25\text{kVA} + 10\text{kVA}} \right] \times \frac{170}{165} \right) \\
&= -\$117,748.91
\end{aligned}$$

The rebate value is negative, which means the Subsequent New Network User must pay a contribution of \$117,748.91 to Power Networks.

For the Original Network User, the rebate (C_0) is calculated using the same formula:

$$\begin{aligned}
C_0 &= \left(\$1\text{M} - \frac{25\text{kVA} \times \$1\text{M}}{10\text{km}} \times \left[\frac{\sum_{i=0}^{2-0-1} L_{(2-i-1)} - L_{(2-i)}}{\sum_{j=0}^{2-i-1} U_j} \right] \right) \times \frac{170}{165} \\
&= \left(\$1\text{M} - \frac{25\text{kVA} \times \$1\text{M}}{10\text{km}} \times \left[\frac{\sum_{i=0}^1 L_{(1-i)} - L_{(2-i)}}{\sum_{j=0}^{1-i} U_j} \right] \right) \times \frac{170}{165} \\
&= \left(\$1\text{M} - \frac{25\text{kVA} \times \$1\text{M}}{10\text{km}} \times \left[\left(\frac{L_1 - L_2}{U_0 + U_1} \right) + \left(\frac{L_0 - L_1}{U_0} \right) \right] \right) \times \frac{170}{165} \\
&= \left(\$1\text{M} - \frac{25\text{kVA} \times \$1\text{M}}{10\text{km}} \times \left[\left(\frac{4\text{km} - 0\text{km}}{25\text{kVA} + 10\text{kVA}} \right) + \left(\frac{10\text{km} - 4\text{km}}{25\text{kVA}} \right) \right] \right) \times \frac{170}{165} \\
&= \$117,748.91
\end{aligned}$$

The rebate value is positive, which means Power Networks would reimburse this amount to the current owner of the Original Network User's property. In this example, as there is only one Subsequent New Network User, the Capital Contribution paid by the Subsequent New Network User forms the rebate to the Original Network User.

Schedule 3 - Shared and Dedicated Asset Example

