
Network extensions, upgrades, and capital contributions policy

1. Introduction

This policy describes the ownership and funding arrangements and obligations for customer-initiated extensions and upgrades to MainPower New Zealand Limited's (MainPower) electricity distribution network. It includes a description of the circumstances under which MainPower may require a capital contribution from customers and the methodology for determining these contributions.

This policy is published in accordance with Section 2.4.6 and 2.4.8 of the Commerce Commission's 'Electricity Distribution Information Disclosure Determination 2012' (the IDD). In particular, Appendix 1 describes the extent to which this policy is consistent with the Electricity Authority's Pricing Principles.

All prices in this policy exclude any taxes such as GST.

As our customers' use of electricity and new technologies evolve, MainPower will continue to review how it recovers the costs of providing a network. This will affect both contributions under this policy and the pricing of lines charges to our customers.

2. Definitions

For the purpose of this document:

"Capacity Increases" are situations where existing ICPs require larger fuses to allow for load growth.

"Capacity Increase Charges" are fees payable by a person requiring a capacity increase, for their ICP.

"Capital Contributions" are customer payments toward the cost of MainPower owned assets.

"Customer Initiated Projects" are MainPower projects to provide capacity for a customer or reconfigure the network in response to a customer request.

"Infill Subdivisions" are one or more residential properties which form part of an electrically reticulated subdivision, being further subdivided into two or more properties where additional ICPs are created as a result.

"Network Extensions" are new MainPower-owned assets constructed by a customer-initiated project.

"Network Upgrades" are works upon MainPower owned assets to allow greater capacity by a customer-initiated project.

"Service Main", "Point of Supply", and other common terms are taken to have their industry standard meaning.

3. Funding principles for network extensions and upgrades

MainPower will fund any extension or upgrade required on the distribution network which MainPower owns and operates, where it is economic to do so.

The uneconomic cost is calculated by the Capital Contribution formula as set out in Section 8. Customers must pay the Capital Contribution, which is the uneconomic cost of extensions and upgrades upon the distribution network.

Customers must fund their individual Service Main(s) beyond the Point of Supply in all cases. MainPower does not fund customer-owner works or installations.

Customers may request an independent quotation for completion of work on their property from a MainPower approved contactor. Where customer works are constructed by third party contractors, MainPower may purchase works at the Economic Value to MainPower per Section 8, provided the works comply with MainPower standards. In assessing the economic value, MainPower will consider any other works required and any funding already provided.

4. Ownership of network extension and upgrade assets

In order to ensure ongoing requirements of safety, reliability and system security, MainPower will own all new high voltage lines and transformer substations unless the customer has a specific requirement to own the asset themselves.

MainPower shall own low voltage distribution lines, cables, link boxes, and service boxes where those assets are supplying multiple landowners or cross a public road, including lines over private property. Low voltage lines beyond the Point of Supply at the property boundary are owned by the landowner, as defined in the Electricity Act 1992.

Where network extensions and upgrades are owned by MainPower over private property, neighbouring landowners seeking a connection to that network extension will need to negotiate access rights through the property with the landowner before a connection is approved. Easements are required for lines on private property that supply multiple landowners.

5. Funding policy for subdivisions

The following table of minimum charges applies to residential subdivisions between 10 and 100 Lots, inclusive. Subdivisions over 100 Lots should be referred to the Commercial team for review. Subdivisions with fewer than 10 lots shall be priced on actual cost. Some subdivision reticulation designs may result in actual costs which significantly exceed the minimums below. In that case, the price shall be based upon actual costs.

Rural subdivisions are excluded and shall be priced based on actual cost.

Note that these rates already include MainPower's funding toward the works. Economic Value does not need to be calculated.

Minimum residential subdivision charges:

Density	Lot Size (land area per ICP)	MainPower Price per Lot
Low density	>=500 m ² to 1,000 m ²	\$2,200
Med density	300 m ² to 500 m ²	\$1,800
High density	<300 m ²	\$1,400

For larger, generally rural Lots exceeding 1000m², the situation tends to be much more unique. These subdivisions shall be priced on actual cost.

6. Infill Residential Subdivision Charge

Infill Residential Subdivisions are defined in Section 2. The Infill Residential Subdivision Charges are set at:

Lot Size (land area per ICP)	MainPower Price per Lot
>500 m ²	\$5,000
300 m ² to 500 m ²	\$4,000
<300 m ²	\$3,000

For infill subdivisions, the new ICP(s) created *are eligible for MainPower funding*, as set out in Section 3.

7. Capacity Increase Charge

MainPower can incur significant network upgrade costs when load grows at existing ICPs. This is necessary when the load exceeds the network's available capacity. In order to recover upgrade costs gradually over time, MainPower imposes a Capacity Increase Charge upon any ICP which increases the capacity of its service fuse.

The Capacity Increase Charge is set at a minimum of \$120 per three phase Ampere, or \$40 per single phase Ampere of fused capacity, or equivalent for single phase. This charge should be reduced by the calculated Economic Value (refer section 8) of the new load being added to the network.

Fuse size is used as a proxy for capacity required. Where an ICP requires larger fuses, that ICP's peak load will place a greater load upon the grid.

8. Economic Value of new loads

MainPower's funding will be determined by analysis of expected revenue streams and the extension's impact on MainPower's network (as detailed in the formula below), subject to the following exceptions.

- The application of the capital contribution formula (detailed below) relates specifically to those assets that are to remain in or be transferred into the ownership of MainPower. Costs associated with any other "extension" assets are to be fully funded by the customer.
- Network extensions for irrigation will be fully funded by the customer.
- Subdivisions in the main urban areas with more than 10 lots will be charged a rate per lot which reflects the average capital contribution calculated for similar subdivisions.
- Smaller urban and rural subdivisions will be individually costed before applying the customer contribution. A minimum charge of \$700 per lot will apply to each subdivision.

MainPower does not maintain a standard schedule of capital contributions. Capital contributions are calculated separately upon application.

The customer contribution formula may result in MainPower being responsible for 100% of the "extension" costs. A nil contribution will apply whenever the formula results in a nil or negative contribution, except in the case of subdivisions where a \$700 per lot minimum charge per lot will apply (as discussed above).

The customer Capital Contribution is calculated based on the following formula:

$$C = TC - EV$$

$$EV = [PV (I, N-D, DLC \times OP) - CP] / (1 + I)^D$$

Where:

C Capital Contribution payable by the customer towards the cost of any "extension" remaining in the ownership of MainPower.

EV Economic Value of the works to MainPower.

TC Total cost of "extension" including both lines and other equipment. These costs typically relate to dedicated assets solely used by the customer but may also relate to assets that may be shared (e.g. transformers). These assets are generally costed to recover direct internal design and planning costs and supplier quoted rates.

For upgrade assets, TC is costed net of the value of any existing assets which have an alternative use on the network. In particular, for a transformer upgrade the equivalent replacement cost of the old transformer will be netted off the new upgrade transformer to determine the incremental cost.

PV Present Value calculation of future cash flows (using MS Excel).

- I** Interest: represents the discount rate assumption for new investments before tax. This needs to be updated on an annual basis, in accordance with instructions from Finance.
- N** Number of years: represents the anticipated economic life of the “extension” assets. For the purpose of the formula this is assumed to be 40 years, unless the useful life is known to be less.
- D** Delay in years between the initial capital expenditure and the effective income stream becoming established: For residential, this is the estimated based on the number of years until 50% of the lots in a subdivision have customers connected.
- DLC** Distribution Line Charge which is the sum of the fixed (FDLC) and variable (VDLC) line charges at the time of application. For simplicity, we have not escalated these prices over the forecast period, although inflation is assumed in the discount rate.
- FDLC** Annual Fixed Distribution Line Charge as published at time of application.
- VDLC** Annual Variable Distribution Line Charge (\$) published at time of application, based on the following usage assumptions:
- Residential: MainPower’s standard variable line charge based on an estimated annual consumption up to a maximum of 10,000 units per dwelling.
 - Other Supply: Estimated unit consumption with customer up to 500,000 units.
 - Irrigation: Estimated 1,400 units/motor kW.
- OP** Operation Provision: removes the operations and maintenance component of Distribution Lines Charges (DLC) in recognition that DLC funds both direct and indirect operating and maintenance costs as well as capital costs. The operations and maintenance component are removed so that capital contributions are only calculated with reference to capital costs. The estimated Operations Provision will be updated on a periodic basis.
- CP** Capacity Provision: recognises the requirement for capital upgrades to upstream assets as a result of load growth including increasing security and reliability levels for larger load bases. This cost signals the additional capital costs to MainPower in augmenting core network assets. These costs are typically shared by all consumers.
- CP is calculated by assessing the average contribution to the local peak load and multiplying this by an assessed long-run cost per kW to reinforce upstream assets.
- For residential and commercial customers, a value of \$300 per kW has been used. For irrigation, \$400 per kW is used in recognition of the larger requirement for network upgrades resulting from irrigation growth. These values are determined based on recent analysis of historical project costs to augment the network (net of any contributions previously received). It represents the unfunded cost of upstream reinforcement. These costs do not take account of any incremental operations and maintenance costs, which are assumed to be recouped through future Distribution Line Charges.

The application of this formula to customers qualifying for large user group status will be subject to the approval of the Network Manager and therefore its application has been excluded.

Acting reasonably, MainPower reserves the right to change the rates used in the above formula from time to time.

9. Reapportionments

A new customer may connect to a part of the network for which another customer has made a capital contribution provided that any appropriate easements have been granted by mutual agreement between all parties. In this circumstance, a reapportionment of the original capital contribution may be made to the original customer taking account of the following calculations and considerations:

- During the first 5 years the actual value of the original customer contribution will be used. For the following 10 years the value of the original customer contribution will be discounted by 10% per annum, straight line (i.e. the discounted value will be zero after year 15), will be used in determining the reapportionment.
- The reapportionment value will depend on the estimated proportion of the assets to be effectively shared by the new connection, taking into account the suitability of size, type, and location of the asset with regard to the new customer's requirements.
- The resulting shared value is then apportioned among the customers using the assets. The value apportioned to the new customer is added to the network capital cost of the new connection, before MainPower's contribution is deducted, and a corresponding amount is re-distributed amongst the original contributors. An administration charge may be incurred by either customer for the reapportionment process.
- In the event of a property changing hands, any such refund will be payable to the current owner at the time of the new connection.
- A reapportionment will not be made where a subdivider has requested the network extension for the purposes of subdivision.
- Where a person(s) contributes towards the capital cost of a new extension, then they shall be entitled to additional new connections to that extension without incurring a reapportionment to any other person. This includes new connections in any future subdivision that is developed by the contributor and which will be supplied from the extension.

MainPower New Zealand Limited reserves the right to make all reapportionment decisions using its absolute discretion.

10. Changes to policy

MainPower New Zealand Limited, acting reasonably, reserves the right to change this policy from time to time.

Appendix 1: Consistency with EA pricing principles

Consistent with Section 2.4.3 of the IDD, the table below describes the extent to which our capital contributions policy is consistent with the EA's distribution pricing principles. Please note that these pricing principles are also relevant to our wider electricity distribution pricing methodology for setting distribution lines charges and that some of these principles are not directly relevant to capital contributions. Please see our pricing methodology for further discussion on the consistency of our lines charges with the pricing principles.

Principle	Extent of Consistency
<p>(a) Prices are to signal the economic costs of service provision, by:</p> <p>(i) being subsidy free (equal to or greater than incremental costs, and less than or equal to standalone costs), except where subsidies arise from compliance with legislation and/or other regulation;</p> <p>(ii) having regard, to the extent practicable, to the level of available service capacity; and</p> <p>(iii) signalling, to the extent practicable, the impact of additional usage on future investment costs.</p>	<p>This principle asserts that prices should fall between the incremental cost and standalone cost of providing electricity lines services to customers. We interpret incremental cost to mean the additional cost incurred by MainPower in connecting one more consumer to the network, including the cost of dedicated connection assets and upstream reinforcement. We interpret stand alone cost to mean the cost to the consumer of replicating the distribution services using an equivalent alternative energy supply.</p> <p>MainPower's capital contributions policy is the primary tool for ensuring that MainPower recovers at least the incremental costs of its capital investments. In particular, the capital contributions formula only requires contributions from the customer where the present value of their expected revenues (associated with capital costs, excluding annual operations and maintenance expenditure) is less than incremental capital costs.</p> <p>Capital contributions should also logically be less than standalone costs as they seek to top up distribution prices in order to recover incremental connection costs. Where distribution prices exceed incremental cost then no contribution is required. Please see our pricing methodology for a discussion of the extent to which our distribution prices are consistent with the pricing principles</p> <p>Capital contributions inherently reflect available service capacity as they are calculated with reference to assets of a certain asset specification and capacity. The capital contributions formula also takes account of available service capacity by factoring in the long run cost of capacity upgrades (i.e. the 'CP' term).</p> <p>This principle asserts that prices should signal to consumers the impact that their usage has on network costs. The capital contributions policy inherently provides an immediate price signal to extension and upgrade customers regarding the costs faced by MainPower in connecting them to the network.</p>

(b) Where prices based on ‘efficient’ incremental costs would under-recover allowed revenues, the shortfall should be made up by setting prices in a manner that has regard to consumers’ demand responsiveness, to the extent practicable.

This principle allows prices to be marked up above incremental cost based on consumer willingness-to-pay considerations in order to recover the total cost of providing network services. Capital contributions largely deal with recovery of immediate incremental costs associated with connecting customers and dedicated equipment. So these are not relevant to this principle. Accordingly, this principle is dealt with in our pricing methodology with respect to distribution lines charges. In any case, willingness to pay considerations are not a feature of our capital contributions policy.

(c) Provided that prices satisfy (a) above, prices should be responsive to the requirements and circumstances of stakeholders in order to:

(i) discourage uneconomic bypass;

This principle permits lower prices or other incentives being offered to consumers that are at risk of bypassing the network for an alternative supply. Bypass situations typically arise where distribution prices (including capital contributions) are higher than the stand-alone cost of an acceptable alternative supply. Generally, we find that bypass opportunities exist for large consumers who have a choice as to where to locate their business or to alternative energy supply (e.g. through use of the transmission grid, alternative fuels, generation etc.). In recognition of this, our capital contributions policy for large consumers is subject to MainPower’s discretion.

(ii) allow for negotiation to better reflect the economic value of services and enable stakeholders to make price/quality trade-offs or non-standard arrangements for services; and

This principle permits price negotiations in recognition of different levels of service (e.g. n-1 security connection) or non-standard arrangements (greater fixed charge component to reduce risk).

The capital contribution process inherently factors in negotiation over upgrade and extension asset specifications which allow for differing levels of service to be priced in.

(iii) where network economics warrant, and to the extent practicable, encourage investment in transmission and distribution alternatives (e.g. distributed generation or demand response) and technology innovation.

Our capital contributions policy applies to all upgrade and extension asset projects on our network regardless of technology.

We note that Part 6 of the Electricity Industry Participation Code requires distributors to price DG no higher than incremental cost (inclusive of any capital contributions). The purpose of this regulation is to incentivise the connection of DG. The distribution pricing principles also require us to not price below incremental cost. Combined, these regulations limit our ability to recover capital contributions and other charges from DG to incremental cost. This is broadly consistent with our customer contributions policy.

(d) Development of prices should be transparent, promote price stability and certainty for stakeholders, and changes to prices should have regard to the impact on stakeholders.

MainPower has transparently set out in this policy the basis for how it determines capital contributions. While we regularly update some of the inputs to the capital contributions formula, the methodology has remained stable for some time which supports certainty for our customers.

(e) Development of prices should have regard to the impact of transaction costs on retailers, consumers and other stakeholders and should be economically equivalent across retailers.

MainPower has sought to develop a robust approach to setting capital contributions which minimises transaction costs for connection customers. Capital contributions are not charged to or through retailers, so this part of the principle is not relevant.

Document History and Version Control

Version #	Date Approved	Document Owner/Approved By	Brief Description
1.0	22.08.18	Network Manager/General Manager Network	New combined policy, first release.
1.1	05.09.18	Network Manager/General Manager Network	Removed Section 11 – Version Control.