



CONNECTIONS AND EXTENSIONS POLICY

**ORION NEW ZEALAND LTD
ELECTRICITY NETWORK POLICY
NW70.00.45**

**Approved by the board
17 February 2016**

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1. INTRODUCTION

This document states the commercial terms Orion applies for extensions to its network, for new connections in areas with existing supply, and for alterations to existing connections. Orion has introduced these commercial terms to apply from 1 April 2013.

Orion's network is constantly growing, fuelled by demand for new connections and increased loads at existing connections. To be fair to the established consumers, we believe it is important that the resulting reinforcement and network extensions are priced appropriately. This document outlines the economic considerations Orion has incorporated when establishing these commercial terms.

Our economic aim is to apply efficient pricing policies which reflect the full economic costs of providing our delivery service. With this approach, consumers (particularly prospective consumers) make efficient decisions about which form of energy to use, and where to locate new load.

Ideally, each new connection would pay for any necessary extension and reinforcement through its future delivery charges. However, a number of factors prevent this balance from occurring:

- we must apply price averaging over large groups of connections, because it is not practical to single out individual connections for cost-specific delivery pricing;
- the life and future utilisation of new connections are not known, so the present value of future delivery charges cannot be calculated with certainty;
- the assets involved have very long lives and it is not viable to lock consumers into a contract over a matching period;
- network reinforcement is incremental - it is often more efficient for us to add large amounts of capacity at a time;
- dedicated assets often become shared assets as the network expands. Existing consumers should share in the benefit of greater utilisation of shared assets (and other enhanced economies of scale);
- some spare capacity must be available before it is required to ensure that developments are not unduly delayed.

2. COMMERCIAL TERMS FOR NEW CONNECTIONS AND NETWORK EXTENSIONS

Standard terms apply for broad categories of extensions and new connections. More specific consideration applies for other or larger connections which do not fit within these categories. We reserve the right to alter the terms for any particular extension or new connection proposal where we consider or agree that economic factors warrant an alternative approach. Alterations may result in terms that are either more or less favourable than the standard terms.

Our contribution to any extension or new connection is conditional on the customer and/or developer meeting their contribution obligations.

We endeavour to provide new connections and enhanced capacity wherever it is economically viable, and this network extension policy sets out to establish this economic viability. However, there may be situations where it is imprudent, environmentally unsound or physically impracticable to provide supply or enhanced capacity, and we reserve the right to refuse to provide new connections or enhanced capacity in these situations.

Please note that we consider all newly established ICP numbers (the industry's unique numbering system for all electrical connections) as new connections, even where the new ICP replaces a previously decommissioned ICP.

2.1 OWNERSHIP

This policy sets out the basis on which we will contribute toward network extensions and upgrades of which we subsequently take full ownership and control. We do not contribute to assets (electrical or otherwise) downstream of the network connection point (as defined in our *network code*).

2.2 SMALL TO MEDIUM CITY AND TOWNSHIP CONNECTIONS

This policy category covers the majority of new connections, which are individual connections within our existing urban reticulation areas (including rural townships). The policy provides a straight-forward process under which we are responsible for providing the new connection and the customer makes a capital contribution toward the cost of assets.

Applies to: New connections within urban residential, commercial or industrial areas (as designated by the relevant council authority), within 30m of our existing reticulation, and with a supply capacity of up to 3 x 100 amps (fuse rating) except unmetered and/or public utility connections (such as advertising displays, street lights or traffic lights).

Orion's contribution: We will design, arrange and pay for all high voltage and low voltage extensions to our network and will carry out any upstream network reinforcement necessary to accommodate the new connection. We will supply and install the service protective fitting and connect (terminate) the customer's electrical installation.

Customer's contribution: The customer must provide a capital contribution toward the cost of assets that we provide or already have in place, payable to us, as shown in the following table:

| Required capacity (fuse rating) | Capital contribution (per connection) |
|---|---|
| Single phase, up to 63 amps | \$620 + GST |
| Three phase, up to 100 amps per phase | \$1,030 + GST |

Customers are also responsible for their own electrical installation, including the provision and installation of the line or cable from the network connection point to their premises or plant.

Note that this capital contribution requirement does not apply for connections already established in new subdivision developments under section 2.4 below.

2.3 SMALL TO MEDIUM RURAL CONNECTIONS

Rural connections, including irrigation connections, are generally less economic to supply and often require a more significant extension to our network. Customers are required to make a larger contribution but are also able to minimise their total outlay by selecting the most competitive approved contractor to carry out the extension work.

Applies to: New connections in rural areas that require a supply capacity of up to 3 x 100 amps (fuse rating).

Orion's contribution: We will:

- make available a distribution transformer of sufficient capacity to supply the new connection and any existing connections supplied from the same point,
- make available any high voltage switchgear (circuit breakers, drop-out fuses, MSUs) which is required on our side of the network connection point,
- ensure that there is sufficient upstream capacity available for the new connection.

Customer's contribution: The customer must provide a capital contribution toward the cost of assets that we provide or already have in place, payable to us, as shown in the following table:

| Required capacity (fuse rating) | Capital contribution (per connection) |
|---|---|
| Single phase, up to 63 amps | \$2,575 + GST |
| Three phase, up to 63 amps per phase | \$3,610 + GST |
| Three phase, up to 100 amps per phase | \$6,185 + GST |

The customer must pay for the design (to our standard specifications) and construction of all 11kV and low voltage extension work (including the installation of the distribution transformer). The customer is able to select from a number of contractors approved by us for this work. Customers are also responsible for their own electrical installation, including the provision and installation of the line or cable from the network connection point to their premises or plant.

2.4 CITY AND TOWNSHIP SUBDIVISION DEVELOPMENTS

As with other infrastructure within new subdivisions, the developer is responsible for providing electrical reticulation to service the new properties. We are willing to partially pay for and purchase this new reticulation, and allow it to be connected to our network, on the basis described in this section.

Applies to: All small to medium connections within new subdivision developments which require new electrical reticulation within an unreticulated roading corridor (or a right-of-way with appropriate access rights) to supply multiple new connections. The new subdivision must be immediately adjacent to existing urban/township areas within our electrical reticulation, must be within urban/township residential, commercial or industrial areas as designated by the relevant council authority, and have connections requiring a supply capacity of up to 3 x 100 amps each (fuse rating).

Orion's contribution: Subject to the extension meeting our specifications and being installed by a contractor approved by us, and based on construction to our standard specification, we will:

- provide high voltage switchgear (circuit breakers, fusing, MSUs) and distribution transformers;
- provide specifications for the high and low voltage network;
- carry out any necessary upstream network reinforcement;
- supply the service fuse and connect individual customers' service lines; and
- by way of purchasing the extension, contribute the installation costs of high voltage assets provided by Orion, the full installed cost of all other standard high voltage assets and contribute an amount toward the developer's costs of providing and installing all low voltage assets, as follows:

| Connection capacities (fuse rating) | Purchase contribution (per connection) |
|---|--|
| Single phase, up to 63 amps | \$415 + GST |
| Three phase, up to 100 amps per phase (for commercial or industrial connections) | \$1,240 + GST |

We will consider a similar contribution where the contractor is not approved by us, but will also recover any costs associated with additional monitoring, testing and inspection.

Developer's contribution: The developer will:

- pay for the design costs for the extension to meet the specifications provided by us;
- provide all civil works (e.g. trenching, reinstatement, foundations and ducting);
- collect and install the high voltage assets provided by Orion;
- provide and install all other high voltage assets;
- provide and install all low voltage assets (cable, link boxes, boundary boxes);
- cover the cost of any assets or construction which the developer elects to install which exceeds our standard specifications; and
- remove any redundant network assets.

New connections created through development of subdivisions are not subject to the per-connection contribution described in 2.2 or 2.3 above.

2.5 LAND AND EASEMENTS

Network extensions often require new land or easements. Unless we specifically state otherwise, we will require the customer or developer to provide or obtain the necessary land or easements at no cost to Orion.

2.6 LIVENING NEW CONNECTIONS

To facilitate our compliance with safety, regulatory and market reporting requirements, we are the sole provider of the livening service, the final step to provide a new connection.

We contract with approved agents to provide this service and we cover the associated costs.

2.7 TEMPORARY CONNECTIONS

We do not contribute to the cost of installing temporary connections and builder's temporary supplies. Options for temporary supplies are available through Orion and other contractors. Refer to our schedule of associated service prices (available from www.oriongroup.co.nz/publications-and-disclosures/pricing.aspx) for details.

2.8 CHANGES TO EXISTING NETWORK OR NETWORK CONNECTIONS

2.8.1 No increase in capacity

We accommodate changes to the route or configuration of our existing network (to supply substantially the same load) where the person requiring the changes pays for the entire cost of the alterations.

2.8.2 Increase in capacity

We individually consider contributions toward the costs of enhancing the capacity of an existing supply. For small to medium connections, the contribution by the customer will generally be equivalent to or less than the contributions described in 2.2 and 2.3 above.

2.9 DESIGN VARIATIONS

Our contribution to network extensions is based on and limited to our standard design practices utilising the lowest cost construction methods and supply route. We are willing to accommodate design enhancements or variations (e.g. underground supply in a rural area) where the customer pays for the difference between the actual cost and the cost using our standard practice.

2.10 OTHER SITUATIONS

We will individually consider all new connection proposals that do not fit within one of the standard categories above (2.2 to 2.4), including all connections that require capacity of larger than 3 phase 100 amps. Our consideration will follow economic principles consistent with the framework for standard categories, as described in section 3 of this document.

3. ECONOMIC MODEL FOR NEW CONNECTIONS AND NETWORK EXTENSIONS

3.1 AIM OF ECONOMIC MODEL

The aim of our new connection model is to establish the level of our contribution to new connections and network extensions.

Future expected delivery revenue must first cover the cost to operate and maintain any proposed new extension plus cover an appropriate share of the cost to operate and maintain upstream shared assets. Any remaining revenue is available to pay for our upfront investment in any extension, and the model aims to quantify this amount.

Our contribution is provided in a number of ways, depending on the circumstances, including:

- provision of existing assets (i.e. surplus capacity that Orion has previously paid for); and/or
- provision of new assets; and/or
- a contribution toward the construction of new assets.

3.2 STRUCTURE OF THE ECONOMIC MODEL

Our model provides a standardised calculation for broad new connection categories (as noted in section 2 above) as well as a framework for individual consideration of new connections or extensions that do not fit within these categories.

Step-by-step, the model:

1. Estimates the average replacement cost of assets that will be used for the new supply, including a proportion of shared upstream assets;
2. Calculates the average expected future annual delivery revenue from the connection;
3. Calculates the average expected surplus of future annual revenue by deducting the expected cost of future annual operations, maintenance and administration (based on the asset values) from the expected annual delivery revenue;
4. Calculates the present value of the expected surplus of future annual revenue (allowing for taxation).
5. Calculates our net average economic contribution by deducting from the above present value the:
 - a. average value of upstream assets that we have already provided (from step 1 above), and
 - b. average value of assets we will provide (from step 1 above), and
 - c. average fixed costs associated with establishing a new connection.

A *positive* net economic contribution supports a payment by us toward the extension (as provided for in 2.4 above for new subdivisions). A *negative* net economic contribution indicates that the new extension would be uneconomic for us and provides a basis for an additional payment from the customer to us.

3.3 ECONOMIC CONSIDERATIONS

We have established these terms following careful consideration of the economic drivers that influence our business.

Our economic aim is to apply *efficient* pricing policies which reflect the true costs of providing our delivery service. In relation to network extensions and network upgrades, efficient pricing promotes:

- allocative efficiency - negative impacts on other customers are minimised when customers' contributions reflect the true cost of the extension or upgrade,

- productive efficiency - construction costs are minimised where works are carried out by independent competing contractors and economies of scale are achieved as Orion provides the large common items such as transformers and switchgear, and
- dynamic efficiency - customers make appropriate decisions about which form of energy to use, when to use it and where to locate new load when faced with the true cost of electricity delivery.

Key areas of consideration are:

Return on capital

We operate our business in a commercial environment and must meet the expectations of our shareholders, particularly in relation to providing commercially realistic returns on the current value of their investment.

The expectation of return is tempered as our core delivery business is a natural monopoly which is relatively low risk and is exposed to regulatory pressures. Specifically the Commerce Commission calculates estimates of the weighted average cost of capital (WACC) which indicate an appropriate level of return for electricity distribution businesses.¹ Distributors' returns can be compared with these estimates, and the Commission also "resets" distributors' prices (up or down) from time to time to align prices with the WACC.

Further, our position as a monopoly is balanced by the fact that our shareholders, as local councils, represent largely the same group that ultimately are consumers of our delivery service. Loosely speaking, "our customers are our owners", and there is little incentive to collect excessive returns.

Return of capital employed

As with any investor, we expect to receive both a return *on* and a return *of* capital. Our network assets have long but limited lives, and their value erodes throughout their lives. This erosion of value is recovered through the depreciation expense included as part of Orion's delivery revenue. This model provides for depreciation calculated on the average total funds employed (see above) using a straight line basis over the various lives of assets involved, generally ranging from 35 to 70 years. The current average life of assets is around 50 years.

Treatment of capital contributions

As a result of our connections and extensions policy, we may receive capital contributions in the form of donated assets, subsidised assets, and cash. We deduct the value of capital contributions from our regulatory asset value for price-setting purposes.

Price averaging

Our delivery prices do not differentiate between connections in high density areas (e.g. urban areas) and those in low density areas (e.g. rural areas). To mitigate the cross-subsidisation that would otherwise occur, our new connection policy recognises the higher average value of assets and maintenance costs associated with supplying rural connections. Consequently, rural connections face a higher capital contribution to upstream assets and must also pay for the physical network extension that is usually required in the rural environment.

Revenue risk

Our assets have relatively long lives and we face the risk that the associated revenue may not be available throughout the life of the asset. While our allowable return on investment (see above) reflects this risk on average, different customer segments pose different levels of risk.

¹ The Commerce Commission calculates and publishes a variety of WACCs for a variety of purposes and at various times. To avoid confusion we do not reproduce these various measures here. They can be found on the Commission's website:

<http://www.comcom.govt.nz/cost-of-capital/>.

As it is not practicable to contract with customers over the long life of the assets, our new connection model aims to reflect the varying levels of risk through a capital recovery allowance over and above the recovery through depreciation. This allowance provides for the return of capital over shorter periods for higher risk connections (for example, 20 years for irrigation connections in low density rural areas), and longer periods for lower risk connections (for example, 40 years for urban residential connections in built-up areas).

Shared assets

The delivery service to all connections on our network utilises shared assets. Our new connection model ensures that all new connections pay for an appropriate proportion of shared “upstream” assets.

Without this long-run allocation, many new connections would face lower establishment costs (as they simply connect in to assets that are already in place) but others would face extremely high establishment costs (as they bring about the need for an incremental upgrade in major delivery assets).

The policy also averages establishment costs within broad new connection categories to ensure that individual consumers are not disadvantaged by Orion’s selection or placement of network assets. For example, new connections are treated similarly in areas with overhead and underground reticulation, and new connections are not disadvantaged for being on the opposite side of the street to our overhead lines.

Changing value of assets

Per connection, our return on capital is based on the average value of assets across the network, which includes lower cost overhead areas as well as higher cost underground areas. New connections are predominantly underground connections requiring a higher than average value of assets, and this is reflected in the model’s resulting economic value.

Practicality

The economic model accommodates a number of practical considerations, allowing for:

- Orion to exclusively provide some assets (e.g. transformers and switchgear), to achieve economies of scale and to facilitate future asset management,
- customer/developer to contract for provision and installation of assets wherever possible, to encourage the efficiency of competitive and independent contracting services.

3.4 REGULATORY CONSIDERATIONS

The Commerce Commission’s information disclosure determination² includes a number of requirements regarding capital contributions, and this section sets out how we have addressed the requirements.

Specifically as they relate to this policy document the requirements are:

“2.4.6 Every **EDB** [that is, electricity distributor] must at all times **publicly disclose-**

- (1) A description of its current policy or methodology for determining **capital contributions**,
 - (a) the circumstances (or how to determine the circumstances) under which the **EDB** may require a **capital contribution**;
 - (b) how the amount payable of any **capital contribution** is determined. Disclosure must include a description of how the costs of any assets (if applicable), including any **shared assets** and any **sole use assets** that are included in the amount of the **capital contribution**, are calculated;
 - (c) the extent to which any policy or methodology is consistent with the relevant **pricing principles**;

² Commerce Commission, Decision NZCC 22: Electricity Distribution Information Disclosure Determination 2012, 2.4.6.

- (2) A statement of whether a **person** can use an independent contractor to undertake some or all of the work covered by the **capital contribution** sought by the **EDB**;
- (3) If the **EDB** has a standard schedule of **capital contribution** charges, the current version of that standard schedule.”

This policy document addresses the information disclosure requirements (IDRs) as follows:

This policy document addresses 2.4.6 (1) (a) and (b).

The pricing principles referred to in 2.4.6 (1) (c) are those published by the Electricity Authority.³ These are discussed in detail in our Pricing Methodology document. The principles are not specifically designed for application to capital contributions. However, we consider that our connections and extensions policy is consistent with the principles in the following respects:

- We seek to signal the economic costs of service provision, and specifically the direct and indirect costs of extensions and upgrades. (See principles (a) (i),(ii) and (iii)).
- Our policy allows us to take a connection specific approach, and therefore customers, at their cost, can achieve non-standard outcomes. (See in particular principle (c) (ii)).

Sections 2.3, 2.4 and 3.3 (under the sub-heading “Practicality”) of this policy document all state that the customer may choose from a number of approved contractors to carry out some or all of the work. This meets the requirements of 2.4.6 (2) of the IDRs.

The standard schedule of capital contribution charges is included in sections 2.2, 2.3 and 2.4 of this policy document. This meets the requirements of 2.4.6 (3) of the IDRs.

³ Electricity Authority, *Distribution Pricing Principles and Information Disclosure Guidelines*, February 2010. Available at: <http://www.ea.govt.nz/our-work/programmes/transmission-work/principles-or-model-approaches-to-distribution-pricing/#guidelines>.