Policy for determining capital contributions on Vector's electricity distribution networks

From 1 February 2016

Pursuant to:
Electricity Distribution Information Disclosure Determination 2012

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2 Introduction

2.1 Vector provides electricity lines services to consumers via its electricity distribution network covering the Auckland region. Vector generally recovers the cost of providing electricity lines services to existing consumers through electricity distribution prices, including published standard prices and (in a limited number of circumstances) non-standard prices.

2.2 A key feature of an electricity distribution network is that many of the assets are used by many consumers. The way the network of assets has been built up over time is something that Vector now has limited ability to change, however Vector is able to determine present and future investment decisions in the electricity distribution network. Vector's distribution prices are designed, in line with pricing principles published by the Electricity Authority, to efficiently recover the cost of the existing electricity distribution network and send efficient signals to users when new investments are required.

2.3 Vector's distribution prices are set to recover the costs of owning and operating the electricity distribution network as it currently exists. The most significant cost element reflected in Vector's distribution prices relates to physical electricity distribution assets, for example the lines, wires, poles, transformers and cables. These assets are about half way through their useful life, meaning their value is also about half that of equivalent new assets. This means that Vector's distribution prices are lower than they would be if the assets were new or, in other words, the distribution prices may be insufficient to recover the full cost of a new investment in the network.

2.4 In simple terms, to send the right signals to consumers to ensure new investments in the network are as efficient as possible, those consumers need to be charged for the full or proportionate cost of those assets (new and existing) they will be using. However, Vector's distribution prices are only sufficient to recover a portion of that cost (particularly in relation to any new assets). Vector may use capital contributions to fill the gap.

2.5 Capital contributions may take the form of an upfront one-off payment with respect to a new connection to the electricity distribution network where augmentation of the system is required. This document sets out Vector's policy for determining such capital contributions.

2.6 The Input Methodologies require that capital contributions received are netted off the value of new assets added to the RAB. This means that new assets only contribute to future revenue requirements to the extent they have not already been paid for via a capital contribution.

3 Objective of capital contribution policy

3.1 Vector's capital contribution policy has been developed with the following in mind:

(a) The addition of a new connection should not make existing consumers worse off either now or in the future.
(b) Ideally, the addition of a new connection should benefit existing consumers as the new connection should contribute to shared costs and assets.
(c) The cost of providing new connection services should be determined using a "but for" approach that identifies the costs attributable to the new connection.
(d) Capital contributions should incentivise improved utilisation of the electricity distribution network and not incentivise inefficient construction (for example: over-sized network assets).

4 Circumstances for requiring a capital contribution

4.1 Vector may require a connection applicant to pay a capital contribution when any augmentation of the electricity distribution network is required to provide new connection services.

5 Methodology for determining the amount of a capital contribution

5.1 Vector has developed its capital contribution policy in order to meet the objectives outlined in section 3. Vector has achieved this by:

(a) Adopting an approach to determine individual capital contributions so that the revenue from new connections is sufficient on average to recover the costs of new connections. This avoids cross subsidies between new and existing connections;
(b) Adopting minimum contribution limits which on average provide that new connections contribute towards shared costs and assets;
(c) Developing approaches to identify the costs relevant to the new connection and include these costs in the determination of capital contributions; and
(d) Ensuring connection applicants have financial incentives (through capital contributions) to assess the technical requirements of their new connection carefully so that efficiently sized connection assets are provided.

5.2 The amount of any capital contribution is the difference between the incremental revenue and incremental cost of the new connection service subject to minimum and maximum capital contribution limits. Capital contributions are determined in accordance with an incremental profitability assessment described in Equation 1.

Equation 1: Capital contribution formula

$$CC = IC - IR$$

where:

CC	capital contribution (in dollars) where the amount is subject to the following limits MIN ≤ CC ≤ MAX.
IC	incremental costs are the costs arising from the new connection service determined in accordance with section 6;
IR	incremental revenue is the revenue expected from the new connection service determined in accordance with section 11;
MIN	is the minimum capital contribution determined in accordance with section 9; and
MAX	is the maximum capital contribution determined in accordance with section 10.

6 Determining incremental costs

6.1 Incremental costs are the costs incurred by Vector from augmenting the electricity distribution network which Vector would not otherwise face but for the new connection. Incremental costs may relate to:

(a) assets for use only by the connection applicant or consumer and the associated costs (sole use costs); and
(b) wider system assets used by the connection applicant as well as other consumers, and the associated costs (shared costs).

6.2 Sole use costs relating to the new connection may include but are not limited to the following:

(a) Design and certification costs;
(b) Any costs for conducting a tender process for the connection applicant;
(c) The costs of procuring materials and services, building, constructing and commissioning assets;
(d) Any legal or administrative costs, including procuring appropriate easements, statutory consents and negotiating suitable contractual arrangements;
(e) The estimated (or actual) maintenance and operating costs associated with (c) above; and
(f) Augmentation of existing assets to provide the new connection.

6.3 Where incremental cost relates to sole use costs, these are attributed directly to the new connection in the incremental profitability assessment referred to in 5.2.

6.4 Shared costs relating to the new connection may include but are not limited to the portion of costs applicable to the new connection for the following:

(a) Design and certification costs;
(b) Any costs for conducting a tender process for the connection applicant;
(c) The costs of procuring materials and services, building, constructing and commissioning assets;
(d) Any legal or administrative costs, including procuring appropriate easements, statutory consents and negotiating suitable contractual arrangements;
(e) The estimated (or actual) maintenance and operating costs associated with (c) above;
(f) Augmentation of existing assets to provide the new connection; and
(g) The financial cost of bringing forward planned shared electricity distribution network investment in order to facilitate the new connection.

6.5 Where the incremental cost relates to shared costs, Vector determines the incremental cost with reference to:

(a) changes in the timing of capital expenditure compared with its asset management plan on a 'but for the new connection' basis;
(b) the connection applicant's allocated share of actual capital expenditure in shared assets required to provide new connection services; and/or
(c) the connection applicant's allocated share of upstream augmentation, indirect and overhead costs for the new connection in accordance with 8.

6.6 Where a new connection requires the removal of assets with a useful remaining life and Vector determines such assets can be redeployed elsewhere on the electricity distribution network, then Vector will include an appropriate consideration in its determination of the incremental cost. This will generally be a credit equal to the replacement cost of the recovered asset.

6.7 The incremental cost will be calculated as the net present value of the sole use and shared costs (described above) over the life of the investment using the weighted average cost of capital as the discount rate.

7 Extent of incremental cost and non consumer related augmentation

7.1 Vector may elect to augment the electricity distribution network to a greater extent than required by the new connection. This may arise due to the economies of scale of installing new electricity distribution network infrastructure and the provision of spare capacity to support further load growth in the future.

7.2 Subject to 7.4 the incremental cost will only include those costs necessary to provide the electricity distribution services requested by the connection applicant

at the least cost and technically acceptable standard (as determined by Vector). Incremental cost does not include the costs referred to in 7.1.

7.3 If the connection applicant requests augmentation of a higher standard or more costly nature than Vector considers necessary, then the incremental cost may include the greater costs (if any) that may result.

7.4 Where a connection applicant's requirements fall between the capacity of two standard size network elements capable of meeting such requirements and Vector installs the larger of the two, this does not constitute Vector electing to perform the work to a higher standard or capacity.

> *Example 1: A connection applicant requires a new dedicated transformer, with a connection capacity of 602kVA. The nearest standard transformer sizes are 500kVA and 750kVA. Vector installs a 750kVA transformer as this is the smallest standard size capable of meeting the connection applicant's requirements. The use of a 750kVA transformer as opposed to a 500kVA transformer does not constitute a higher standard for the purposes of determining incremental cost.*

8 Allocation of upstream augmentation

8.1 Allocated augmentation is calculated in accordance with Equation 2.

Equation 2: allocated augmentation formula

$$AA = UR \times DE + IM + OH$$

Where:

AA	is the allocated augmentation cost;
UR	unit rate is the average cost of augmentation per unit of demand measured across Vector's wider electricity distribution network;
DE	demand estimate is the estimated maximum kW demand of the new connection coincident with the maximum demand of the electricity distribution network. The demand estimated is determined in accordance with section 11;
IM	incremental maintenance is the estimated ongoing maintenance of incremental shared upstream assets; and
OH	overheads are Vector's average overhead and operating costs per connection for operating the electricity distribution network.

8.2 The unit rate is determined by Vector based on the average cost of adding a unit of capacity to the electricity distribution network. Vector uses different unit rates

depending on the level at which the new connection connects to Vector's electricity distribution network. Vector has defined three different asset connection types including high voltage, transformer and low voltage. These are explained further in Vector's published standard price brochures available at:

http://vector.co.nz/disclosures/electricity/price

8.3 The different levels of asset connection ensure that only those upstream costs that a new connection uses are included in the AA. To the extent that the new connection does not require the costs associated with a particular asset connection type, or these have been included in sole use costs, then these costs are not included in the unit rate(s) for shared network augmentation.

Example 2: Where a new connection is connected to the low voltage network, the AA considers low voltage, transformer and high voltage assets.

Example 3: Where a new connection is connected to a dedicated transformer the AA considers transformer and high voltage assets.

Example 4: Where a new connection is connected to the high voltage network the AA considers high voltage assets.

9 Minimum capital contribution

9.1 Vector incorporates a minimum capital contribution in its incremental profitability assessment. This discourages "inefficient" investment by exposing new connections to a portion of the financial cost of the augmentation and incentivises new connections to size their new connection appropriately in order to minimise the cost of the augmentation.

9.2 For basic and standard new connections (explained further in section 12), the minimum capital contribution is set equal to the non-recoverable incremental cost. Non-recoverable incremental cost is generally equivalent to the value of assets that Vector is physically or economically not able to re-deploy in the event that the new connection no longer requires them. The non-recoverable approach mitigates the commercial risk associated with assets that cannot be redeployed.

9.3 For sub-division or development new connections the minimum capital contribution is set equal to 10% of the sole use cost as described in 6.2.

10 Maximum capital contribution

10.1 Vector incorporates a maximum capital contribution in its incremental profitability assessment. This ensures that the capital contribution will be no greater than the incremental cost of a new connection.

10.2 The maximum capital contribution is set equal to Vector's capital expenditure (CAPEX) in order to supply the new connection using the approach described in 3.1(c).

11 Incremental revenues under the incremental profitability assessment

11.1 Incremental revenue is forecast by Vector based on the expected life of the new connection assets, typically 50 years. Vector's revenue forecasts are based on Vector's distribution prices, future price adjustments including CPI, regulatory resets and any other price restructuring and the estimated consumption and demand for the consumer.

11.2 Vector will determine the consumption or demand for a proposed new connection having regard to the consumption and demand requirements both of similar consumers currently supplied on the electricity distribution network as well as information provided by the connection applicant in relation to the new connection. Vector will also take into account whether the new connection has different technical or commercial requirements.

11.3 The incremental revenue will be calculated as the net present value of the expected revenue over the life of the investment discounted using the weighted average cost of capital as the discount rate.

12 Different types and treatments of new connections

12.1 Vector has identified four different types of new connection including: basic, standard, non-standard and sub-division new connections. Each type has unique characteristics and Vector has a slightly different approach to determining the capital contributions that applies. In each case Vector utilises the same underlying methodology: an incremental profitability assessment with minimum and maximum capital contribution limits.

12.2 The approach to determining the capital contributions for each type of new connection is summarised in Table 1 below and explained further in sections 13 to 15.

Table 1, Summary of capital contribution approach for new connection types

<table>
<tr><th>Type</th><th>Eligibility criteria</th><th>Minimum capital contribution</th><th>Incremental profitability assessment</th><th>Maximum capital contribution</th><th>Incremental revenue pricing approach</th></tr>
<tr><td>Basic</td><td>CAPEX <$50k</td><td rowspan="2">Non-recoverable IC</td><td>Not applicable</td><td>Not applicable</td><td rowspan="3">Standard</td></tr>
<tr><td>Standard</td><td>CAPEX <$250k</td><td rowspan="3">IC-IR</td><td rowspan="3">CAPEX</td></tr>
<tr><td>Sub-division</td><td>All</td><td>10% of CAPEX</td></tr>
<tr><td>Non-standard</td><td>All</td><td>Nil</td><td>Non-standard</td></tr>
</table>

13 Capital contributions for basic new connections

13.1 Basic connections are new connections, including small sub-division or development new connections with less than 10 consumers, with a new connection CAPEX of less than $50k.

13.2 Most of the connections to Vector's network are basic connections which generally require a low level of technical input in order to connect each new consumer. Vector has applied the incremental profitability assessment to a significant number of historical basic connections. This has confirmed, on average, basic connections require only the minimum capital contribution.

13.3 Vector applies the minimum capital contribution to all basic connections. Vector does not apply the incremental profitability assessment to each new basic connection.

14 Capital contributions for standard new connections

14.1 Standard connections are individual connections with a new connection CAPEX greater than $50k but exclude sub-divisions and development new connections and non-standard new connections. For standard new connections Vector applies the incremental profitability assessment to determine the required capital contribution, subject to the upstream augmentation threshold and the minimum and maximum capital contribution limits.

15 Capital contributions for sub-division and development new connections

15.1 Sub-division and development connections are connections where the electricity distribution network is augmented to connect more than 10 consumers or the sub-division has a project CAPEX greater than $50k.

15.2 For sub-division and development connections Vector requires the connection applicant to pay the maximum capital contribution. Vector then uses the incremental profitability assessment to determine a schedule of rebates that apply as each future new connection within the sub-division or development connects to Vector's electricity distribution network. The rebate schedule typically applies for up to 5 years and provides for an equivalent outcome to an upfront capital contribution except that uncertainty on the completion of the sub-division or development and the consequent connection of revenue generating consumers sits with the connection applicant. Rebates are subject to the minimum capital contribution limits.

16 Capital contributions for non-standard new connections

16.1 The incremental profitability assessment determines capital contributions based on expected future revenues. For non-standard new connections future revenues are

not restricted to Vector's published standard prices as Vector is able to determine bespoke non-standard prices for each new non-standard connection.

16.2 The capital contribution for each non-standard consumer is circumstance specific and, depending on the negotiated non-standard price agreed with the consumer, the contribution may be nil.

16.3 Vector determines whether to offer a consumer non-standard pricing using the assessment criteria included as Appendix 2.

17 Capital contributions for projects by other infrastructure owners

17.1 Vector may apply different methodologies for determining capital contributions for projects involving other infrastructure owners such as territorial authorities or government-owned entities. This reflects the potential for cost reductions which arise due to coordination of works by the different infrastructure owners.

18 Adherence to pricing principles

18.1 Vector's capital contribution policy is consistent with the pricing principles published by the Electricity Commission in March 2010, adopted by the Electricity Authority and amended by the Electricity Authority from time to time. These are included in Appendix 1. In summary the pricing principles require Vector to:

(a) set prices within the subsidy free range (greater than incremental cost and less than stand alone cost);
(b) have regard to the level of available service capacity;
(c) signal the impact of additional usage on future investment costs; and
(d) have regard to consumers' demand responsiveness.

18.2 The incremental profitability assessment coupled with a cap on the minimum and maximum capital contribution ensures that any capital contribution falls within the subsidy free range.

18.3 Vector has not considered the impact of additional usage on future investment costs in its capital contribution policy as this policy deals only with the incremental investment costs associated with new connection services. Vector's distribution prices consider the impact of additional usage on future investment costs.

18.4 Vector's distribution prices recover the costs of the existing electricity distribution network. Vector's incremental profitability assessment means that capital contributions at a minimum recover incremental costs. These two mechanisms combined ensure that allowed revenues are fully recovered. As a consequence Vector has not considered revenue under-recoveries in this contribution policy.

19 Use of independent contractors

19.1 In some circumstances the connection applicant may undertake some of the work that would otherwise be covered by the capital contribution. Vector may allow consumers or the connection applicant to undertake the preparatory work using appropriately trained and qualified personnel familiar with Vector's standards and requirements prior to Vector installing the new electricity infrastructure. Preparatory work includes by way of example, trenching and or civil work, reinstatement and laying of duct. Depending on the circumstances Vector may allow consumers or the connection applicant to install the new electricity distribution infrastructure also.

19.2 If the consumer or connection applicant performs some of the work or installs new assets that Vector will then own, then the costs will be excluded from the costs used to determine the capital contribution. Likewise they will be excluded from the RAB and hence the determination of distribution prices.

20 Definitions

Augmentation means the expansion, upgrade, increase, addition to, removal, relocation or enhancement of any part of the electricity distribution network which would not otherwise be required but for the requirements of a new connection service. Augmentation may include the allocation of extant spare capacity (i.e. prior augmentation) to a new connection service.

Capital contribution means the money or monetary value or other consideration charged to or received from a connection applicant, consumer or other party to fund augmentation that is in addition to, and separate from any ongoing revenue through distribution prices.

Connection applicant means a local authority and any association of persons whether incorporated or not applying for a new connection service and may include a consumer.

Consumer means a local authority and any association of persons whether incorporated or not who is supplied with electricity from the electricity distribution network.

Distribution price means Vector's standard published prices and non-standard prices.

Electricity distribution network means the Vector owned works that are used or intended to be used by Vector to provide electricity lines services.

Electricity lines services means the provision of electricity lines services as defined in s54C of the Commerce Act 1986.

Incremental cost (IC) means the costs determined in accordance with section 6.

Input Methodologies means the *Electricity Distribution Services Input Methodology Determination 2012 (consolidation as of 11 Dec 2014) – 30 March 2015*.

New connection means a new point on the electricity distribution network or an existing point, either of which requires augmentation in order for Vector to provide electricity distribution services to a consumer or connection applicant.

New connection service means the provision of electricity lines services on the electricity distribution network to a new connection.

RAB means Vector's regulatory asset base, in respect of the electricity distribution network.

Vector means Vector Limited and its related companies (as defined in the Companies Act 1993).

Weighted average cost of capital (WACC) means the Vanilla WACC (67th Percentile) of 7.19% determined by the Commerce Commission in *[2014] NZCC 28 Cost of capital determination for electricity distribution businesses default price-quality paths and Transpowers individual price-quality path – 31 October 2014*.

Appendix 1 **Pricing principles**

(a) Prices are to signal the economic costs of service provision, by:
   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;
   ii. having regard, to the extent practicable, to the level of available service capacity; and
   iii. signaling, to the extent practicable, the impact of additional usage on future investment costs.

(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.

(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;
   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
   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.

(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.

(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.

Appendix 2 **Non-standard assessment criteria**

This appendix describes the policy and guidelines Vector uses on its electricity distribution networks to determine whether a consumer is subject to published standard prices or non-standard prices.

In certain circumstances Vector's published standard prices may not adequately reflect the actual costs of supplying a consumer or address the commercial risks associated with supplying that consumer.

In these circumstances Vector uses either a non-standard Network Connection and Services Agreement (NCSA) or other similar commercial arrangements. The NCSA allows for tailored pricing and commercial arrangements to be established between Vector and consumers. This ensures that customised or unusual circumstances are addressed only for those consumers that they affect. Non-standard connection agreements are generally only applied to commercial consumers.

Guidelines

Generally if a consumer does not meet at least one of the assessment criteria, they will be subject to published standard prices. Meeting one or more of the assessment criteria does not mean that a non-standard arrangement will apply, merely that the consumer may be further reviewed to determine whether standard pricing and standard contractual terms are suitable given the consumer's individual circumstances.

Whilst the assessment criteria provide a useful guideline on whether non-standard prices are likely to apply, Vector reserves the right to use discretion at any time on whether to apply non-standard pricing and or commercial arrangements on a case by case basis.

Electricity non-standard assessment criteria

Consumers may be assessed for non-standard terms or pricing if they meet one of the following criteria:

(a) The capacity of the consumer's point of connection is greater than or equal to 1.5 MVA; or
(b) The consumer's maximum or forecast maximum demand (twice the maximum kVAh half hourly reading) is greater than or equal to 1.5 MVA; or
(c) The ratio of the consumer's maximum or forecast maximum demand over their average or forecast average demand in any year is greater than 4; or
(d) Vector incurs capital expenditure greater than $250k augmenting its electricity distribution network in order to provide electricity lines services to the consumer.