



**Pricing Methodology**  
**Electricity distribution network**

From 1 April 2013

Pursuant to:  
The Electricity Distribution  
Information Disclosure Determination 2012

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## 2 Introduction

2.1 Vector's electricity distribution network supplies more than 500,000 houses and businesses in the greater Auckland region. Our network extends from just north of Wellsford to Papakura in the south, covering the Auckland Central region, Waiheke Island, North Shore, Waitakere, Rodney, Manukau and parts of the Papakura region. Figure 1 shows a map of Vector's Auckland and Northern electricity distribution networks.

**Figure 1 – Auckland and Northern electricity distribution networks**



- 2.2 This document is Vector's disclosure of our pricing methodology. It provides information about the development of the Electricity Distribution Pricing Methodology (EDPM) in a transparent manner and meets the pricing methodology disclosure requirements of the Determination.
- 2.3 In October 2012, the Commerce Commission (the Commission) issued the Electricity Distribution Information Disclosure Determination 2012 (the Determination) which applies to Vector's electricity distribution networks. Amongst other things, the Determination requires Vector to publicly disclose the methodology used to set prices for the forthcoming pricing year.

### **3 Objective for setting prices**

- 3.1 Vector provides electricity lines services to consumers via its electricity distribution network. 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.
- 3.2 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 influence 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.
- 3.3 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.
- 3.4 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. To send the right signals to consumers to ensure new investments in the network are as efficient as possible, consumers need to be charged for the full or proportionate cost of those assets (new and existing) they will be using.
- 3.5 Vector has developed a high-level framework used to guide the development of the EDPM. The applicable requirements which form an overarching set of objectives for the EDPM include:
  - a) Cost recovery - ensuring Vector recovers its costs, including an appropriate return on and of investment. A key aspect of cost recovery is the predominantly sunk and fixed nature of the costs;
  - b) Meet regulatory obligations - including compliance with the weighted average price requirements and the pricing principles;
  - c) Clear pricing structure - by making it attractive to maintain connections and for new consumers to connect. Pricing should be simple and easily understood by consumers;
  - d) Coherent overall price structure – so that there are not incentives for consumers to switch service classes to take advantage of anomalies in the pricing structure;
  - e) Cost reflective pricing - to ensure that all consumers face prices that reflect the cost of providing them with service, that charges to all new consumers at least cover the incremental costs of connecting them to the network (including costs associated with upstream reinforcement) and charges to

recover overhead costs and the cost of the shared network are allocated between consumers in a manner that is least likely to distort investment decisions;

- f) Consumer centric outcomes – to take account of the economic value of the service to consumers, provide pricing stability and manage rate shock effectively in the transition to new price structures; and
- g) Incentivise efficient usage - in other words, encourage/discourage more utilisation of electricity assets to ensure that new investments are efficient and sunk investments are not inefficiently by-passed.

3.6 Finally, price cap regulation is intended to promote improvements in efficiency over time. We consider that this applies equally to the development of pricing methodologies. The reality for Vector is that information on consumer response to prices is highly imperfect. Vector intends to review consumers' responses to prices and will continue to enhance price design over time.

## **4 Methodology for setting prices**

4.1 In this section we provide a high level description of Vector's pricing methodology for the electricity distribution networks. Vector's pricing methodology is developed to deliver Vector's pricing objectives as described in section 3.

4.2 Vector's pricing methodology is based on defining service classes based on assets used (which are the primary source of costs to be recovered) and using a Cost of Service Model (COSM) to establish and allocate costs to those service classes.

4.3 Within the service classes, Vector has defined a number of capacity segments, which reflect a desire to signal economies of scale in network augmentation. Prices in each of the capacity segments are used to provide a coherent overall price structure, which reflects these economies of scale. (i.e. charges increase, but at a decreasing rate as volumes/capacity requirements increase).

4.4 A high level view of the process for developing prices is as follows:

- a) Develop consumer segments based on groups of consumers usage of Vector's electricity distribution network assets;
- b) Incorporate consumer segmentation into tariff structures;
- c) Develop COSM to incorporate pricing principles and allocate costs to consumer segmentations;
- d) Adjust existing tariffs for CPI increase plus changes in pass-through costs where applicable;
- e) Ensure tariffs comply with the forecast allowable notional revenue under the price path;
- f) Transition revenue gained through adjusted tariffs towards revenues determined by the COSM by adjusting tariffs accordingly;

- g) Ensure overall tariff changes are consistent with the pricing principles and provide for reasonable end consumer outcomes (e.g. mitigating rate shocks where indicated by the COSM); and
- h) Ensure overall tariff changes comply with forecast allowable notional revenue under the price path.

4.5 The foundation of the development of the pricing methodology is based on an application of economic pricing principles, given practical, physical and commercial constraints. It is useful to have an understanding of these factors, as it assists in understanding various decisions Vector has reached in establishing the pricing methodology:

- a) The majority of costs to be recovered are shared costs, which cannot be specifically attributed to particular service classes except at high levels of aggregation;
- b) There are practical limits on the information available with which to set prices to improve efficiency, for example electricity time of use metering for small consumers has only recently been installed and commercial systems and processes to make relevant consumption information available are still being developed;
- c) Development of prices necessarily requires a high level of averaging due to the large number of customers and varying levels of consumption. There are practical considerations and administrative barriers in providing individual prices to individual customers; and
- d) Implications for the outcomes sought from pricing policy – there are limits to how theoretical pricing principles can be practically applied and the pricing principles are best considered in a holistic fashion.

## **5 Determining target revenues**

5.1 Vector's electricity distribution revenues are constrained by the requirements of the regulated price path. Price changes from year to year are capped by the permitted (CPI-based) increase in weighted average prices and increases in pass-through and recoverable costs.

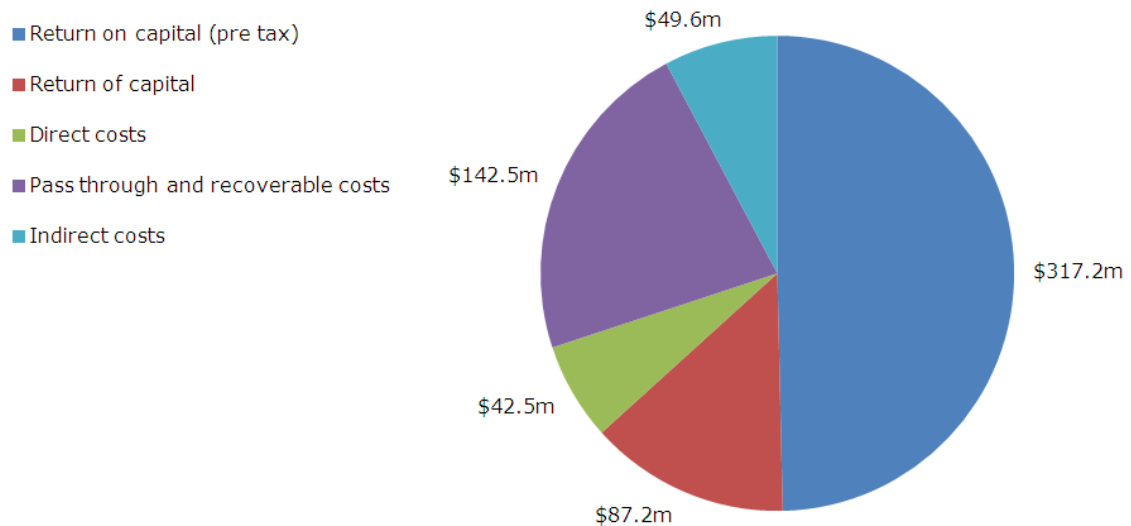
5.2 The target revenue that Vector is able to recover each year is determined by regulated prices, the actual number of consumers and electricity delivered over the distribution system. The target revenue that Vector expects to receive from the electricity distribution system between 1 April 2013 and 31 March 2014 is \$639m<sup>1</sup>. We note this assessed target revenue incorporates a component of both changes in quantities (growth) and changes in prices when compared with revenue from the previous year.

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<sup>1</sup> Revenue forecast as at December 2012 when prices were set.

5.3 A breakdown of the target revenue into the key components is shown in Figure 2. The breakdown of target revenue into the key cost components in the forthcoming year has been determined based on historical percentages of actual cost components and revenue.

**Figure 1 Breakdown of target revenue**



## 6 How the distribution system is segmented

6.1 Vector has segmented consumers based on the nature of the network service they receive. Due to the physical nature of distribution networks and the information that is available on consumer demand characteristics, the consumer segments are defined at a relatively high level. Examples of these considerations are:

- a) A large proportion of the network's costs are fixed, which means that they should be allocated in a manner that causes the least distortion to other key economic signals;
- b) There is a high degree of network meshing and interconnection of consumers. This means that multiple end consumers utilise many of the same assets. A large industrial consumer consuming large volumes of electricity per year is likely to be using some of the same network assets as a residential end consumer consuming only small amounts;
- c) End consumers are not generally geographically segmented in their use of different network assets. For example, there are in general no purely "industrial zones" or "residential zones". A residential consumer is likely, in part at least, to use the same assets as an industrial consumer. The GIS-generated diagram of a cross-section representative of the Auckland networks included as Appendix 2 illustrates this point; and
- d) A mix of consumers including a large number of consumers with relatively low individual consumption and a small number of consumers with relatively

high individual consumption. For example 99% of end consumers have a capacity less than 69kVA, however the large size of the remaining 1% of end consumers use 45% of the energy transported over the distribution network.

- 6.2 Segmentation of customers by Vector reflects service and utilisation of the network. Costs are then allocated using the most appropriate drivers to ensure prices are cost reflective.
- 6.3 The starting point for determining prices is to directly attribute costs to customers/service-classes as far as possible. As a general proposition, this means that costs are allocated to customers who benefit from the use of certain assets or parts of the network; this is a "beneficiary pays" approach. Given the shared nature of the majority of network assets, it is then necessary to allocate the remaining common costs to develop prices such that the total costs of the network (directly attributable and shared) can be recovered.
- 6.4 In terms of direct attribution of costs, Vector has identified three service classes based on the nature of the connection to the electricity distribution network. The service classes are defined corresponding to the following three different connection types:
  - a) Primary (P) connection type is where the end consumer is supplied directly from Vector's high voltage or sub-transmission (6.6kV or higher) network;
  - b) Secondary (S) connection type is where the end consumer is supplied from a transformer(s) owned by Vector and which supplies the consumer's low voltage (400V three phase or 230V single and two phase) network; and
  - c) Tertiary (T) connection type is where the end consumer is supplied from Vector's low voltage (400V three phase or 230V single and two phase) network.
- 6.5 Each of these connection types represents a group of end consumers that receive a homogenous but uniquely defined service from Vector.

## **7 Allocating target revenues to segments of the distribution system**

- 7.1 The following section explains how Vector uses a Cost of Service Model (COSM) to allocate the actual costs of owning and operating the distribution network into the consumer segments and how cost allocation is used to determine how much revenue we need to recover from each consumer segment each year.
- 7.2 Based on the service definition and connection types described above, we have identified three distinct classes of assets that are used to different extents by end consumers in each connection type:
  - a) A asset types are all high voltage lines and cables, zone substation and sub-transmission assets;

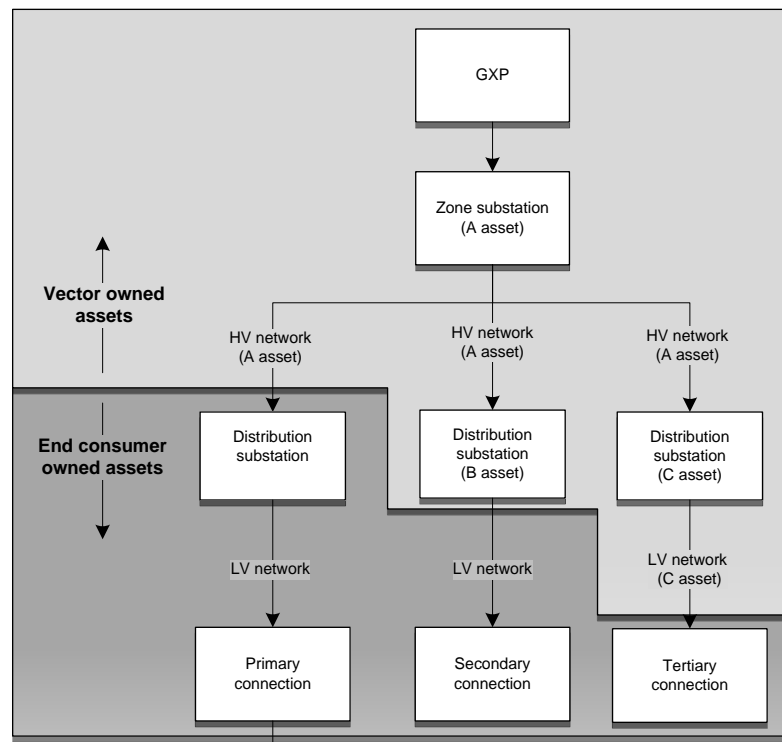


- b) B asset types are platforms (distribution substations) that have no Vector owned low voltage lines or cables leaving, excluding platforms that supply only Tertiary end consumers; and
- c) C asset types are all low voltage assets. Platforms (distribution substations) that have Vector owned low voltage lines or Vector platforms that supply multiple end consumers connected at low voltage.

7.3 Vector selected these asset types to reflect the costs associated with connecting consumers to various points on the distribution network. The use of voltage (high versus low) to segment assets provides a direct link between our asset segmentation (asset type) and our consumer segmentation (connection type).

7.4 As a large proportion of our costs are driven by assets, this provides a strong basis for the allocation of cost to consumer segments. This means under Vector’s COSM used for the cost allocation process, low voltage assets are not allocated to high voltage end consumers. This is illustrated diagrammatically in Figure 2 below.

**Figure 2: Electricity network diagram**



7.5 The key output of the COSM is to determine the price changes required in order for revenues to reflect costs for each consumer segment. To do this the COSM apportions the costs of owning and operating Vector’s electricity distribution business into Primary, Secondary and Tertiary consumer segments using specified allocators.

7.6 Many of the allocators used within the COSM are influenced by end consumer behaviour. Each year the weighting of the allocators is subject to change as they

reflect changes in end consumer consumption decisions. Vector is investigating ways to smooth this natural volatility, for example by using moving average allocation quantities over time. We believe the COSM and cost allocation process should provide for a high degree of pricing stability for end consumers over time. In the absence of a stable set of allocators available at this stage, Vector has adopted a static set of allocators whilst we progress the development of alternatives.

- 7.7 The COSM uses data from a number of sources. In general the data set used within the COSM is sourced from Vector's disclosure statements under the Determination. This information has the benefit of being audited and transparently in the public domain. While we use the latest information available, due to the information available at the time of updating the COSM and setting prices, the information is lagged.
- 7.8 The information required by the COSM is often required at a more disaggregated level than that required by the Determination. In these cases, Vector relies on information from its corporate systems to disaggregate the information disclosure information. Data sources used in COSM are described in Table 1 below.

**Table 1: Data sources used in COSM**

<b>Information</b>	<b>Source</b>
Financials	Vector's financial accounts and information disclosure
ICP	Vector's billing systems and pricing models
kWh	Vector's billing systems and pricing models
kW	Vector's billing systems and pricing models
Revenue	Vector's billing systems and pricing models
Distance	Vector's geographical information system
Asset values	Vector's regulatory valuation system

- 7.9 The process of allocating shared or common costs to consumer segments requires the adoption of suitable allocators. The complex nature of electricity distribution networks, data limitations and the range of consumer consumption decisions mean that the choice of the most appropriate allocator can be a subjective judgment.
- 7.10 Vector has exercised its discretion when making these judgments in order to best comply with the pricing principles. The descriptions in Table 2 below reflect the allocators Vector has adopted in its COSM to set tariffs from 1 April 2013.

**Table 2: Description of allocators used in COSM**

Allocator	Description	Formula
ICP	Ratio of the number of end consumers within each connection type.	$ICP_{CT}\% = ICP_{CT}/ICP_{Total}$
kWh	Percentage of the volume of electricity consumed by end consumers within each connection type.	$kWh_{CT}\% = kWh_{CT}/kWh_{Total}$
kW	Ratio of the total electricity demand of end consumers within each connection type at the time of system peaks.	$kW_{CT}\% = kW_{CT}/kW_{Total}$
kWh & ICP	Weighted average of ICP and kWh allocators. A 50/50 weighting has arbitrarily been adopted reflecting the subjective nature of these allocators. The even weighting balances the impact of each quantity weight.	$kWhICP_{CT}\% = ICP_{CT}\% * WF + kWh_{CT} * (1 - WF)$ where $WF = Weighting\ Factor$
kW * DIST	Ratio of the electricity demand multiplied by the average network length used by end consumers within each connection type.	$kWDist_{CT}\% = \frac{kW_{CT} * km_{CT}}{kW_P * km_P + kW_T * km_T + kW_S * km_S}$
Asset values	Ratio of the value of network assets used by end consumers within each connection type. Three asset types are defined in the Vector regulatory valuation i.e. A, B and C types. A type assets are shared by all three connection types and are allocated by means of the "kW*DIST" allocator to each connection type. B type assets are solely used by the "secondary" connection type and C type assets are solely used by the "tertiary" connection type.	$Assets_P = kWDist_P\% * AssetValue_A$  $Assets_S = kWDist_S\% * AssetValue_A + AssetValue_B$  $Assets_T = kWDist_T\% * AssetValue_A + AssetValue_C$
EBIT	Ratio of the total EBIT value of end consumers within each connection type.	$EBIT_{CT} = \frac{EBIT_{CT}}{EBIT_{Total}}$
Subscript: CT = Connection type, P = Primary, S = Secondary, T = Tertiary, A = A asset types, B = B asset types, C = C asset types		

7.11 The allocation weightings are shown in a percentage format in Table 3, Table 4 and Table 5 below. These percentages can be applied to group totals to obtain the connection type values for each cost category.

**Table 3: Allocation between networks**

Allocator	Auckland	Northern
kW	61.7%	38.3%
kWh & ICP	65.0%	35.0%
Assets	68.6%	31.4%

**Table 4: Auckland allocation methods and weightings by connection-type**

Allocator	Primary	Secondary	Tertiary
ICP	0.05%	0.3%	99.7%
kWh	17%	18%	64%
kW	16%	16%	68%
kWh & ICP	9%	9%	82%
kW * DIST	15%	15%	70%
Assets	10%	13%	78%
EBIT	5%	10%	85%

**Table 5: Northern allocation methods and weightings by connection-type**

Allocator	Primary	Secondary	Tertiary
ICP	0.01%	0.17%	99.82%
kWh	6%	15%	79%
kW	3%	10%	87%
kWh & ICP	3%	8%	89%
kW * DIST	3%	8%	89%
Assets	2%	6%	92%
EBIT	1%	3%	96%

Table 6 outlines each COSM cost category and the allocator Vector has used to allocate that cost into each connection type, and the rationale for choosing that allocator. Generally the allocator most appropriate to each cost category has been selected; for example with the strongest relationship to cost causation. Only the material costs have been shown in this table.

**Table 6: Method of cost allocation**

COSM Cost Category	Allocator Used in COSM	Rationale
A assets	kW * DIST	A assets have been apportioned based on end consumer demand and distance. These inputs have been used as they determine the size and length of distribution cable or line to install.
B assets	Directly attributed	These costs are able to be directly attributed to the connection type
C assets	Directly attributed	These costs are able to be directly attributed to the connection type
Return on investment (cost of capital)	Asset values	The return on investment has been apportioned relative to assets as the assets represent the significant investment that Vector is seeking to recover the cost of.
Depreciation – System Fixed Assets	Asset values	The depreciation of system fixed assets will be approximately in proportion to the asset value for each connection type.
Non system fixed asset cost and	kWh & ICP	Non system fixed assets are those assets employed to assist staff to perform their jobs, and are very difficult to be attributed to any

COSM Cost Category	Allocator Used in COSM	Rationale
depreciation on non system fixed assets.		particular connection type. Common examples of non system fixed assets are vehicles and office furniture. The basis for allocating these costs is subjective. Vector has chosen a kWh and ICP weighting.
Maintenance and system management and operations	Asset values	The predominant costs here relate to asset maintenance. To reflect the relationship between maintenance costs and the value of network assets Vector has adopted asset value to allocate these costs.
Indirect & Other Costs	kWh & ICP	Indirect costs tend to be items such as personnel costs, professional expenses, computer, administrative and property expenses. Similar to non system fixed assets these costs are difficult to attribute to individual or groups of end consumers. A kWh and ICP weighting was chosen to reflect the subjective nature of these costs.
Pass through Costs	kW	Pass through costs are predominantly transmission costs (levied by Transpower) and governmental and regulatory levies. Transmission costs are predominantly levied based on regional peaks, and hence peak demand was used as an allocator.
Revaluations	Asset values	Revaluations arise directly from the indexation of system-fixed assets or are proportional to new assets deployed. Asset value has been used to apportion this cost due to the direct relationship with the cost.
Capital Expenditure	Asset values	Capital expenditure is most commonly associated with the extension or replacement of network assets. We have assumed extensions of the network are most likely to occur in line with the current proportions of asset values.
Regulatory Tax	Asset Values	Tax is directly related to profit. Vector has allocated regulatory tax on the basis of asset values.

7.12 Appendix 3 and Appendix 4 show prices and target revenues, respectively, for each price plan.

## 8 Consistency with pricing principles

8.1 The Authority's pricing principles<sup>2</sup> (the Principles) provide a principle-based approach to developing and assessing pricing methodologies for electricity distribution services. This section demonstrates the extent to which the EDPM is consistent with the Principles.

8.2 Pricing principle (a) of the Principles states that:

- (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) signalling, to the extent practicable, the impact of additional usage on future investment costs.*

8.3 The electricity distribution system, by its very nature, consists of assets with significant capacity. When building the system, economies of scale exist such that

<sup>2</sup> Distribution Pricing Principles and Information Disclosure Guidelines, Prepared by the Electricity, February 2010 and adopted by the Electricity Authority.

the cost of installing an asset larger than that which is immediately required does not add significantly to the cost of network build. As a consequence many parts of the extant distribution system are characterised by having spare capacity. In most cases, due to the availability of spare capacity, the short run cost of the next unit of capacity is nil.

- 8.4 Where the system requires expansion, for example in order to connect a new user to the distribution system, then Vector generally funds this expansion through capital contributions and/or non-standard prices which directly offset, or ensure recovery of the incremental capital investment. Vector's approach to recovering these costs is outlined in the electricity distribution capital contribution policy. With respect to principle 1(a), the EDPM generally recovers the short run incremental costs specific to a new connection from the connecting party.
- 8.5 The primary driver of the long run incremental cost (LRIC) of any connection, or classes of connections, is the extent to which they contribute to congestion in the network, as such congestion drives the need to periodically expand the capacity of the network.
- 8.6 Vector signals the level of available capacity over different time periods by signalling network congestion through the use of TOU tariffs and controlled load prices. TOU tariffs are used to signal congestion to consumers by applying higher prices at times of typical peak network demand. This provides incentives to end consumers to shift demand away from these peak periods and therefore reduce the need for future investment costs.
- 8.7 At this stage we have generally only applied congestion pricing in a very coarse manner and at a very high level. As technology improves and the uptake of smart meters becomes more prevalent, we expect the signalling of inter-temporal capacity price signals to become more effective. Vector offers controlled load prices to residential end consumers for the ability to remotely switch off the electricity supply of end consumers' hot water cylinders. This pricing approach signals the benefits to consumers, of allowing Vector to control their hot water load and manage network congestion during peak periods, through lower price options.
- 8.8 Vector's prices, however, are not fully dynamic. We acknowledge that this is an area for development and are currently considering mechanisms to ensure our approach to congestion charging facilitates efficient outcomes.
- 8.9 While we monitor the cost of alternative options for consumers, it can be difficult to apply these on a consumer specific basis. In some instances, the economic value of the service, including where that is set by the cost of an alternative form of supply, may be notified to us by the consumer. In these situations this pricing principle is delivered through the operation of pricing principle (c), detailed below.

8.10 Pricing principles (b) and (c) of the Principles state that:

*(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.*

8.11 The pricing methodology recovers allowed target revenues in a manner that has regard to consumers' demand responsiveness by differentiating charges in the following ways.

a) Charges are differentiated with respect to connection size, with the daily fixed fee rising with the size of connection, and the rate of the variable charge decreasing. Vector considers connection size is a reasonable proxy for a consumer's likely responsiveness to the level of the fixed charge.

b) Vector has found some residential and small commercial customers are sensitive to the level of fixed charges for electricity distribution due their price elasticity of demand. The pricing methodology has regard to the demand responsiveness of these consumer groups by, relative to the charging structures applying to other consumer groups, placing less weight on the daily fixed fee and more weight on the variable charge.

c) Established rules and criteria for non-standard pricing arrangements to take into account the requirements of individual consumers.

8.12 The pricing methodology also provides for non-standard contractual arrangements, with such arrangements being able to address changes to the structure or level of charges (e.g. for atypical load patterns, or to address particular by-pass or fuel substitute situations), or differing service levels where possible (e.g. a higher level of redundancy, or priority response if an outage occurs). The pricing methodology obliges Vector to take account of the issues described above when considering the design of a non-standard contract.

8.13 The pricing methodology takes account of general consumer responsiveness in the structure of the charges and in the relative weightings and levels of fixed and variable charges across consumer groups. Consumers will bypass if the cost of alternatives, whether through a competing network or alternative fuel, are lower than the cost of the distributed electricity. Consumers will cease to consume if the cost of distributed electricity is more than the economic value of the electricity to

them. Where the economic value the consumer ascribes to the service is less than the incremental cost of providing the service then Vector would cease to provide this service.

8.14 Pricing principle (d) of the Principles states that:

*(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*

8.15 The existing pricing methodology for the electricity distribution system is transparent in that it is documented and is available to consumers and other stakeholders from Vector's website and is provided to them on request. Changes to prices have been limited for most consumption patterns to be no more than 10% each year. Vector has consulted with stakeholders in the development of this pricing methodology and continues to consult as appropriate when applying it and future methodologies.

8.16 Vector is investigating ways to meaningfully engage with consumers on their expectations on price and quality and how to include those views in prices. Vector notes that prices relate to long life assets deployed to provide distribution services to consumers and any change in these services (and prices) could only be implemented over time. Vector consults with retailers on an annual basis as part of its electricity distribution price setting process.

8.17 Pricing principle (e) of the Principles states that:

*(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*

8.18 In recent years Vector has taken active steps in simplifying its distribution price structure so that the transaction costs on retailers, end consumers, and Vector itself are minimised.

8.19 Vector offers retailers the opportunity to comment on its proposed price structures for each pricing year. This provides an opportunity for all retailers to identify any proposals that would increase transaction costs, and provides Vector the opportunity to address any concerns retailers may have.

8.20 Vector offers the same network pricing to all end consumers irrespective of which retailer they use i.e. Vector does not provide any discounts or special terms to end consumers who are supplied by a particular retailer. The non-differentiation of network charges is enshrined in the use of systems agreements that Vector has with retailers operating on Vector network.

## **9 Impact on prices**

9.1 For the purpose of cost allocation, Vector has allocated costs to a connection type level. For the purposes of determining prices, Vector has disaggregated the



Tertiary connection type into 3 smaller 'pricing type' consumer segments. The rationale for adopting a greater level of granularity for the LV connection type is to:

- a) Disaggregate the significant number of end consumers in this group into smaller pricing groups. This allows a more specific level of averaging when determining prices than would otherwise have been possible by connection type. This allows for more meaningful tariff structures more appropriate to individual consumer circumstances; and
- b) Create a consumer segment that allows the tailoring of tariffs to comply with the Low Fixed Charge Regulations which apply to residential end consumers only.

9.2 The pricing type segments are as follows:

- a) High voltage (HV) pricing type is where the end consumer is not a residential end consumer, has a metered connection greater than 69kVA and receives a supply directly from Vector's high voltage network. HV end consumers are primary connection types;
- b) Transformer (TX) pricing type is where the end consumer is not a residential end consumer, has a metered connection greater than 69kVA and the end consumer's low voltage network is supplied directly from transformers owned by Vector. TX end consumers are secondary connection types;
- c) Low voltage (LV) pricing type is where the end consumer is not a residential end consumer, has a metered connection greater than 69kVA and is connected to Vector's low voltage network. LV end consumers are tertiary connection types;
- d) Business (Bus) pricing type is where the end consumer is not a residential end consumer and has a capacity less than or equal to 69kVA. Business end consumers include unmetered connections. Business end consumers are tertiary connection types; and
- e) Residential (Res) pricing type is where the end consumer's connection is for a private dwelling, not normally used for any business activity. Residential end consumers are tertiary connection types.

9.3 Each pricing type segment is mutually exclusive, i.e. an end consumer can logically only fit within one segment. Vector determines which of the five pricing type segments an individual consumer is in based on the physical point of connection to the network, their capacity, metering type and end usage. Table 7 below shows the mapping between pricing type and connection type:

**Table 7: Relationship between connection type and pricing type segments**

Size	Large (>69kVA)			Medium (≤69kVA)	Small (Residential)
Pricing type	HV	TX	LV	Business	Residential
Connection type	P	S	T		

- 9.4 There are some instances where the mapping described in Table 1 does not describe the actual relationship between pricing type and connection type. These exceptions are extremely infrequent. For example it is possible (although unlikely) for a large residential consumer to have an HV connection to Vector’s network.
- 9.5 The Commission made the Electricity Distribution Default Price-Quality Path Determination 2012 (the DPP) on 30 November 2012. The Commission’s analysis indicates that by complying with the DPP, the distribution component of Vector’s prices must decrease by 10.1% on average.
- 9.6 In addition to the reduction to the distribution component of Vector’s prices, Vector is able to change prices to reflect changes in pass costs outside of our control (pass through and recoverable costs). Pass-through and recoverable costs are forecast to increase by 5.1%.
- 9.7 The combination of a 5.1% increase in pass-through and recoverable costs with the application of the 8.2% reduction to the distribution component of Vector’s prices results in an overall weighted average price decrease of 3.6%. Vector has applied this overall price decrease to tariffs in conjunction with rebalancing to ensure the revenues indicated by the COSM are delivered. In some cases this has required increases in prices. We have limited the extent of these price increases so that consumers face distribution price increases of generally no more than 10%.
- 9.8 Vector’s residential price plans have been updated from 1 April 2013:
- a) has introduced standard user and low user price plans for consumers who use greater than or less than 8000kWh’s per year respectively. This is to provide increased options for residential consumers to suit their consumption patterns;
  - b) Vector has removed the night rate option for residential consumers. This follows the introduction of smart metering price plans in 2011 which provide improved incentives for consumers to manage their load;
  - c) Vector has aligned the financial incentive for controlled load between our networks. The difference between the controlled and uncontrolled options has also been reduced following market research on the efficacy of this differential and in order to facilitate future pricing options.
- 9.9 Business pricing plans have been aligned with equivalent residential price options. This removes the price differential between services, which are materially the same.

9.10 Power factor charges have been increased from \$0.0011/kVAr/day to \$0.0658/kVAr/day and now apply to all low voltage, transformer and high voltage consumers with half hourly metering.

9.11 Appendix 3 shows the current prices for the Auckland and Northern networks effective from 1 April 2013.

## **10 Non-standard pricing**

10.1 In certain circumstances Vector's published standard prices may not adequately reflect the actual costs of supplying a consumer, reflect the economic value of the service to the consumer or address the commercial risks associated with supplying that consumer. In addition to standard published prices, the EDPM also includes non-standard agreements.

10.2 Non-standard contracts allow tailored or specific prices and non-standard Network Connection and Services Agreement (NCSA) commercial arrangements to be applied to individual points on the distribution system.

10.3 Of the allowable target revenue for 1 April 2013 to 31 March 2014 of \$639m, 5% is recovered from 49 non-standard consumers.

10.4 Vector has established assessment criteria to determine whether to apply non-standard pricing. 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.

10.5 Vector assesses whether to apply non-standard pricing and or commercial arrangements to new consumers on a case by case basis. Generally if a consumer does not meet at least one of the assessment criteria, they will be subject to published standard distribution 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 consumers individual circumstances.

10.6 For new investments that qualify for non-standard pricing, Vector uses actual costs and or allocated costs derived from an allocation model to determine prices. This

allocation model is consistent with the allocation model used to determine standard pricing. The description provided under Section 9 to show consistency with the pricing principles therefore applies to the allocation model used for non-standard pricing.

- 10.7 For new non-standard investments, Vector applies a capital contributions policy. Vector's policy for determining capital contributions on Vector's electricity distribution networks is available here:

<http://www.vector.co.nz/corporate/disclosures/electricity/electricity-capital-contributions>.

- 10.8 Vector's obligations and responsibilities to most consumers subject to non-standard contracts on Vector's networks in the event that the supply of electricity lines services to the consumer are interrupted are as follows:

- a) Where Vector plans to undertake maintenance on the network that requires an interruption to the supply of electricity to any Point of Connection, Vector will notify the Customer either directly or via the Customers Retailer in writing to that effect, so that the Customer will receive at least 4 working days notice prior to interruption.
- b) In the event of an unexpected interruption to the supply of electricity Vector plans its resources in order to restore supply to most customers within 3 hours; however events outside Vector's control may influence this time frame and Vector accepts no liability for failure to restore supply within such time frame. Where restoration takes over more than three hours Vector will provide the Customer with a written explanation for the extended restoration time frame if requested by the Customer.

- 10.9 Vector's obligations and responsibilities to other consumers subject to non-standard contracts on Vector's networks in the event that the supply of electricity lines services to the consumer are interrupted are:

- a) Vector is required to give 4 consumers on non-standard contracts 10 working days notice of a planned outage
- b) Vector is required to give 1 consumer on a non-standard contract 7 working days notice of a planned outage
- c) Vector is required to give 1 consumer on a non-standard contract 9 working days notice of a planned outage
- d) Vector is required to give 1 consumer on a non-standard contract 20 working days notice of a planned outage
- e) Vector is required to give 1 consumer on a non-standard contract 30 working days notice of a planned outage
- f) Vector is required to give 4 consumers on non-standard contracts priority restoration above other consumers

- g) Vector has agreed in respect of 3 consumers on non-standard contracts that planned outages will be scheduled between certain hours (e.g. 10pm – 6 am)
- h) Vector has agreed in respect of 3 consumers on non-standard contracts that there will be a limit on the number of planned outages or total duration of planned outages during a year (e.g. no more than 8 hours of planned outages in a year)
- i) Vector has agreed in respect of 2 consumers on non-standard contracts that it will agree an annual maintenance schedule with them.

10.10 The extent of the above differences from Vector’s standard contracts can be determined by comparison against Vector’s standard contracts which provide the following:

- a) Northern network: Vector is required to notify retailers within 10 working days of planned outages. Vector is also subject to service levels to restore supply within 3 hours of notification of an urban fault and within 6 hours of notification for a rural fault.
- b) Auckland network: Vector is required to give consumers 4 days notice of any planned interruption and to notify retailers at the same time as it gives customers notice. Vector is also required to use reasonable endeavours to inform the retailer within 15 minutes of becoming aware of an unplanned interruption.
  - a. Vector is required to give consumers 4 days notice of any planned interruption and to notify retailers at the same time as it gives customers notice. Vector is also required to use reasonable endeavours to inform the retailer within 15 minutes of becoming aware of an unplanned interruption
  - b. Vector also has published the following published service standards:
    - i. Fault restoration for large commercial/industrial consumers (>69kVA): CBD or Industrial: 2 hours, urban: 2.5 hours; rural: 3 hours
    - ii. Fault restoration for all other consumers: urban 2.5 hours; rural 3 hours
    - iii. Number of interruptions for large commercial/industrial consumers(>69kVA): CBD 3 per annum; industrial, urban, rural: 4 per annum
    - iv. Number of interruptions for all other consumers: urban 4 per annum; rural 14 per annum:

10.11 For this pricing year Vector’s obligations and responsibilities to consumers subject to non-standard contracts in the event that the supply of electricity lines services to them is interrupted have no implications for determining price.

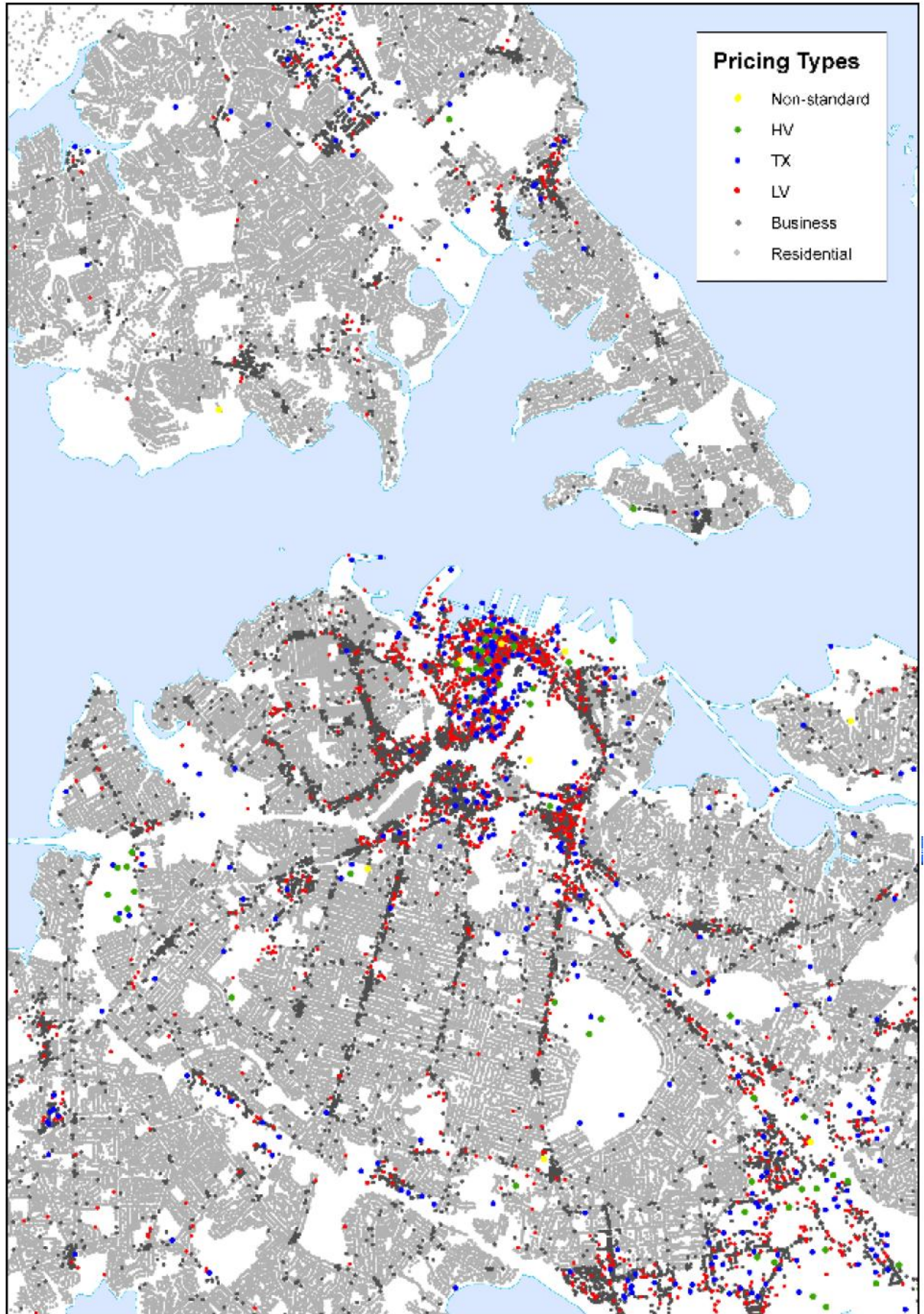
## **11 Approach to pricing distributed generation**

- 11.1 Vector's policies and procedures for the application for, installation and connection of distributed generation are in accordance with the requirements of Part 6 (Connection of distributed generation) of the Electricity Industry Participation Code 2010.
- 11.2 Vector charges each distributed generator the incremental cost of connection prior to them connecting to the network.

## 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) signalling, 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 Consumers for cross section of both Auckland and Northern networks.**





## Appendix 3 Prices by segment

### AUCKLAND DISTRIBUTION CHARGES, FROM 1 APRIL 2013

The rates in this price table are expressed pre 10% prompt payment discount.

#### Residential

Price plan	Code	Description	Units	Rate
ARCL	ARCL-FIXD	Fixed	\$/day	0.1667
ARCL	ARCL-AICO	Variable, controlled	\$/kWh	0.0976
ARUL	ARUL-FIXD	Fixed	\$/day	0.1667
ARUL	ARUL-24UC	Variable, uncontrolled	\$/kWh	0.1073
ARCS	ARCS-FIXD	Fixed	\$/day	0.8889
ARCS	ARCS-AICO	Variable, controlled	\$/kWh	0.0647
ARUS	ARUS-FIXD	Fixed	\$/day	0.8889
ARUS	ARUS-24UC	Variable, uncontrolled	\$/kWh	0.0744
ARCH	ARCH-FIXD	Fixed	\$/day	0.8889
ARCH	ARCH-OFPK	Variable, off peak (controlled)	\$/kWh	0.0518
ARCH	ARCH-SHLD	Variable, shoulder (controlled)	\$/kWh	0.0647
ARCH	ARCH-PEAK	Variable, peak (controlled)	\$/kWh	0.0854
ARUH	ARUH-FIXD	Fixed	\$/day	0.8889
ARUH	ARUH-OFPK	Variable, off peak (uncontrolled)	\$/kWh	0.0596
ARUH	ARUH-SHLD	Variable, shoulder (uncontrolled)	\$/kWh	0.0744
ARUH	ARUH-PEAK	Variable, peak (uncontrolled)	\$/kWh	0.0983

#### Business

Price plan	Code	Description	Units	Rate
ABSU	ABSU-FIXD	Fixed	\$/day/fitting	0.1444
ABSU	ABSU-24UC	Variable	\$/kWh	0.0814
ABSN	ABSN-FIXD	Fixed	\$/day	0.8889
ABSN	ABSN-24UC	Variable	\$/kWh	0.0744

#### Low voltage

Price plan	Code	Description	Units	Rate
ALVN	ALVN-FIXD	Fixed	\$/day	1.6667
ALVN	ALVN-24UC	Variable	\$/kWh	0.0708
ALVN	ALVN-CAPY	Capacity	\$/kVA/day	0.0356
ALVN	ALVN-PWRF	Power Factor	\$/kVAr/day	0.0731
ALVH	ALVH-SMDY	Variable, summer day	\$/kWh	0.0163
ALVH	ALVH-SMNT	Variable, summer night	\$/kWh	0.0026
ALVH	ALVH-WNDY	Variable, winter day	\$/kWh	0.0450
ALVH	ALVH-WNNT	Variable, winter night	\$/kWh	0.0026
ALVH	ALVH-CAPY	Capacity	\$/kVA/day	0.0356
ALVH	ALVH-DAMD	Demand	\$/kVA/day	0.3018
ALVH	ALVH-PWRF	Power Factor	\$/kVAr/day	0.0731

## AUCKLAND DISTRIBUTION CHARGES, FROM 1 APRIL 2013 (continued)

The rates in this price table are expressed pre 10% prompt payment discount.

### Transformer

Price plan	Code	Description	Units	Rate
ATXN	ATXN-FIXD	Fixed	\$/day	1.6222
ATXN	ATXN-24UC	Variable	\$/kWh	0.0687
ATXN	ATXN-CAPY	Capacity	\$/kVA/day	0.0344
ATXN	ATXN-PWRF	Power Factor	\$/kVAr/day	0.0731
ATXH	ATXH-SMDY	Variable, summer day	\$/kWh	0.0159
ATXH	ATXH-SMNT	Variable, summer night	\$/kWh	0.0024
ATXH	ATXH-WNDY	Variable, winter day	\$/kWh	0.0437
ATXH	ATXH-WNNT	Variable, winter night	\$/kWh	0.0024
ATXH	ATXH-CAPY	Capacity	\$/kVA/day	0.0344
ATXH	ATXH-DAMD	Demand	\$/kVA/day	0.2928
ATXH	ATXH-PWRF	Power Factor	\$/kVAr/day	0.0731

### High voltage

Price plan	Code	Description	Units	Rate
AHVN	AHVN-FIXD	Fixed	\$/day	1.5778
AHVN	AHVN-24UC	Variable	\$/kWh	0.0666
AHVN	AHVN-CAPY	Capacity	\$/kVA/day	0.0334
AHVN	AHVN-PWRF	Power Factor	\$/kVAr/day	0.0731
AH VH	AH VH-SMDY	Variable, summer day	\$/kWh	0.0154
AH VH	AH VH-SMNT	Variable, summer night	\$/kWh	0.0023
AH VH	AH VH-WNDY	Variable, winter day	\$/kWh	0.0423
AH VH	AH VH-WNNT	Variable, winter night	\$/kWh	0.0023
AH VH	AH VH-CAPY	Capacity	\$/kVA/day	0.0334
AH VH	AH VH-DAMD	Demand	\$/kVA/day	0.2840
AH VH	AH VH-DEXA	Excess demand	\$/kVA/day	0.7100
AH VH	AH VH-PWRF	Power Factor	\$/kVAr/day	0.0731

## NORTHERN DISTRIBUTION CHARGES, FROM 1 APRIL 2013

This price table is to be read in conjunction with Module 15 Electricity, Version 2013.1

### Residential

Price plan	Code	Description	Units	Rate
WRCL	WRCL-FIXD	Fixed	\$/day	0.1500
WRCL	WRCL-AICO	Variable, controlled	\$/kWh	0.0913
WRUL	WRUL-FIXD	Fixed	\$/day	0.1500
WRUL	WRUL-24UC	Variable, uncontrolled	\$/kWh	0.1004
WRCS	WRCS-FIXD	Fixed	\$/day	0.8000
WRCS	WRCS-AICO	Variable, controlled	\$/kWh	0.0617
WRUS	WRUS-FIXD	Fixed	\$/day	0.8000
WRUS	WRUS-24UC	Variable, uncontrolled	\$/kWh	0.0708
WRCH	WRCH-FIXD	Fixed	\$/day	0.8000
WRCH	WRCH-OFPK	Variable, off peak (controlled)	\$/kWh	0.0494
WRCH	WRCH-SHLD	Variable, shoulder (controlled)	\$/kWh	0.0617
WRCH	WRCH-PEAK	Variable, peak (controlled)	\$/kWh	0.0815
WRUH	WRUH-FIXD	Fixed	\$/day	0.8000
WRUH	WRUH-OFPK	Variable, off peak (uncontrolled)	\$/kWh	0.0566
WRUH	WRUH-SHLD	Variable, shoulder (uncontrolled)	\$/kWh	0.0708
WRUH	WRUH-PEAK	Variable, peak (uncontrolled)	\$/kWh	0.0935

### Business

Price plan	Code	Description	Units	Rate
WBSU	WBSU-FIXD	Fixed	\$/day/fitting	0.1300
WBSU	WBSU-24UC	Variable	\$/kWh	0.0873
WBSN	WBSN-FIXD	Fixed	\$/day	0.8000
WBSN	WBSN-24UC	Variable	\$/kWh	0.0708

### Low voltage

Price plan	Code	Description	Units	Rate
WLVC	WLVC-FIXD	Fixed	\$/day	6.0000
WLVC	WLVC-24UC	Variable	\$/kWh	0.0389
WLVC	WLVC-CAPY	Capacity	\$/kVA/day	0.0183
WLVC	WLVC-PWRF	Power Factor	\$/kVAr/day	0.0658
WLVN	WLVN-FIXD	Fixed	\$/day	5.0000
WLVN	WLVN-24UC	Variable	\$/kWh	0.0573
WLVN	WLVN-CAPY	Capacity	\$/kVA/day	0.0183
WLVN	WLVN-PWRF	Power Factor	\$/kVAr/day	0.0658
WLVH	WLVH-FIXD	Fixed	\$/day	10.0000
WLVH	WLVH-24UC	Variable	\$/kWh	0.0062
WLVH	WLVH-CAPY	Capacity	\$/kVA/day	0.0183
WLVH	WLVH-DAMD	Demand	\$/kVA/day	0.2716
WLVH	WLVH-PWRF	Power Factor	\$/kVAr/day	0.0658

## NORTHERN DISTRIBUTION CHARGES, FROM 1 APRIL 2013 (continued)

This price table is to be read in conjunction with Module 15 Electricity, Version 2013.1

### Transformer

Price plan	Code	Description	Units	Rate
WTXC	WTXC-FIXD	Fixed	\$/day	5.4000
WTXC	WTXC-24UC	Variable	\$/kWh	0.0350
WTXC	WTXC-CAPY	Capacity	\$/kVA/day	0.0165
WTXC	WTXC-PWRF	Power Factor	\$/kVAr/day	0.0658
WTXN	WTXN-FIXD	Fixed	\$/day	4.5000
WTXN	WTXN-24UC	Variable	\$/kWh	0.0516
WTXN	WTXN-CAPY	Capacity	\$/kVA/day	0.0165
WTXN	WTXN-PWRF	Power Factor	\$/kVAr/day	0.0658
WTXH	WTXH-FIXD	Fixed	\$/day	9.0000
WTXH	WTXH-24UC	Variable	\$/kWh	0.0056
WTXH	WTXH-CAPY	Capacity	\$/kVA/day	0.0165
WTXH	WTXH-DAMD	Demand	\$/kVA/day	0.2635
WTXH	WTXH-PWRF	Power Factor	\$/kVAr/day	0.0658

### High voltage

Price plan	Code	Description	Units	Rate
WHVN	WHVN-FIXD	Fixed	\$/day	4.3700
WHVN	WHVN-24UC	Variable	\$/kWh	0.0501
WHVN	WHVN-CAPY	Capacity	\$/kVA/day	0.0160
WHVN	WHVN-PWRF	Power Factor	\$/kVAr/day	0.0658
WHVH	WHVH-FIXD	Fixed	\$/day	8.7300
WHVH	WHVH-24UC	Variable	\$/kWh	0.0054
WHVH	WHVH-CAPY	Capacity	\$/kVA/day	0.0160
WHVH	WHVH-DAMD	Demand	\$/kVA/day	0.2556
WHVH	WHVH-DEXA	Excess demand	\$/kVA/day	0.6390
WHVH	WHVH-PWRF	Power factor	\$/kVAr/day	0.0658

## Appendix 4 Target revenue by segment

Auckland Network					
Date / Period		1-Apr-13	2012/13		
Load Group	Description	Number of Customers	Fixed Revenue	Variable Revenue	Target Revenue
ARCL	Residential, low user, controlled	138,000	\$8,165,834	\$66,532,134	\$74,697,967
ARUL	Residential, low user, uncontrolled	42,000	\$2,393,521	\$16,962,479	\$19,356,000
ARCS	Residential, standard user, controlled	84,000	\$26,442,242	\$61,027,495	\$87,469,737
ARUS	Residential, standard user, uncontrolled	13,000	\$4,048,954	\$11,825,317	\$15,874,271
ARCH	Residential, smart, controlled	0	\$0	\$0	\$0
ARUH	Residential, smart, uncontrolled	0	\$0	\$0	\$0
ABSU	Business, unmetered	1,800	\$2,813,217	\$2,495,048	\$5,308,264
ABSN	Business, metered	34,000	\$10,762,599	\$56,137,779	\$66,900,378
ALVN	Low voltage, unmetered	1,500	\$1,078,985	\$18,241,960	\$19,320,945
ALVH	Low voltage, metered	1,500	\$0	\$32,495,972	\$32,495,972
ATXN	Transformer, unmetered	140	\$74,704	\$1,533,791	\$1,608,496
ATXH	Transformer, metered	820	\$0	\$51,455,448	\$51,455,448
AHVN	High voltage, unmetered	10	\$652	\$16,112	\$16,764
AH VH	High voltage, metered	110	\$0	\$19,052,512	\$19,052,512
Non Standard	Non standard customers	42			\$26,834,107
<b>Total</b>					<b>\$420,390,861</b>

Northern Network					
Date / Period		1-Apr-13	2013/14		
Load Group	Description	Number of Customers	Fixed Revenue	Variable Revenue	Target Revenue
WRCL	Residential, low user, controlled	100,000	\$5,944,983	\$50,550,640	\$56,495,623
WRUL	Residential, low user, uncontrolled	16,000	\$836,563	\$7,241,780	\$8,078,343
WRCS	Residential, standard user, controlled	66,000	\$21,011,046	\$51,795,574	\$72,806,621
WRUS	Residential, standard user, uncontrolled	7,800	\$2,244,724	\$6,755,976	\$9,000,699
WRCH	Residential, smart, controlled	0	\$0	\$0	\$0
WRUH	Residential, smart, uncontrolled	0	\$0	\$0	\$0
WBSU	Business, unmetered	240	\$1,841,089	\$1,871,816	\$3,712,904
WBSN	Business, metered	21,000	\$6,727,823	\$30,121,135	\$36,848,958
WLVC	Low voltage, (closed)	160	\$378,012	\$2,738,064	\$3,116,076
WLVN	Low voltage, unmetered	640	\$1,214,858	\$6,545,090	\$7,759,948
WLVH	Low voltage, metered	120	\$366,075	\$2,116,485	\$2,482,560
WTXC	Transformer, (closed)	140	\$307,707	\$2,343,075	\$2,650,783
WTXN	Transformer, unmetered	30	\$45,905	\$294,299	\$340,205
WTXH	Transformer, metered	200	\$658,020	\$10,187,284	\$10,845,304
WHVN	High voltage, unmetered	0	\$0	\$0	\$0
WHVH	High voltage, metered	20	\$42,662	\$2,024,439	\$2,067,101
Non Standard	Non standard customers	7			\$2,464,478
<b>Total</b>					<b>\$218,669,602</b>

## Schedule 17 Certification for Year-beginning Disclosures

Clause 2.9.1 of section 2.9

We, Peter Bird and

Hugh Fletcher, being directors of Vector Limited certify that, having made all reasonable enquiry, to the best of our knowledge -

- a) The following attached information of Vector Limited prepared for the purposes of clause 2.4.1, 2.6.1 and sub-clauses 2.6.3(4) and 2.6.5(3) of the Electricity Distribution Information Disclosure Determination 2012 in all material respects complies with that determination.
- b) The prospective financial or non-financial information included in the attached information has been measured on a basis consistent with regulatory requirements or recognised industry standards.

Peter Bird

Director

Hugh Fletcher

Director

13 March 2013

Date