



Nelson Electricity Limited
Pricing Methodology Disclosure
For the period beginning 1 April 2014

The following information is disclosed in accordance with the Electricity Distribution Information Disclosure Determination 2012 under Part 4 of the Commerce Act 1986.

**In accordance with the Commerce Act
Electricity Distribution Information Disclosure Determination 2012**

**SCHEDULE 17
Certification of Year-beginning Disclosures**

Clause 2.9.1 of section 2.9

We, Paul Donald LeGros and John McCliskie, being directors of Nelson Electricity Limited certify that, having made all reasonable inquiry, to the best of our knowledge-

- a) The following attached information of Nelson Electricity Limited, prepared for the purposes of clause 2.4.1, clause 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.

Signed 
Date 7 April 2014

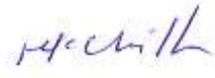
Signed 
Date 7 April 2014

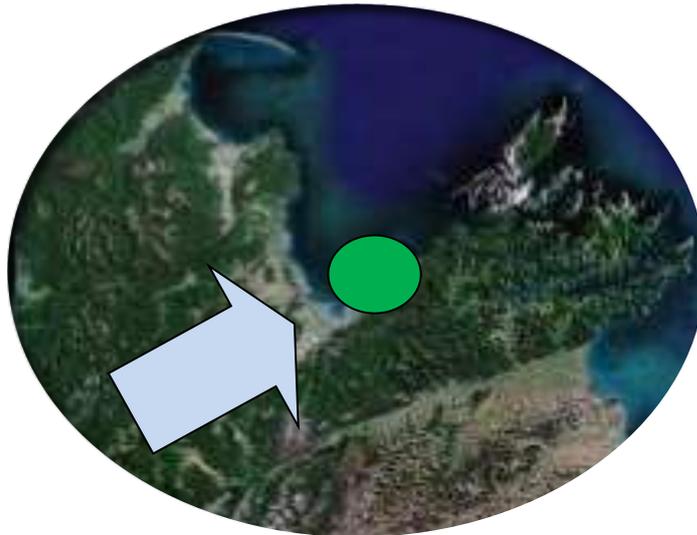
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1. Introduction

The Nelson Electricity network comprises approximately 9,100 connections in a concentrated area of 24 square kilometres in the central Nelson city area. The connections are largely CBD, industrial and dense urban. Nelson Electricity has a peak loading of 33.0MW, during winter months and distributes 148GWh annually through the network.

Nelson Electricity derives its transmission services via Transpower's Stoke substation which is 7km from Nelson Electricity's only zone substation at Haven Road.



Nelson Electricity is owned by Network Tasman and Marlborough Lines, each holding a 50% shareholding.

2. Regulatory Requirements

Nelson Electricity is a natural monopoly and is not directly exposed to the competitive forces that drive other markets to deliver improved efficiency and service. To this extent Nelson Electricity is classed as non-exempt from the control regime under the regulations for electricity network owners under the Commerce Act 1986. This means Nelson Electricity has to comply with the Default Price and Quality regime (DPP) managed by the Commerce Commission. Nelson Electricity also has to comply with the Electricity Distribution Information Disclosure Determination under Part 4 of the Commerce Act 1986 of which includes the disclosure of its Pricing Methodology.

Recent changes also require the pricing methodology to demonstrate how Nelson Electricity pricing is in line with the Electricity Authority Distribution Pricing Principles.

Nelson Electricity has taken all requirements into account in the preparation of this document.

2.1 Electricity Distribution Information Disclosure Determination

The key requirements in complying with the disclosure of pricing methodologies is outlined in 2.4.1 – 2.4.5 of the Electricity Distribution Information Disclosure Determination. The requirements outline the framework to demonstrate to the “Interested Person” how Nelson Electricity allocates costs to different Load Groups and the basis on how prices are set.

2.2 Electricity Authority Distribution Pricing Principles

The Commission’s final pricing principles are as follows:

Electricity Authority 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.

Nelson Electricity Commentary on Compliance with Electricity Authority Pricing Principles

Nelson Electricity has prepared this pricing methodology in accordance with, or as close as possible, to the Electricity Authority Pricing Principles. It has to be recognised that consumer behaviour as a response to network pricing is limited. The line charges are only 30% of the total electricity invoice they receive from electricity retailers so unless a network can significantly amplify or exaggerate the pricing differential levels then the consumer behaviour will be based on what the electricity retailer wants to achieve. In addition to that, in the setting of controllable tariffs, any incentives in these areas are often reduced further through the interface the customer has with their electricity retailer. Additional meter costs for measuring controllable loads are typically loaded onto the controllable tariff reducing the pricing incentive for the line charge option.

Prices are set attempting to minimise cross subsidisation and price discrimination between load groups. A key success has been in the mass market with the combining of business and residential tariffs, excluding those who qualify and have the opted to be on the low fixed charge option as per the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004. This has reduced published pricing options for the mass market consumers also simplifying the pricing for electricity retailers to apply to their customers.

Nelson Electricity's pricing takes into consideration the expenditure of over \$11 million for a new 33kV feeder and replacement of Nelson Electricity's only zone substation. This is a significant lump of additional expenditure being spent over the 2012/2013 and 2013/2014 years. Upon completion in early 2014, the pricing for the Nelson Electricity network will be reviewed again as there will be less reliance on ripple control for local network congestion peaks. In the short to medium term, ripple control will be utilised in managing peaks to reduce transmission related charges. Up until now Nelson Electricity balanced out the utilisation of ripple control with the management of local network peaks as well as working with the Upper South Island line companies to minimise transmission peaks. It is expected that line prices will remain around similar levels in real terms but there is a potential for transmission costs to lower if the targetted use of ripple control is effective.

Nelson Electricity does not have any other significant expenditure projects in the coming years that will materially affect line charges.

Nelson Electricity currently offers tariff options for larger consumers to be on Time of Use (above 150kVA is compulsory). This option is of benefit if those consumers can manage their load during peak winter demand times and also incentivises the reduction of fused capacity. The consumer can choose what level of supply they require and will be charged accordingly. Noting that the winter demand charges are set in the winter and applied for the following 12 months.

The Nelson Electricity pricing structure has remained stable for a number of years. The structure promotes stability and certainty. This does also minimise the transaction costs for retailers. The

pricing is transparent and all retailers have access to and are charged the same line charges for each different classification of consumer. Nelson Electricity has also taken into account retailer feedback into line charges. An example is the removal of a ripple control charge which was not part of the consumer's line charge and was charged on a per retailer basis. The charge was rolled into consumer line charges which assisted retailers in reducing transaction costs.

Overarching the network pricing is that Nelson Electricity take into account the requirements of its stakeholders. These are as follows:

Stakeholder	Interests
Electricity Customers and Retailers	Delivery of a safe, reliable, efficient and sustainable supply of electricity at minimum cost. Surveys across the board say that most consumers do not want to pay more for a more reliable network.
Government (Ministry of Innovation and Economic Development, Commerce Commission, Electricity Authority)	Legislate and control compliance of statutory requirements and economic efficiency.
Landowners	Landowners with Nelson Electricity assets on their property have interests in safety, easements and access requirements.
Property Developers	Property developers wish to ensure that connection policies and costs are fair and that network expansion plans are timely.
Shareholders	Achievement of an adequate return on investment and good corporate citizenship.
Territorial Local Authorities	Territorial authorities have interests in minimising environmental impacts, development of underground power systems, local economic development and in the control of assets in road reserves.
Transit NZ	Transit NZ are interested in controlling assets in road reserves.
Transpower	Nelson Electricity relies on the Transpower grid to deliver electricity through to the Nelson Electricity network and Transpower relies on the Nelson Electricity network to deliver the electricity to end use customers.

Stakeholder interests have been identified and accommodated in the pricing of Nelson Electricity line charges through the following processes -

- The Nelson Electricity Board of Directors agrees to an annual Statement of Corporate Intent which details corporate strategy with respect to pricing:
 - To operate as a successful business in the distribution of electricity and other related activities;
 - To have regard among other things the desirability of ensuring the efficient use of electricity;
 - To ensure that all services and responses to maintenance and fault requirements are provided with an appropriate standard of customer service;

- To maintain existing reliability and efficiency levels;
 - To adopt non-discriminatory pricing and network access policies for all users of the Nelson Electricity network;
 - To ensure that all resources, financial, physical, and human are utilised efficiently and economically;
 - To seek to provide an appropriate rate of return to shareholders not less than WACC and to seek to maximise the longer term value of shareholders' funds;
 - To provide for future development of the network through investigation and the acquisition of land and physical assets as is appropriate;
 - To ensure the company complies with all legislative requirements including health and safety legislation, and all industry initiatives in respect of safety in the workplace;
 - To be a good employer providing;
 - ✦ Remuneration consistent with performance,
 - ✦ A safe, satisfying and stimulating work environment,
 - ✦ Equal employment opportunities.
- Corporate organisational goals and objectives support the pricing methodology consistent with the corporate mission.
 - Regular surveys of residential, commercial and large user customers provide valuable feedback on pricing, security and reliability of supply which assists in network planning, and on the price-quality trade-off. The key outcome is the majority of consumers are happy with current quality and don't want to pay any more for improved quality.
 - Government and territorial authority legislation provides a key input into the way pricing is set.

Any conflicting stakeholder interests are managed by systems that ensure that appropriate levels of separation, accountability and authority are in place. Pricing decisions are ultimately made at Board level with appropriate supporting evidence and recommendations from the General Manager.

3. Distribution Network Characteristics

Nelson Electricity is supplying the following types of connections:

- Unmetered - 42 connections
- Domestic – 7,623
- Small/Medium businesses – 1,409
- Larger Businesses (Time of Use) – 95

The Nelson Electricity pricing combines the domestic and small/medium businesses (Load Group 2) for the purposes of pricing as the characteristics are similar. The imposition of the Low User Fixed Charge Option has forced Nelson Electricity to introduce the low fixed charge option for domestic consumers using less than 8,000kWh per year (Load Group 1), which does result in some cross subsidisation between the two groups.

The network is centred on the business district of Nelson City and also the Port area. It has a larger proportion of business connections compared to most other networks in New Zealand. As a result the network peaks are typically experienced in the morning instead of early evenings. The Nelson Electricity network peaks are highest during the colder winter mornings when business load

increases to start the day and domestic is dropping off after the breakfasts and showers. There is also a considerable level of electrical heating load as well.

The size of the network is small and, as such, there is no benefit in segmenting into different pricing areas. The prices are applied evenly across the whole network.

The Nelson Electricity network is surrounded by the Network Tasman network to the north and south. There is the ability for a very small number of consumers to bypass the Nelson Electricity network where the neighbouring electrical infrastructure is nearby. The cost to bypass, in almost all situations, is uneconomic given the cost to install network infrastructure versus the payback through any potential reduced line charges. Nelson Electricity would review any instance of potential uneconomic bypass and, if necessary, look at a non-standard pricing arrangement.

4. Discussion on the Existing Pricing Regime

The existing Nelson Electricity pricing has been developed and modified to cater to the changing dynamics of the Nelson Electricity network and to ensure there is a fair allocation of costs applied to consumers. Nelson Electricity sells capacity the ability for electricity retailers to supply consumers with electricity. The consumer limit is based on the fuses at the network connection point. The larger the fuses the greater the capacity available to the consumer at any time which potentially leads to higher capacity network infrastructure requirement to supply the network connection point.

4.1 Time of Use

The Time of Use pricing regime has not been changed since its introduction in the early 1990s. The line charges are split into five separate categories and priced accordingly so to ensure there is no cross subsidisation. The pricing is transparent and the prices should incentivise the consumer to alter behaviour to minimise its line charges.

For Time of Use consumers the pricing is centred on the connection capacity (size of fuses or transformer) and contribution to the network peak demand. The consumer has the ability to change both of these to reduce their overall line charges and also assist in making the Nelson Electricity network more efficient. Most of the efficiency gains have already been achieved in this group given the pricing has been in place for a long period of time.

The weighting of the pricing has been modified between the categories over time to cater to the changing pricing signals required for the load group to match changing costs.

4.2 Mass Market

All business and residential consumers (using more than 8,000kWh per year) have been grouped together to optimise the Nelson Electricity mass market pricing. There used to be a pricing differential between business and residential consumers and over time this differential has been reduced and was finally removed in 2009. It made it possible to link the two consumer groups together as it is also now extremely difficult to differentiate between the two groups where often there are businesses operating from home or bed and breakfasts as examples. The linking of the groups also reduced the number of published line charge tariffs and simplified the pricing being disclosed making it easier for retailers to administer Nelson Electricity prices and for consumers easier to understand.

Nelson Electricity also wanted to incentivise larger mass market consumers to optimise their electrical consumption and capacity. This was achieved by changing the daily fixed line charge which was a “one size fits all” to a charge based on actual fuse size. This means that the larger mass market consumers pay a fixed line charge based on their connected fuse size which is their ability to consume a higher electrical demand. They also have the ability to reduce their fuse size (free of charge) if they can change their load consumption behaviour. This line charge has proven successful with many consumers having their fuse sizes reduced which then provides for reserved network capacity to be utilised elsewhere.

4.3 Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004

One complication in this new capacity based fixed line charge is the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004 which has meant that domestic consumers using less than 8,000kWh must have access to a line charge tariff of, at most, 15 cents per day. To comply with this regulation and to minimise tariffs, Nelson Electricity has had to set all domestic consumers fuse capacity at 15kVA. Currently a domestic consumer with a larger fuse size is only paying the standard price of the typical 15kVA connection.

The compounding effect is that the average domestic consumer on the Nelson Electricity network currently uses approximately 7,150kWh per year (based on 2012 consumption analysis) compared to 7,400kWh per year in 2008. This is 11% lower than the deemed average consumer as determined under this Regulation. This exposes Nelson Electricity to more cross subsidisation as more consumers switch to this tariff.

Nelson Electricity is exploring options to remedy this issue to minimise the cross subsidisation that this Regulation has created as it undermines the ability to adapt charges for changes in the network utilisation characteristics.

5. Changes to the 1 April 2014 Pricing

The Nelson Electricity line charges will be changing at 1 April 2014. There is only one change with the introduction of a distributed generation charge of 0.5 cents per kWh for energy injected onto the network. This was introduced to begin to capture some of the incremental costs of these installations like safety audits at the network connection points. The site is checked to ensure the voltage is within the regulatory limits and that the site does not inject into network when street supply is lost.

In round terms, the local network revenue from line charges will remain around the same level while the transmission cost will increase by 20.4%. The balance of the split between fixed and variable between the local network and transmission has altered as is described in the Fixed v's Variable section of this document.

6. Derivation of Charges

The Derivation of Charges is described in the following sections.

- Customer Groups
- Customer Group Statistics

- Allocation and Recovery of Network and Transmission Charges
- Cost Recovery per Load Group
- Fixed v's Variable Charges

6.1 Consumer Groups or Load Groups

Nelson Electricity has split its consumers into five distinct consumer groups/load groups to assist in the fair allocation of costs and setting line charge levels. The groups are based on the type of connection which considers typical load patterns, fuse size and annual kWh consumption. The number of groups is set at five as a balance between minimising complexity and ensuring costs are appropriately apportioned to consumers. The groupings are relatively in line with other electricity networks in New Zealand.

- **Load Group 0**
Unmetered Load or Metered Builders Temporaries. This group, in broad terms, is for the smaller/lower fused connections (under 15kVA) either metered or unmetered that do not fall into the other groups as listed below. Most of the connections are either metered builders temporary supplies or small unmetered supplies to telephone boxes and streetlights. This group has smaller connections with differing load characteristics so a fair allocation of costs is difficult to demonstrate but the overall revenue of this group is only 0.05% of total revenue (excluding local council streetlights) so they are grouped together.
- **Load Group 1**
Domestic consumers Low User Option – connections that are a domestic home that exhibit a typical domestic load profile using less than 8,000kWh per year as defined by the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004. The connection size is set at 15kVA. The Nelson Electricity Limited Network Code allows for single phase 60 amp, two phase 40 amp or three phase 30 amp supply to be classed as a domestic. A domestic type load profile not on Low User Option is typically categorised as Load Group 2.
- **Load Group 2**
Domestic and Small Business consumers – connections that are 15kVA up to 150kVA. Domestic consumers not on Low User Option are also in this group. The domestic and small business consumers are grouped together as much as Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004 allow. Electricity network key costs are driven based on capacity (the ability for a consumer to take as much electricity up to the fused capacity at the Nelson Electricity network connection point). While there is a difference in load profiles from a typical business and a domestic connection it is proving more difficult as time goes on to differentiate between the two as many connections are a mixture of the two. To avoid complications in grouping allocations and number of tariffs, Load Group 2 joins the two consumer types together. By doing this it has removed any price discrimination that existed when business and residential were grouped separately.
- **Load Group 3**
Time of Use consumers with supply up to 2400kVA. This group is for any connection with a supply up to 2,400kVA that wants to be on a Time of Use tariff. Time of Use tariffs were first offered to consumers in the early 1990s and the early rationale for the consumer being in this group was if they used greater than 50,000kWh per year. The kWh requirement has since been removed and a mandatory requirement of connections with a capacity of greater than 150kVA to be Time of Use introduced. Those below that limit can opt to be on Load Group 2

or Load Group 3. This group is ideal for consumers that have the ability to manage their peak demand to minimise line charges as the line charge regime for this group more accurately reflects the consumer's fair allocation of costs.

- Load Group 4
Consumers with capacity supply of greater than 3,000kVA with supply from a dedicated 11kV/400V substation. This group is for the larger consumers on the network that also receive a supply from dedicated substations and 11kV infrastructure.

6.2 Consumer Group Statistics

Statistics are collected and analysed as per the customer groupings as described in the previous section. This information is used as a base to Nelson Electricity's pricing allocations as described further in this report. Information is as follows:

- Number of Connections per group.

Number of Connections	
Load Group	Connections
0	42
1	2,802
2	6,250
3	94
4	1
Total	9,189

- Anytime Peak per group.

Anytime Peak	
Load Group	Peak kVA
0	340
1	9,807
2	21,875
3	14,500
4	3,350
Total	49,872

- Winter Demand Peak per group.

Control Period Demand (Winter Demand)			
kVA			
Load Group	8:30 am - 11:30 am	5:00 pm - 6:00 pm	CPD Allocation
0	20	306	134
1	4,100	4,700	4,340
2	15,200	13,000	14,320
3	11,905	11,905	11,905
4	2,629	2,629	2,629
Total	33,834	32,234	33,328

NEL has a winter load that peaks between 8:30am - 11:30 am and 5:00 pm - 6:00 pm. The morning load is predominantly business load with the morning domestic load dropping off and the evening peak is typically influenced by the domestic load with the business load dropping off. The statistics required are to ensure the right pricing signals are sent to each group and that charges are as fair and equitable as possible to all connections. The Winter Demand assessment is a critical part to the allocation of transmission costs between groups. Winter Demand is also important when allocating costs for the local network through allocating costs based on load group contribution to peak demand and maximum loading on assets.

- GWh per group.

Load Group	GWh		
	Winter	Summer	Total
0	0.79	0.71	1.50
1	6.18	5.80	11.98
2	34.76	33.92	68.68
3	20.54	24.77	45.31
4	6.54	7.84	14.38
Total	68.80	73.04	141.84

These figures are estimated consumption per Load Group with no loss allocation back to GXP. Winter months are May – September; Summer months are October – April.

- Regulatory Value of System Fixed Assets as estimated at 31 March 2015 per group allocation

Asset Group	Regulatory Value of System Fixed Assets					
	0	1	2	3	4	Total
33kV Lines	\$46,580	\$602,400	\$2,711,130	\$1,961,500	\$541,537	\$5,863,147
Zone Sub	\$75,618	\$977,945	\$4,401,290	\$3,184,330	\$879,140	\$9,518,322
11kV Lines	\$57,205	\$739,821	\$3,329,600	\$2,408,963	\$665,074	\$7,200,663
11kV/400V Sub	\$45,018	\$657,165	\$2,822,364	\$1,895,756	\$261,693	\$5,666,629
400V Lines	\$83,817	\$1,314,776	\$7,616,167	\$1,688,051	\$0	\$10,550,317
Other	\$13,481	\$174,348	\$784,660	\$567,701	\$156,733	\$1,696,922
Total	\$321,719	\$4,466,455	\$21,665,210	\$11,706,300	\$2,504,178	\$40,496,000

Regulatory Asset Base Valuation allocation is assessed on each load group's utilisation of assets. As an example, Group 4 does not utilise any of the 400V lines so there is no value assigned. It has to be noted that the regulatory value is an estimate for the year end as there was a requirement to include the costs of the new Haven Road Zone Substation and new 33kV feeder, totaling \$11 million given the significance.

- Cost of Capital (After Tax)

WACC = $Rd(1-Tc)D/V + ReE/V$	8.21%
Rd	7.40% pre-tax cost of debt
Tc	28.00% corporate tax rate
Re	10.14% cost of equity
D	40.00% target debt:equity ratio
E	60.00% target debt:equity ratio
V	100.00% D + E

Cost of Equity = $R_f(1-T_i) + B_eMRP$	10.14%	
Rf	5.40%	rate of return on risk free asset
Ti	28.00%	investor tax rate
Be	0.83	equity beta
MRP	7.50%	market risk premium
Ba	0.50%	asset beta

The above methodology is based on advice from Marlborough Lines Ltd, a shareholder of Nelson Electricity Ltd.

On the basis of the above input parameters, the Nelson Electricity Weighted Average Cost of Capital (WACC) is 8.21% of Regulatory Asset Base = \$3,324k.

6.3 Allocation and Recovery of Network and Transmission Charges

Network charges are set to recover indirect operating costs, direct operating costs, depreciation and cost of capital. The setting of the charges also takes into account historical charging practices and methodologies.

The company annual revenue requirements for 2014 are:

Operating Costs (Network R&M)	\$800k
Transmission Costs	\$3,759k
Overhead Costs	\$2,218k
Depreciation	\$1,541k
Target Return	(before tax) \$2,457k

With Nelson Electricity being a small predominantly urban network there was no need to sectionalise it into separate pricing areas.

6.4 Cost Recovery per Load Group

Following is a table outlining the cost recoveries per load group.

Load Group	Operating	Transmission	Overhead	Depreciation	Target Return	Total
0	\$36,356	\$24,070	\$12,629	\$12,242	\$27,301	\$112,598
1	\$88,235	\$369,169	\$556,245	\$169,963	\$101,307	\$1,284,918
2	\$567,997.04	\$1,898,281	\$1,240,731	\$824,429	\$1,656,872	\$6,188,310
3	\$131,258.39	\$1,204,745	\$333,780	\$445,461	\$594,076	\$2,709,320
4	\$34,470.12	\$262,736	\$74,614	\$95,292	\$12,741	\$479,853
Total	\$800,000	\$3,759,000	\$2,218,000	\$1,541,000	\$2,457,000	\$10,775,000

The methodology used for the above cost apportionment is as follows:

- Operating Costs – operating costs is the Operational Expenditure Budget that covers both the planned and unplanned network R&M expenditure on the network. The Operational Expenditure Budget is split into the different asset types as per the Regulatory Asset Value of System Fixed Assets table groups. The asset group expenses are then allocated to each load group first based on whether the group utilises that class of asset (eg; Group 4 does not utilise

the 400V network so does not contribute towards those associated costs) then through the assessed balance of each groups kWh consumption (60%) and Winter Demand contribution (40%). This percentage allocation attempts to provide a balance between a group's peak demand utilisation and overall usage. Some re-balancing is required for load group specific costs, eg; Group 0 where actual Council streetlighting associated maintenance costs of \$30,000 are directly allocated to the associated tariff.

Group 1 example of how this is applied is as follows:

K%	-	kWh Consumption = 8.44% of total kWh
W%	-	Winter Demand = 13.02% of total demand
Total	-	Total Operating Cost
G1 Op	-	Group 1 Operating Cost
G1 Op	=	Total x ((60% x K%) + (40% x W%))
\$88,235	=	\$800,000 x ((60% x 8.44%) + (40% x 13.02%))

- **Transmission Costs** – transmission costs are an unavoidable cost. It covers the upstream costs from our sub-transmission connection point at STK0331. The major component in transmission costs is the Interconnection Charge - Regional Coincident Peak Demand (RCPD) of the top of the south. Transmission peaks are typically encountered during the winter period. Transmission costs are apportioned based on each groups influence. This is achieved through peak demand analysis of each group as is being applied through transmission pricing. Groups 0, 1 and 2 recover transmission costs 100% via the kWh charge and for Groups 3 and 4 via a mixture of winter control period demand charge (45%) and a kWh charge (55%).
- **Overhead Costs** – are apportioned by using two measures; the number of network connections and the maximum demand of the load group. This gives a balance of spreading overhead costs between the business of selling capacity and the number of consumers connected.
- **Depreciation** – this is apportioned by using the assessed depreciation using the Nelson Electricity Regulatory Asset Base model as a base and follows the same rationale as Operating Costs.
- **Target Return** - this is apportioned to load groups as per the Regulatory Asset Base % split per load group as per the rationale of the operating costs. It is, however, important to note that the Regulatory Asset Base valuation for assets installed prior to 2004 still undervalues the underground network value and so the target return takes this into account.

6.5 Fixed v's Variable Charges

The proportion of charges that are fixed and variable have been set based on the historical pricing methodologies. Nelson Electricity has maintained a pricing mix that has been consistent for over 10 years and, as the previous pricing methodology was working, there was no compelling reason to change to proportions.

The only major variation has been the provision of a low daily fixed charge option for domestic consumers as required under the Electricity (Low Fixed Charge Tariff Option for Domestic

Consumers) Regulations 2004. This introduces a cross subsidisation, which the pricing structures of previous years had been designed to remove.

Currently overall the proportions between fixed and variable line charges are 51% Fixed and 49% Variable. Groups 1 and 2 have a higher variable proportion while groups 3, 4, and 5 have a higher fixed proportion. Refer to the table below.

Fixed V's Variable	Fixed		Variable		Total
	%	\$	%	\$	\$
Group 0	99%	\$111,817	1%	\$786	\$112,603
Group 1	12%	\$153,410	88%	\$1,131,563	\$1,284,972
Group 2	46%	\$2,870,522	54%	\$3,318,051	\$6,188,573
Group 3	71%	\$1,926,137	29%	\$783,298	\$2,709,436
Group 4	100%	\$479,874	0%	\$0	\$479,874
Total	51%	\$5,541,759	49%	\$5,233,698	\$10,775,457

It has to be recognised that consumer behaviour as a response to network pricing is limited. The line charges are only 30% of the total electricity invoice consumers receive from electricity retailers so unless a network can significantly amplify or exaggerate the pricing differential levels then the consumer behaviour will be based on what the electricity retailer wants to achieve.

Nelson Electricity is in the business of selling electrical capacity to consumers and most of its costs as identified in section 6.4 are fixed. If the true proportion of fixed and variable costs were charged in the same proportions to all consumers, the fixed charge proportion of groups 0, 1 and 2 consumers would increase significantly with the variable charges reduced. The incremental cost of any consumer using more kWh's, while not increasing their peak demand, is extremely low compared to a consumer wanting more capacity which there is a cost associated with the increases in peak demand.

For further breakdown on the revenue influence of specific tariffs, refer to Section 12 Price / Quantity / Revenue Schedule.

- **Load Group 0 – Unmetered and Builders Temporary**

Builders Temporary (metered) - network costs are broken down into the following:

- Fixed Daily Charge;
- Variable kWh Charge.

For the average Builders Temporary, fixed charges recover approximately 60% of total network costs.

Unmetered Supply – network costs are fully fixed with no variable.

Load Group 0 charges are predominantly fixed given the low consumption not making metering worthwhile for retailers in most cases. The only metered load in Group 0 is for builder's temporary connections. This type of connection is in this group mainly for the fact the fuse size is low, the consumption is typically low, the load characteristics don't fit other load groups and the revenue impact is low.

- **Load Group 1 – Domestic Consumers (Low User)**

Network costs are broken down into the following:

- Fixed Daily Charge based on connection capacity of 15kVA;
- Variable kWh Charge - this charge value depends on whether the load is controlled by ripple control or uncontrolled. The controlled tariff rates are lower than the uncontrolled rate as Nelson Electricity can ensure they are turned off at peak times, reducing peak demand associated costs. The main peak time cost is the transmission, which ultimately accounts for 35% of the total line charge revenue. There are two controlled options:
 - a) Hot water – this is a key network control option to control supply to all hot water cylinders on the network. This can manage up to 10% of network load at peak demand times being approximately 3MW. Typically supply is only controlled during the winter peak demand times. Also used for other emergency load management purposes.
 - b) Night Rate - this is an option for consumers that can utilise electricity in off peak times between 11 pm and 7 am. Typically used for larger hot water cylinders and night storage heaters.

For the average Group 1 customer, fixed charges recover approximately 12% of total network costs.

This Group exists to comply with the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004. Any eligible domestic consumer can opt to be in this group. There are approximately 300 consumers per year shifting from Group 2 to Group 1. The average annual domestic consumption is also reducing and for Nelson Electricity it is approximately 7,200 kWh per year.

- **Load Group 2 – Connections from 15kVA – 150kVA (Non Time of Use)**

Network costs are broken down into the following:

- Fixed Daily Charge (based on fuse capacity (in kVA)).
- Variable kWh Charge. This charge value depends on whether the load is controlled by ripple control or uncontrolled. The controlled tariff rates are lower than the uncontrolled rate as Nelson Electricity can ensure they are turned off at peak times, reducing peak demand associated costs. The main peak time cost is the transmission, which ultimately accounts for 35% of the total line charge revenue. There are two controlled options:
 - a) Hot water – this is a key network control option to control supply to all hot water cylinders on the network. This can manage up to 10% of network load at peak demand times approximately 3MW. Typically supply is only controlled during the winter peak demand times. Also used for other emergency load management purposes.
 - b) Night Rate - this is an option for consumers that can utilise electricity in off peak times between 11 pm and 7 am, typically used for larger hot water cylinders and night storage heaters.

For the average Group 2 customer, fixed charges recover approximately 46% of total network costs. All domestic and business consumers are eligible from 15kVA up to 150kVA. It is

designed so that the larger the fuse at the network connection point then the higher the fixed charges. The variable charges remain unchanged.

This group has a tariff design to encourage consumers to manage their peak demand by providing an incentive to lower fused capacity. There is one current limitation with this design due to the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004. The Regulation ensures that for every tariff a domestic consumer can be eligible for, there must be a tariff they can shift to that meets the requirements of the regulations ie; fixed daily charge of no greater than 15 cents per day. To meet the Regulation Nelson Electricity would require a significant increase in tariff numbers by 40 (one set for each potential fuse size x 10). To comply with the requirements and remove the potential complexity the domestic consumers in Group 2 currently have their fused capacity set at 15kVA while non-domestic have capacity based on actual fuse size. Nelson Electricity will be seeking a dispensation from the Minister to only allow domestic consumers with 15kVA capacity to be on Group 1 this will then provide the opportunity to charge all consumers on Group 2 a capacity charge based on their actual fuse size.

- **Load Groups 3 – Time of Use Consumers**

These charges are designed for the larger installations on the network. These sites have Time of Use metering installed. Nelson Electricity can set network charges based on the individual sites configuration and usage pattern more accurately. Network costs are broken down into five categories.

- Installation Charge – This is a fixed per installation charge.
- Capacity Supply Charge – Based on the installations fuse size or transformer size.
- Winter Demand – This is the installations maximum half hour demand in the Winter Demand time zones as described earlier.
- kWh Charge – A variable charge based on the kWh consumption.
- Power factor charge for sites that have a pf < 0.95.

The overall proportion of fixed v's variable charges for Time of Use consumers varies greatly due to the differing types of consumers. This pricing methodology attempts to ensure every Time of Use consumer pays its fair share of line charges and is not subsidized by other Time of Use consumers. The average consumer will have approximately 71% charges as fixed charges.

- **Load Group 4 – Large Time of Use Site**

The line charges for this group are split into two areas fixed and power factor charge of < 0.95

There is no variable component to this group. A total annual charge is assessed based on the infrastructure on site and also a share of the upstream network (including transmission) and divided into the 12 months.

7. Future Changes

Nelson Electricity is mindful that in the coming years smart metering will be rolled out in the Nelson area. This means there will be an increased ability for consumers to react to differing pricing signals. Nelson Electricity has undertaken some work with regard to pricing structures and will be looking to implement these changes when appropriate. There will be the complication of an increase in the number of tariff options available to consumers. Through this process Nelson Electricity will work to minimise any potential additional cross subsidisation or price discrimination that may occur with the

two types of metering (half hour and non-half hour) with the consumer potentially being able to opt for one or other. The increased information available to Nelson Electricity will help in the future planning of the network and also the allocation of costs for line charges.

Nelson Electricity will also be looking to change the fixed charge for all Group 2 consumers and also confine the definition of a domestic consumer eligible for the Group 1 Low User Option to domestic consumers with a fuse size no greater than 15kVA. The existing fixed charge will be based on actual fuse size greater than or equal to 15kVA (currently all domestic connections are assessed at 15kVA). Currently all domestic consumers have fuse size assessed at 15kVA (for line charge purposes). Making this change removes the cross subsidisation or price discrimination of larger capacity domestic consumers with the smaller capacity consumers. It will ensure larger capacity connections contribute a higher level of line charges and also encourage them to modify their behavior and reduce their fuse size.

Any changes to the Nelson Electricity pricing structure will be discussed with all retailers as per the current Use of Systems Agreement well in advance of the change. Nelson Electricity has always welcomed any suggestions and has in the past modified line charge structures to accommodate retailer concern or suggestions. Nelson Electricity will also advise all consumers if there is a fundamental change to their line charge pricing. The potential fixed line charge change for Group 2 consumers will be advertised to those affected and promote their ability to down grade capacity to as low as 15kVA to minimise their fixed line charges. Any fuse downgrade would be undertaken at no charge to the consumer.

Consumption Trends

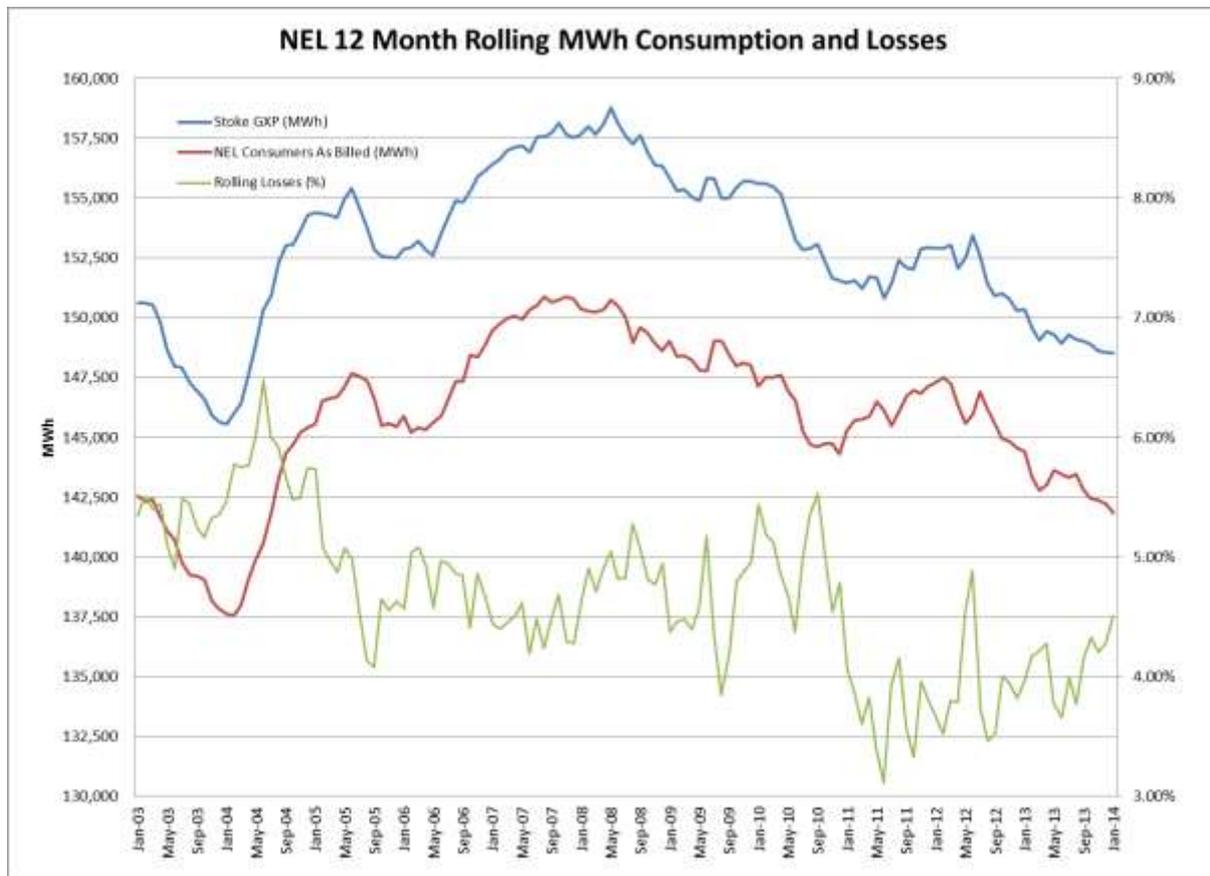
Overarching the future changes is that electricity consumption on the Nelson Electricity network has been declining since 2008. Analysis of all consumer groups gives some indications as to where the changes are taking effect. There is still a slow shift of residential consumers to the low user fixed charge option. Analysis of billing reports have shown that the average residential consumption on a per consumer basis has decreased 3.5% since 2008 to 7,135kWh per consumer. Other load groups are also showing a noticeable reduction in consumption. In total it is a reduction of 1.5GWh for the last 12 month period as assessed up to January 2014.

This reduction in consumption is real as the GXP consumption is reducing and network losses remain stable. It is, however, uncertain whether the decline will continue as there are a number of factors influencing the consumption trend. There is a revenue impact with reduction of consumption and this is complicated by the DPP regime with allowable revenues being based on growth forecasts which are differing from reality.

Some of this decrease in consumption in the consumer groups has been offset in part by the small increase of consumer numbers over the four year period but this is only approximately 0.5% growth in connections per year. This does not make up for the declining kWh consumption with the current line charge revenue balance.

Typically peak demand follows consumption trends. While consumption has been decreasing in recent years, peak demand has not dropped by a corresponding amount. Peak demand has remained around the 33MW level. While there is no real peak capacity growth, the trends are showing that electricity usage at peak times is still occurring, but not necessarily for the same duration.

Given that the costs associated with operating an electricity network are predominantly fixed and not linked to kWh consumption, to maintain a revenue neutral position for Nelson Electricity in principle (excluding any ability to change prices as part of the DPP) it is likely that these costs may be apportioned over less kWh. The impact on total line charges paid for the average consumer should be neutral as a result.



The uncertainty on the kWh consumption trends does influence the long term pricing for Nelson Electricity. To continue with the potential ongoing declining kWh consumption will undermine the ability to derive an appropriate return (based on current pricing mix) that meets the requirements for Nelson Electricity. It makes sense to protect the revenue to a degree by rebalancing over time the fixed v's variable charges in the mass market load groups loading more local network charges into the fixed charge. This may be seen as a departure from the Electricity Authority pricing principles but is considered necessary for Nelson Electricity to protect its ongoing revenue.

From 1 April 2014 a new 33kV feeder to Transpower and a new Zone Substation at Haven Road replacing the old substation on the same site will be commissioned and taking load on the network at a total cost of over \$11 million. The maximum available transmission / zone substation capacity with a security of supply level at n-1 will increase from 35MVA up to 48MVA. The new 33kV feeder was primarily to increase feeder capacity to the network from 35MVA to 50MVA and the zone substation rated at 48MVA replaced as the equipment was reaching the end of its economic life. Nelson Electricity will have excess capacity for the network for the foreseeable future as a result of these long term investments. The current pricing takes into consideration these investments.

8. Non Standard Contracts

Nelson Electricity will consider offering a non-standard contract to consumers if it can be demonstrated that there is a benefit to both parties to do so. The key consideration would be if the consumer is large enough, typically over 1,000kVA connected capacity, and can manage peak load for the benefit of minimising any peak demand times either transmission or network related.

The management of peak load could be through load shedding or utilisation of distributed generation.

Currently there is one non-standard contract in place and all other consumers are charged as per the pricing schedule attached to this document. The expected revenue to be received in the upcoming year is \$144k from the one non-standard contract.

In determining a non-standard contract line charge, Nelson Electricity would determine the potential reduction in costs associated with a consumer connection if they were able to manage their load in a particular way. An example is a consumer being able to manage load in the transmission upper South Island peak demand times with greater accuracy than the current time of use pricing allows. This may result in a lowering of transmission charges for Nelson Electricity which the consumer could benefit from.

Nelson Electricity will consider any application from a consumer for a non-standard if it can be demonstrated that there is a benefit for both parties to do so, whether it be due to load management, distributed generation or bypass potential.

9. Distributed Generation

Nelson Electricity allows the connection of distributed generation to its network. There are additional requirements for these connections to satisfy Nelson Electricity that these connections are safe. The requirements are posted on the Nelson Electricity Website www.nel.co.nz.

While these connections can inject electricity back into the Nelson Electricity network the timing of this if through solar is not at a time when Nelson Electricity would benefit and assist in reducing network costs. Nelson Electricity infrastructure is designed to meet the peak capacity of the network which is on the coldest winter mornings when there is high levels of cloud cover. The benefit of any solar distributed generation is negligible.

For this reason, Nelson Electricity does not offer any pricing benefit for distributed generation connections for either local line or transmission charges. Nelson Electricity is, however, looking to install a small solar installation to monitor the performance and statistically determine the effect solar has on the ability to avoid network or transmission costs. At the same time analysis of existing installations is being undertaken to ensure that any exported electricity is within the related voltage limits and of appropriate quality.

Nelson Electricity has been reviewing the costs associated with processing new distributed connections and auditing of the connections as there are additional costs associated with managing these connections to ensure they comply with appropriate standards. A new tariff has been created from 1 April 2014 for the exporting of kWh on to the network for Groups 1 and 2. Although the level of the charge is low 0.5 cents per kWh, this is designed to capture some of the safety auditing costs

of distributed generation sites. As an example the annual auditing costs is approximately \$15 per year and the 0.5 cents per year will only recover \$10 per year at 2,000kWh per site.

10. Independent Review on Pricing Methodology Compliance

Nelson Electricity will have an independent review undertaken on this Pricing Methodology during the year focussing on how the methodology complies with the Electricity Distribution Information Disclosure Determination and the Electricity Authority Distribution Pricing Principles.

As a result of this review this Pricing Methodology may be amended and re-disclosed part way through the 2014/2015 year.

11. Pricing Schedule

Nelson Electricity Line Prices

From 1 April 2014



Nelson Electricity Ltd is adjusting electricity line charges effective 1 April 2014.

The line charges cover the cost of local electricity distribution and national electricity transmission. Line charges form part of the total power bill you receive from your electricity retailer.

Nelson Electricity distributes electricity to connections in the central Nelson city including most of the Port, Port Hills, Vanguard/St Vincent Street, Hospital, Brook, Wood and CBD areas.

Price Option	Price Description	Consumer Numbers	Unit Charges	New Line Charges from 1 April 2014			Line Charges up to 31 March 2014		
				Local Line	National Line	Total Line	Local Line	National Line	Total Line
Load Group 0									
Builders Temporary (7kVA)									
0-BT	Builders Temp - Fixed	12	cents/day	65.00	0.00	65.00	60.00	0.00	60.00
0-BT	Builders Temp - Anytime		cents/kWh	6.39	3.11	9.50	6.20	2.46	8.66
Unmetered Connection (< 1kW)									
0-UM	Unmetered - Fixed	29	cents/day	6.50	0.00	6.50	6.00	0.00	6.00
0-UM	Maximum Demand		cents/kWh/day	56.87	53.13	110.00	60.00	42.00	102.00
Streetlighting									
0-SL	Streetlight	1	\$/day	229.82	65.18	295.00	221.59	51.53	273.12
Load Group 1									
Domestic Low User (15kVA)									
1-Fixed	Fixed	2133	cents/kVA/day	1.00	0.00	1.00	1.00	0.00	1.00
1-24hr	Anytime		cents/kWh	6.35	3.15	9.50	6.17	2.49	8.66
1-Water	Controlled (Hot Water)		cents/kWh	3.84	1.91	5.75	3.76	1.51	5.27
1-Night	Night Rate (11pm-7am)		cents/kWh	2.69	1.11	3.80	2.55	0.88	3.42
1-DG	Distributed Generation	(NEW CHARGE)	cents/kWh	0.50	0.00	0.50			
Load Group 2 (from 15kVA to 150kVA)									
Domestic and Business									
2-Fixed	Fixed	6850	cents/kVA/day	6.00	0.00	6.00	5.34	0.00	5.34
2-24hr	Anytime		cents/kWh	2.25	3.15	5.40	2.66	2.49	5.15
2-Water	Controlled (Hot Water)		cents/kWh	1.44	1.91	3.35	1.59	1.51	3.10
2-Night	Night Rate (11pm-7am)		cents/kWh	1.29	1.11	2.40	1.22	0.88	2.10
2-DG	Distributed Generation	(NEW CHARGE)	cents/kWh	0.50	0.00	0.50			
Load Group 3 LARGE BUSINESS (up to 2400kVA)									
TIME OF USE									
	Metered Installation	96	cents/day	120.00	0.00	120.00	110.00	0.00	110.00
	Winter Demand (kVA)		cents/kVA/day	12.23	10.77	23.00	12.74	8.51	21.25
	Energy		cents/kWh	0.26	1.54	1.80	0.48	1.22	1.70
	Capacity Supplied								
	T-03	16kVA – 42kVA	\$/day	2.10	0.00	2.10	2.02	0.00	2.02
	T-04	43kVA – 69kVA	\$/day	3.45	0.00	3.45	3.31	0.00	3.31
	T-05	70kVA – 110kVA	\$/day	5.50	0.00	5.50	5.28	0.00	5.28
	T-06	11kVA – 138kVA	\$/day	6.90	0.00	6.90	6.62	0.00	6.62
	T-07	139kVA – 218kVA	\$/day	10.90	0.00	10.90	10.46	0.00	10.46
	T-08	219kVA – 300kVA	\$/day	15.00	0.00	15.00	14.40	0.00	14.40
	T-09	301kVA – 500kVA	\$/day	25.00	0.00	25.00	24.00	0.00	24.00
	T-10	501kVA – 750kVA	\$/day	37.50	0.00	37.50	36.00	0.00	36.00
	T-11	751kVA – 1000kVA	\$/day	50.00	0.00	50.00	48.00	0.00	48.00
	T-12	1001kVA – 1500kVA	\$/day	75.00	0.00	75.00	72.00	0.00	72.00
	T-13	1501kVA – 2000kVA	\$/day	100.00	0.00	100.00	96.00	0.00	96.00
	T-15	2400kVA	\$/day	120.00	0.00	120.00	115.20	0.00	115.20
	Power Factor <0.95		\$/kVA/mth	6.50	0.00	6.50	6.00	0.00	6.00

All prices are GST exclusive. All pricing is available on our website www.nel.co.nz

Load Group 0 - Unmetered loads that meet Electricity Authority Unmetered Load Guidelines and Builders Temps. (Builders Temp > 7kVA use Load Group 2)

Load Group 1 - Domestic households with connection capacity of 15kVA using less than 8,000kWh per year (Low Fixed Tariff Option)

Load Group 2 - Available to all domestic and business connections with capacity from 15kVA to 150kVA.

Load Group 1 & 2 - All current domestic households have an assessed connection capacity of 15kVA.

Load Group 1 & 2 - Distributed Generation charge is for electricity exported into the Nelson Electricity network.

Load Group 3 - Available to any Time of Use connections up to 2400kVA

Any questions about the line charges, please email us at enquiry@nel.co.nz, or phone (03)546-0486.

12. Price / Quantity / Revenue Schedule

Revenue Table using 31 March 2015 Prices and Estimated 2014/2015 Quantities

Number of Days:		365								
Tariff or Fee	Number of ICPs at 31/03/2015	kWh at 31/3/2015	kVA at 31/3/2015	Distribution Charges			Notional Distribution Revenue		Total Revenue (\$) P ₂₀₁₅ Q ₂₀₁₅	
				Fixed		Variable (c/kWh)	Fixed	Variable		
				\$/day	c/kVA/day					Other
Group 0										
Streetlights	1	1,485,877		295.00			107,675		107,675	
Unmetered Fixed	30			0.06			710		710	
Unmetered Capacity			2.050		110.00		823		823	
Builders Temp	11			0.65			2,610		2,610	
BT-kWh		8,271				9.50	-	786	786	
							111,817	786	112,603	
							99%	1%		
Group 1										
Fixed	2802		42,030		1.00		153,410		153,410	
Anytime		9,032,391				9.50	-	858,077	858,077	
Controlled		4,494,585				5.75	-	258,439	258,439	
Nightrate		395,968				3.80	-	15,047	15,047	
							153,410	1,131,563	1,284,972	
							12%	88%		
Group 2										
Fixed	6250		131,074		6.00		2,870,522		2,870,522	
Anytime		53,547,161				5.40	-	2,891,547	2,891,547	
Controlled		11,784,307				3.35	-	394,774	394,774	
Nightrate		1,322,088				2.40	-	31,730	31,730	
							2,870,522	3,318,051	6,188,573	
							46%	54%		
Group 3										
Metered Installation Charge	94			1.20			41,172		41,172	
Energy		43,516,564				1.80	-	783,298	783,298	
Winter Demand			14,101		23.00		1,183,779		1,183,779	
Capacity Supply Group 3	3			2.10			2,299		2,299	
Capacity Supply Group 4	0			3.45			-		-	
Capacity Supply Group 5	8			5.50			16,060		16,060	
Capacity Supply Group 6	8			6.90			20,148		20,148	
Capacity Supply Group 7	36			10.90			143,226		143,226	
Capacity Supply Group 8	11			15.00			60,225		60,225	
Capacity Supply Group 9	13			25.00			118,625		118,625	
Capacity Supply Group 10	9			37.50			123,187		123,187	
Capacity Supply Group 11	3			50.00			54,750		54,750	
Capacity Supply Group 12	1			75.00			27,375		27,375	
Capacity Supply Group 13	1			100.00			36,500		36,500	
Capacity Supply Group 15	1			120.00			43,800		43,800	
Power Factor			705			78.00	54,990		54,990	
							1,926,137	783,298	2,709,435	
							71%	29%		
Group 4										
Fixed	1	15,500,000				473,243.62	473,244		473,244	
Power Factor			85			78.00	6,630		6,630	
							479,874	-	479,874	
							100%	0%		
Σ P₂₀₁₅ Q₂₀₁₅		141,087,212					5,541,759	5,233,698	10,775,457	
							51%	49%		