

Nelson Electricity Limited

Pricing Methodology Disclosure

For the period beginning 31 March 2010

The following information is disclosed in accordance with the Electricity Information Disclosure Requirements 2004 – Sections 22 and 23.

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 versus Variable Charges
- Price Path Threshold Implications
- Pricing Schedules

Consumer Groups or Load Groups

Consumer Groups are based on typical load patterns, fuse size and annual kWh consumption. Consumers are grouped into 7 categories.

- Load Group 0
Unmetered Load or Metered Builder Temporaries.
- Load Group 1
Domestic Consumers Low User Option – connections that are domestic homes and exhibit a typical domestic load profile using less than 8000kWh per year. The connection is typically 15kVA. The Nelson Electricity Limited (NEL) Network Code allows for single phase 60 amp, two phase 40 amp or three phase 30 amp supplies to be classed as domestic. A domestic type load profile not on Low User Option is typically categorized as Load Group 2.
- Load Group 2
Domestic and Small Business Consumers – connections that are 150kVA or less. Domestic consumers not on Low User Option are also in this group.
- Load Group 3
Time of Use Consumers with supply up to 2000kVA.
- Load Group 4
Time of Use Consumers with supply from 2001kVA to 3000kVA.
- Load Group 5
Consumers with capacity supply greater than 3000kVA with supply from a dedicated 11kV/400V substation.

NEL has combined groups 3 and 4 due to the numbers being low and that there is little difference between each consumer group.

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 NEL's pricing allocations as described further in this report. Information is as follows:

- Number of Connections per group.

Load Group	Connections
0	40
1	1,306
2	7,616
3 and 4	97
5	1
Total	9,061

- Anytime Peak per group.

Load Group	Peak kVA
0	320
1	1,928
2	25,523
3 and 4	13,600
5	3,250
Total	44,621

- Winter Demand Peak per group.

Load Group	8:30 am - 11:30 am	5:00 pm - 6:00 pm	CPD Allocation
0	5	305	65
1	1,280	1,310	1,286
2	16,812	15,971	16,644
3 and 4	13,610	13,338	13,556
5	2,629	2,629	2,629
Total	34,331	33,248	34,179

NEL has a winter load that peaks between 8:30 am - 11:30 am and 5:00 pm - 6:00 pm. The morning load is predominantly business load and the evening peak is typically influenced by the domestic. 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 is a critical part to the allocation of Transmission Costs between groups.

- GWh per group.

GWh			
Load Group	Winter	Summer	Total
0	0.864	0.872	1.736
1	3.140	2.583	5.723
2	41.372	40.098	81.470
3 and 4	19.864	25.922	45.786
5	6.986	9.658	16.644
Total	72.227	79.134	151,360

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.

- System Fixed Assets at ODV at 31 March 2006 per group allocation

ODRC						
Asset Group	0	1	2	3 and 4	5	Total
33kV Lines	\$9,475	\$53,456	\$726,489	\$495,399	\$132,429	\$1,417,248
Zone Sub	\$6,076	\$34,282	\$465,905	\$317,704	\$84,928	\$908,896
11kV Lines	\$43,331	\$244,465	\$3,322,361	\$2,090,222	\$279,377	\$5,979,757
11kV/400V Sub	\$36,650	\$206,770	\$2,810,068	\$1,767,919	\$236,298	\$5,057,705
400V Lines	\$61,643	\$347,778	\$4,726,418	\$2,759,982	\$0	\$7,895,821
Other	\$10,126	\$57,127	\$776,379	\$529,419	\$141,523	\$1,514,574
Total	\$167,301	\$943,878	\$12,827,620	\$7,960,645	\$874,556	\$22,774,000

ODV allocation is assessed on each load group's utilisation of assets. As an example, Group 5 does not utilise any of the 400V lines so there is no value assigned.

- Cost of Capital

WACC = $R_d(1-T_c)D/V + R_eE/V$		6.70%
Rd	6.50%	pre-tax cost of debt
Tc	30.00%	corporate tax rate
Re	8.46%	cost of equity
D	45.00%	target debt:equity ratio
E	55.00%	target debt:equity ratio
V	100.00%	D + E
Cost of Equity = $R_f(1-T_i) + B_eMRP$		8.46%
Rf	4.90%	rate of return on risk free asset
Ti	30.00%	investor tax rate
Be	0.67%	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 NEL Weighted Average Cost of Capital (WACC) is 6.70% of ODV = \$1,525,000.

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 2010 are:

Operating Costs (Network R&M)	\$602,000
Transmission Costs	\$2,260,000
Overhead Costs	\$1,552,000
Depreciation	\$1,493,000
Target Return	\$3,177,000

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

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	\$10,422	\$17,080	\$11,401	\$10,968	\$48,990	\$98,862
1	\$24,950	\$82,261	\$64,323	\$61,878	\$204,938	\$438,350
2	\$339,081	\$1,253,695	\$874,175	\$840,943	\$2,669,118	\$5,977,012
3, 4	\$204,429	\$710,539	\$542,501	\$521,878	\$202,169	\$2,181,516
5	\$23,118	\$197,000	\$59,599	\$57,333	\$51,950	\$389,000
Total	\$602,000	\$2,260,574	\$1,552,000	\$1,493,000	\$3,177,165	\$9,084,739

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

- Operating Costs – Operating costs are the Operational Expenditure Budget that covers both the planned and unplanned network repair and maintenance expenditure on the network. The Operational Expenditure Budget is split into the different asset types as per the ODRC groups. The asset group expenses are then allocated to each load group according to the ODRC proportions for each asset group.
- 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 (system peak based). Transmission peaks are typically encountered during mid winter during the weekday morning. Transmission costs are split between load groups based on their influence on these peaks.

NEL currently estimates the level of Loss Rental Rebate it expects to receive for the year and takes this into account when assessing total transmission charges for the year. If excessive Loss Rental Rebate is received through the year then NEL will assess the level of excess and pass on to electricity retailers on an annual kWh billed basis at the end of the NEL financial year.

- 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 NEL ODV model. The apportioning is as per the assessed ODV value change per load group between years 2006 and 2007.

- Target Return - This is apportioned to load groups as per the ODRC percentage split per load group. It is, however, important to note that the ODV valuation process still undervalues the underground network value and so the target return takes this into account.

Fixed versus Variable Charges

The proportion of charges that are fixed and variable have been set based on the historical pricing methodologies. NEL 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. This introduces a cross subsidization which the pricing structures of previous years had been designed to remove.

Currently, overall, the proportions between fixed and variable line charges are 50% Fixed and 50% Variable. Groups 1 and 2 have a higher variable proportion while groups 3, 4 and 5 have a higher fixed proportion.

NEL is in the business of selling capacity and most of its costs, as identified above, are fixed. If the true proportion of fixed and variable costs were charged in the same proportion to all consumers the fixed charge proportion of groups 1 and 2a consumers would increase significantly with the variable charges reduced.

- **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 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.

For the average Group 1 customer, fixed charges recover approximately 16% of total network costs.

- **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.

For the average Group 2 customer, fixed charges recover approximately 45% of total network costs. At 8,000kWh per year, 37% at 12,000kWh per year.

- **Load Groups 3, 4, 5 – Time of Use Consumers**

These charges are for the larger installations on the network. These sites have Time of Use metering installed. NEL can set network charges based on the individual sites configuration and usage pattern 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 versus 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 62% charges as fixed charges.

Price Path Threshold Implications

NEL has to set prices at least 60 days prior to them coming into effect to give electricity retailers time to implement changes. This is as per the terms of the Conveyance and Use of System Agreement between NEL and electricity retailers. This means that the new prices applicable from 1 April 2010 had to be set in January 2010.

NEL will breach the 31 March 2010 Price Path Threshold.

Following an in-depth assessment of the funding options of two significant capital projects to the value of \$8 million over the next two years, the company has resolved to provide an additional contribution by increasing line charges from 31 March 2010 by 7.5% and by also increasing debt levels within the company to a gearing level of 37%.

NEL is very mindful of the need to take a very responsible and reasoned approach to price increases, particularly in the current economic climate, and accordingly did not increase its charges last year. The capital expenditure for these two projects is essential to maintain supply thereby necessitating the increase in line charges.

The increase of line charges at 31 March 2010 will mean that NEL will have notional revenue in excess of the allowable revenue as at 31 March 2010 under the current price path threshold regime which will give the Commerce Commission the ability to declare control under Part 4A of the Commerce Act 1986 (as applied by the Commerce Amendment Act 2008).

Pricing Schedule

Nelson Electricity Line Prices

From 31 March 2010



Nelson Electricity Ltd is adjusting electricity line charges effective 31 March 2010.

The line charges cover the cost of local electricity distribution and national electricity transmission. Line charges form part of the total power bill you get 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 31 March 2010			Line Charges up to 30 March 2010		
				Local Line	National Line	Total Line	Local Line	National Line	Total Line
Load Group 1									
Domestic Low User (15kVA)		1307							
1-Fixed	Fixed		cents/kVA/day	1.000	0.000	1.000	1.000	0.000	1.000
1-24hr	Anytime		cents/k/wh	5.705	1.695	7.400	5.110	1.730	6.840
1-Water	Controlled (Hot Water)		cents/k/wh	3.458	1.042	4.500	3.057	1.063	4.120
1-Night	Night Rate (11pm-7am)		cents/k/wh	2.193	0.607	2.800	1.921	0.619	2.540
Load Group 2 (from 15kVA to 150kVA)									
Domestic and Business		7616							
2-Fixed	Fixed		cents/kVA/day	4.300	0.000	4.300	4.000	0.000	4.000
2-24hr	Anytime		cents/k/wh	2.975	1.695	4.670	2.610	1.730	4.340
2-Water	Controlled (Hot Water)		cents/k/wh	1.908	1.042	2.950	1.677	1.063	2.740
2-Night	Night Rate (11pm-7am)		cents/k/wh	1.483	0.607	2.090	1.321	0.619	1.940
Load Group 3 LARGE BUSINESS (up to 2000kVA)									
TIME OF USE		97							
	Metered Installation		cents/day	107.500	0.00	107.50	100.00	0.00	100.00
	Winter Demand (kVA)		cents/kVA/day	11.346	6.174	17.52	10.000	6.300	16.30
	Energy		cents/k/wh	0.718	0.882	1.600	0.590	0.9000	1.490
	Capacity Supplied								
	T-03	16kVA – 42kVA	\$/day	1.81	0.00	1.81	1.68	0.00	1.68
	T-04	43kVA – 69kVA	\$/day	2.97	0.00	2.97	2.76	0.00	2.76
	T-05	70kVA – 110kVA	\$/day	4.73	0.00	4.73	4.40	0.00	4.40
	T-06	111kVA – 138kVA	\$/day	5.93	0.00	5.93	5.52	0.00	5.52
	T-07	139kVA – 218kVA	\$/day	9.37	0.00	9.37	8.72	0.00	8.72
	T-08	219kVA – 300kVA	\$/day	12.90	0.00	12.90	12.00	0.00	12.00
	T-09	301kVA – 500kVA	\$/day	21.50	0.00	21.50	20.00	0.00	20.00
	T-10	501kVA – 750kVA	\$/day	32.25	0.00	32.25	30.00	0.00	30.00
	T-11	751kVA – 1000kVA	\$/day	43.00	0.00	43.00	40.00	0.00	40.00
	T-12	1001kVA – 1500kVA	\$/day	64.50	0.00	64.50	60.00	0.00	60.00
	T-13	1501kVA – 2000kVA	\$/day	86.00	0.00	86.00	80.00	0.00	80.00
	Power Factor <0.95		\$/kVAr/mth	5.38	0.00	5.38	5.00	0.00	5.00

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

Load Group 1 is for domestic households with connection capacity of 15kVA only (Low Fixed Tariff Option)

Load Group 2 is available to all connections with capacity from 15kVA to 150kVA.

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

Load Group 3 is available to any connections up to 2000kVA.

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