

Nelson Electricity Limited

Pricing Methodology Disclosure

For the period beginning 1 April 2009

The following information is disclosed in accordance with the Electricity Information Disclosure Requirements 2004 – Sections 22 & 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 v's 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 Builders Temporaries
- Load Group 1
Domestic consumers Low User Option- Connections that are a domestic home that exhibit a typical domestic load profile. The connection is typically 15kVA. The Nelson Electricity Limited (NEL) Network Code allows for single phase 60amp, two phase 40 amp or three phase 30amp supplies to be classed as a domestic. A domestic type load profile not on Low User Option are 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 supplied of greater than 3000kVA with supply from a dedicated 11kV/400V substations.

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	20
1	1,300
2	7,578
3 and 4	97
5	1
Total	9,011

- 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 = \$1,525k .

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 2009 are:

Operating Costs (Network R&M)	\$590k
Transmission Costs	\$2,305k
Overhead Costs	\$1,554k
Depreciation	\$1,284k
Target Return	\$2,610k

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	\$10,334	\$17,429	\$11,416	\$9,432	\$46,578	\$95,190
1	\$24,453	\$83,939	\$64,406	\$53,216	\$175,727	\$401,741
2	\$332,322	\$1,279,280	\$875,302	\$723,222	\$2,267,717	\$5,477,843
3,4	\$200,234	\$725,040	\$543,200	\$448,822	\$61,517	\$1,978,813
5	\$22,657	\$199,500	\$59,676	\$49,308	\$58,986	\$390,126
Total	\$590,000	\$2,305,188	\$1,554,000	\$1,284,000	\$2,610,525	\$8,343,714

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 repairs 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 Rebates it expects to receive for the year and takes this into account when assessing total transmission charges for the year. If excessive Loss Rental Rebates are 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 v's 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 ten 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 proportions 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 four 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 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 2009 had to be set in January 2009.

NEL will inadvertently breach the 31 March 2009 Price Path Threshold by an estimated \$431k. This is offset by \$122k under recover the previous year meaning that NEL must pass back an estimated \$308k back to consumers. NEL has factored this into the pricing 1 April 2009 by holding the notional revenue target at the same level as the current year and will pass on the excess revenue received to consumers over the next two years through lower line charges.

The table on the next page demonstrates the estimates used to arrive at the pricing and revenue position for the year ending 31 March 2009 and 31 March 2010.

	January 2009 Estimate
Assessed Revenue Position for 31 March 2009	31 March 2009 Threshold Compliance Estimate
Max Notional Rev 31 March 2008	\$5,321,067
CPI-X adjustment estimate	1.029
Max Notional Rev 31 March 2009	\$5,476,463
Estimated Pass Through Costs	
Estimated Transmission (Including LRR)	\$1,836,450
Loss Rental Rebate Monthly Estimate.(included in Estimated Transmission)	LRR @ \$14,000 / month (Dec,Jan,Feb & Mar)
Rates	\$18,827
Estimated Electricity Commission	\$36,751
Assessed Maximum Revenue at PMar09 x QMar03	\$7,368,491
NEL Pricing Estimated Notional Revenue	\$7,798,216

NEL will breach the 31 March 2009 Threshold by	\$429,725
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Target Maximum Revenue	\$7,490,711
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	January 2009 Estimate
Assessed Revenue Position for 31 March 2010	31 March 2010 Threshold Compliance Estimate
Max Notional Rev 31 March 2009	\$5,476,463
CPI-X adjustment estimate	1.006
Max Notional Rev 31 March 2010	\$5,508,446
Estimated Pass Through Costs	
Estimated Transmission (Including LRR)	\$2,310,500
Loss Rental Rebate Monthly Estimate.	LRR @ \$14,000 / month
Estimated Rates	\$19,768
Estimated Electricity Commission	\$37,200
Assessed Maximum Revenue at PMar10 x QMar03	\$7,875,913
NEL Pricing Estimated Notional Revenue	\$7,722,030

NEL will not breach the 31 March 2010 Threshold by	\$153,883
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The table on the next page demonstrates the assessed maximum notional revenue as at 31 March 2010 based on the 1 April 2009 prices and 2003 quantities will be \$7,722k (\$154k below the assessed maximum allowable revenue). This equates to \$8,344k using 1 April prices and estimated 2009/2010 quantities.

Price Path Revenue Table using 1 April 2009 Prices and 2003 Quantities

Price as at the Assessment Date 31 March 2009

Tariff or Fee	Description	Number of ICPs at 31/03/03	kWh at 31/3/03	kVA at 31/3/03	Other Qty at 31/3/03	Distribution Charges			Other Fees/Charges Non Conveyance (Multiply by)	Notional Distribution Revenue (\$)		Notional Other Revenue (\$)	Total Revenue (\$) $P_{i,2009} Q_{i,0}$
						Fixed		Variable (c/kWh)		Fixed	Variable		
						\$/day	c/kVA/day						
Group 0													
Streetlights		1				220.13				80,348		-	80,348
Unmetered Supply		9				0.44				1,445		-	1,445
Builders Temp		14				0.48				2,473		-	2,473
Group 1													
RE1		1404		21060			1			76,869		-	76,869
RE2			2,962,713					6.84		-	202,650	-	202,650
RE3			1,717,887					4.12		-	70,777	-	70,777
RE4			185,985					2.54		-	4,724	-	4,724
Group 2													
Fixed		7001		143240.46			4			2,091,311		-	2,091,311
Anytime			53,355,255					4.34		-	2,315,618	-	2,315,618
Controlled			18,312,338					2.74		-	501,758	-	501,758
Nightrate			3,077,595					1.94		-	59,705	-	59,705
Time of Use													
Metered Installation Charge		100				1.00				36,500		-	36,500
Energy			44,194,288					1.49		-	658,495	-	658,495
Winter Demand kW				5205			17.1268			325,380		-	325,380
Winter Demand kVA				6923			16.2679			411,074		-	411,074
Capacity Supply Group 3				210			4	675		3,066		-	3,066
Capacity Supply Group 4				207			4	1,109		3,022		-	3,022
Capacity Supply Group 5				990			4	1,768		14,454		-	14,454
Capacity Supply Group 6				1518			4	2,219		22,163		-	22,163
Capacity Supply Group 7				8284			4	3,505		120,946		-	120,946
Capacity Supply Group 8				3600			4	4,823		52,560		-	52,560
Capacity Supply Group 9				5500			4	8,038		80,300		-	80,300
Capacity Supply Group 10				5250			4	12,057		76,650		-	76,650
Capacity Supply Group 11				3000			4	16,077		43,800		-	43,800
Capacity Supply Group 12				1500			4	24,115		21,900		-	21,900
Power Factor				784			60			47,057		-	47,057
TOU Sealord													
Fixed		1			1			202,307		202,307		-	202,307
Winter Demand				2629				18.1616		174,276		-	174,276
Energy			16,795,107					0		-	-	-	-
Power Factor				340.16667			60			20,410		-	20,410
$\Sigma P_{i,2009} Q_{i,0}$			140,601,168									-	7,722,039
Total Other Charges										-			

Pricing Schedule

Nelson Electricity Line Prices

From 1 April 2009



Nelson Electricity Ltd is adjusting electricity line charges effective 1 April 2009.

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 1 April 2009			Line Charges up to 31 March 2009		
				Local Line	National Line	Total Line	Local Line	National Line	Total Line
Load Group 1									
Domestic Low User (15kVA)		1300							
1-Fixed	Fixed		cents/kVA/day	1.000	0.000	1.000	1.000	0.000	1.000
1-24hr	Anytime		cents/kWh	5.110	1.730	6.840	5.480	1.780	7.260
1-Water	Controlled (Hot Water)		cents/kWh	3.057	1.063	4.120	3.247	1.113	4.360
1-Night	Night Rate (11pm-7am)		cents/kWh	1.921	0.619	2.540	2.041	0.669	2.710
Load Group 2 (from 15kVA to 150kVA)									
Domestic and Business		7578							
2-Fixed	Fixed		cents/kVA/day	4.000	0.000	4.000	4.200	0.000	4.100
2-24hr	Anytime		cents/kWh	2.610	1.730	4.340	2.780	1.780	4.560
2-Water	Controlled (Hot Water)		cents/kWh	1.677	1.063	2.740	1.847	1.113	2.960
2-Night	Night Rate (11pm-7am)		cents/kWh	1.321	0.619	1.940	1.441	0.669	2.110
Load Group 3 LARGE BUSINESS (up to 2000kVA)									
TIME OF USE		97							
	Metered Installation		cents/day	100.00	0.00	100.00	13150	0.00	13150
	Winter Demand (kVA)		cents/kVA/day	10.000	6.300	16.30	9.970	6.300	16.27
	Energy		cents/kWh	0.590	0.9000	1.490	0.704	0.946	1.650
Capacity Supplied									
	T-03	16kVA - 42kVA	\$/day	1.68	0.00	1.68	1.95	0.00	1.85
	T-04	43kVA - 69kVA	\$/day	2.76	0.00	2.76	3.04	0.00	3.04
	T-05	70kVA - 110kVA	\$/day	4.40	0.00	4.40	4.84	0.00	4.84
	T-06	111kVA - 138kVA	\$/day	5.52	0.00	5.52	6.07	0.00	6.07
	T-07	139kVA - 218kVA	\$/day	8.72	0.00	8.72	9.59	0.00	9.59
	T-08	219kVA - 300kVA	\$/day	12.00	0.00	12.00	13.20	0.00	13.20
	T-09	301kVA - 500kVA	\$/day	20.00	0.00	20.00	22.00	0.00	22.00
	T-10	501kVA - 750kVA	\$/day	30.00	0.00	30.00	33.00	0.00	33.00
	T-11	751kVA - 1000kVA	\$/day	40.00	0.00	40.00	44.00	0.00	44.00
	T-12	1001kVA - 1500kVA	\$/day	60.00	0.00	60.00	66.00	0.00	66.00
	T-13	1501kVA - 2000kVA	\$/day	80.00	0.00	80.00	88.00	0.00	88.00
	Power Factor <0.95		\$/kVA/mth	5.00	0.00	5.00	5.00	0.00	5.000

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. The 31 March 2009 comparison is based on 15kVA connection.

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.