

Nelson Electricity Ltd



Pricing Methodology Disclosure 2008

Nelson Electricity Limited

Pricing Methodology Disclosure

For the period beginning 1 April 2008

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 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 seven categories.

- Load Group 1
Domestic consumers – Connections that are a domestic home that exhibit a typical domestic load profile. The connection is typically 15kVA or less. 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 with a connection above the fuse sizes mentioned are categorized as Load Group 2a.
- Load Group 2a
Small business consumers – Connections that are 150kVA or less and use less than 100,000kWh per year. Domestic consumers greater than 15kVA are also in this group.
- Load Group 2b
Consumers with capacity supplied of greater than 150kVA or annual consumption of greater than 100,000kWh with supply from the 400V network.
- Load Group 3
Consumers with capacity supplied of greater than 150kVA or annual consumption of greater than 100,000kWh with dedicated 400V supply from a 11kV/400V substation.
- Load Group 4
Consumers with capacity supplied of greater than 150kVA or annual consumption of greater than 100,000kWh with supply from a dedicated 11kV/400V substation.
- Load Group 5
Consumers with capacity supplied of greater than 1500kVA with supply from a dedicated 11kV/400V substations.
- Load Group 6
Consumers with capacity supplied of greater than 3000kVA with supply from a dedicated 11kV/400V substations.

NEL has combined groups 2a, 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
1	7,460
2a	1,455
2b, 3 and 4	94
5	1
6	1
Total	9,011

- Anytime Peak per group.

Load Group	Peak kVA
1	19,137
2a	8,705
2b, 3 and 4	12,083
5	1,710
6	3,737
Total	45,372

- Winter Demand Peak per group.

Load Group	8:30 am - 11:30 am	5:00 pm - 6:00 pm	CPD Allocation
1	12,152	13,367	11,638
2a	6,819	6,478	5,835
2b, 3 and 4	10,589	9,530	12,460
5	1,357	1,330	1,161
6	3,737	3,000	2,629
Total	34,654	33,705	33,723

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
1	29,239	28,064	57,304
2a	16,407	14,362	30,768
2b, 3 and 4	23,163	18,246	41,409
5	3,471	2,550	6,020
6	10,088	7,751	17,839
Total	82,367	70,973	153,339

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	1	2a	2b, 3 and 4	5	6	Total
33kV Lines	\$435,049	\$274,901	\$402,222	\$48,707	\$101,789	\$1,262,667
Zone Sub	\$279,001	\$176,297	\$257,949	\$31,236	\$65,278	\$809,761
11kV Lines	\$2,208,516	\$1,319,706	\$1,377,432	\$205,507	\$216,373	\$5,327,534
11kV/400V Sub	\$1,867,973	\$1,116,214	\$1,165,038	\$173,819	\$183,009	\$4,506,052
400V Lines	\$5,064,919	\$1,195,884	\$773,807	\$0	\$0	\$7,034,610
Other	\$559,381	\$334,260	\$348,881	\$52,052	\$54,804	\$1,349,377
Total	\$10,414,838	\$4,417,261	\$4,325,329	\$511,320	\$621,252	\$20,290,000

ODV allocation is assessed on each load group's utilisation of assets. As an example, Groups 5 and 6 do not utilise any of the 400V lines so there is no value assigned to those groups.

- Cost of Capital

WACC = $R_d(1-T_c)D/V + R_eE/V$		8.48%
Rd	8.30%	pre-tax cost of debt
Tc	33.00%	corporate tax rate
Re	10.43%	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 = $R_f(1-T_i) + B_eMRP$		10.43%
Rf	7.50%	rate of return on risk free asset
Ti	28.00%	investor tax rate
Be	0.67 %	equity beta
MRP	7.50%	market risk premium
Ba	0.50 %	asset beta

The above parameters are 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 8.48% of ODV = \$1,721k

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 2007 are:

Operating Costs (Network R&M)	\$580k
Transmission Costs	\$1,837k
Overhead Costs	\$1,453k
Depreciation	\$1,045k
Target Return	\$2,448k

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 (\$000,s).

Load Group	Operating	Transmission	Overhead	Depreciation	Target Return	Total
1	\$297	\$863	\$774	\$669	\$1,286	\$3,889
2a	\$126	\$536	\$286	\$284	\$546	\$1,778
2b,3,4	\$123	\$648	\$332	\$278	\$534	\$1,916
5	\$15	\$87	\$47	\$33	\$63	\$244
6	\$18	\$170	\$89	\$40	\$77	\$394
Total	\$578	\$2,305	\$1,529	\$1,303	\$2,506	\$8,221

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 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 % 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 2a have a higher variable proportion while groups 2b, 3, 4, 5 and 6 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 1 – Domestic Consumers**

Network costs are broken down into the following:

- Fixed Daily Charge
- 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 48% of total network costs.

- **Load Group 2a – Small Business Consumers**

Network costs are broken down into the following:

- Fixed Daily Charge.
- Variable kWh Charge. This charge value depends on whether the load is controlled by ripple control or uncontrolled.

For the average Group 2a customer, fixed charges recover approximately 29% of total network costs.

- **Load Groups 2b, 3, 4, 5, 6 – 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 2008 had to be set in January 2008.

NEL has not breached the 31 March 2009 Price Path Threshold and has now also passed on to consumers the full value of the 31 March 2006 Breach of \$182,150. The \$24,690, of which was outstanding, needed to be passed back to consumers in the year ending 31 March 2008.

The maximum notional revenue target has been increased above the Allowable Notional Revenue Target this will ensure NEL will at 31 March 2009 be in a revenue neutral position and be in line with the overs and unders caused by estimates used in the Price Path Threshold process.

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.

NEL Threshold Compliance Assessment

	January 2008 Estimate
Assessed Revenue Position for 31 March 2008	31 March 2008 Threshold Compliance Estimate
Max Notional Rev 31 March 2007	\$5,250,033
CPI-X adjustment estimate	1.10%
Max Notional Rev 31 March 2008	\$5,307,783
Estimated Pass Through Costs	
Estimated Transmission (Including LRR)	\$1,907,181
Loss Rental Rebate Monthly Estimate.	LRR @ \$12,000 / month
Estimated Rates	\$15,224
Estimated Electricity Commission	\$16,449
Assessed Maximum Revenue at PMar08 x QMar03	\$7,246,638
Less 31 March 2006 Breach	\$24,690
NEL Assessed Maximum Target Revenue at PMar08 x QMar03	\$7,221,948
NEL Pricing Estimated Notional Revenue	\$7,121,245
NEL will under recover to offset the March 2006 breach by	\$100,702
NEL will not breach the 31 March 2008 Threshold by	\$125,392

	January 2008 Estimate
Assessed Revenue Position for 31 March 2009	31 March 2009 Threshold Compliance Estimate
Max Notional Rev 31 March 2008	\$5,307,783
CPI-X adjustment estimate	2.00%
Max Notional Rev 31 March 2009	\$5,413,939
Estimated Pass Through Costs	
Estimated Transmission (Including LRR)	\$2,306,588
Loss Rental Rebate Monthly Estimate.	LRR @ \$12,000 / month
Estimated Rates	\$15,986
Estimated Electricity Commission	\$17,271
Assessed Maximum Revenue at PMar09 x QMar03	\$7,753,784
NEL Pricing Estimated Notional Revenue	\$7,845,243
NEL will breach the 31 March 2009 Threshold by	\$91,459
Target Maximum Revenue	\$7,854,486

The table on the next page demonstrates the assessed maximum notional revenue as at 31 March 2009 based on the 1 April 2008 prices and 2003 quantities will be \$7,854k (\$91k above the assessed maximum allowable revenue). This equates to total revenue of \$8,221k using 2007/2008 estimated quantities.

Price Path Revenue Table using 1 April 2008 Prices and 2003 Quantities
Price as at the Assessment Date 31 March 2009

Number of Days:		365												
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 quantities as appropriate)	Notional Distribution Revenue (\$)		Notional Other Revenue (\$)	Total Revenue (\$) P_{1,2006} Q_{1,0}
						Fixed			Variable (c/kWh)		Fixed	Variable		
						\$/day	c/kVA/day	Other						
Unmetered														
	Streetlights	1									200.12			73,044
	Unmetered Supply	9									0.40			1,314
	Builders Temp	14									0.44			2,248
Residential Standard														
	RS1	6994									0.63			1,608,270
	RS2		31,196,138								4.56		1,422,544	1,422,544
	RS3		18,613,715								2.96		550,966	550,966
	RS4		2,554,965								2.11		53,910	53,910
Residential Economy														
	RE1	120									0.15			6,570
	RE2		685,741								7.26		49,785	49,785
	RE3		432,395								4.36		18,852	18,852
	RE4		68,374								2.71		1,853	1,853
Business Standard														
	BS1	1180									1.00			430,700
	BS2		23,487,663								4.56		1,071,037	1,071,037
Business Economy														
	BE1	111									0.63			25,524
	BE2		488,645								6.26		30,589	30,589
Business Night Saver														
	BN1										1.00			-
	BN2		459,781								4.96		22,805	22,805
	BN4										2.11		-	-
Business Controlled														
	BC3		767,729								2.96		22,725	22,725
	BC4		216,386								3.21		6,946	6,946
	BC9		640,241								2.11		13,509	13,509
Time of Use														
	Metered Installation Charge	100									1.31			47,993
	Energy		44,194,288								1.7485083		772,741	772,741
	Winter Demand kW			5205							17.1268		325,380	325,380
	Winter Demand kVA			6923							16.2679		411,074	411,074
	Capacity Supply Group 3				5						614		3,069	3,069
	Capacity Supply Group 4				3						1,008		3,025	3,025
	Capacity Supply Group 5				9						1,608		14,469	14,469
	Capacity Supply Group 6				11						2,017		22,186	22,186
	Capacity Supply Group 7				38						3,186		121,071	121,071
	Capacity Supply Group 8				12						4,385		52,614	52,614
	Capacity Supply Group 9				11						7,308		80,383	80,383
	Capacity Supply Group 10				7						10,961		76,729	76,729
	Capacity Supply Group 11				3						14,615		43,845	43,845
	Capacity Supply Group 12				1						21,923		21,923	21,923
TOU Sealord														
	Fixed	1			1						104,000			104,000
	Winter Demand			2629							20.1000		192,877	192,877
	Energy		16,795,107								0.88		147,797	147,797
Σ P_{1,2006} Q_{1,0}														7,854,366

Pricing Schedule

Price Option	Price Description	Consumer Numbers	Unit Charges	New Line Charges from 1 April 2008			Line Charges up to 31 March 2008		
				Local Line	National Line	Total Line	Local Line	National Line	Total Line
RESIDENTIAL (household connections only)									
STANDARD									
		6290							
RS1	Fixed		cents/day	63.000	0.000	63.000	63.000	0.000	63.000
RS2	General Purpose		cents/k/wh	2.780	1.780	4.560	2.475	1.485	3.960
RS3	Controlled (Hot Water)		cents/k/wh	1.847	1.113	2.960	1.542	0.818	2.360
RS4	Night Rate (11pm-7am)		cents/k/wh	1.441	0.669	2.110	1.136	0.374	1.510
ECONOMY									
		1100							
RE1	Fixed		cents/day	15.000	0.000	15.000	15.000	0.000	15.000
RE2	General Purpose		cents/k/wh	5.480	1.780	7.260	5.175	1.485	6.660
RE3	Controlled (Hot Water)		cents/k/wh	3.247	1.113	4.360	2.942	0.818	3.760
RE4	Night Rate (11pm-7am)		cents/k/wh	2.041	0.669	2.710	1.736	0.374	2.110
BUSINESS (connections up to 150kVA or use less than 100,000 units (kWh) per year)									
STANDARD									
		1210							
BS1	Fixed		cents/day	100.000	0.000	100.000	100.000	0.000	100.000
BS2	General Purpose		cents/k/wh	2.780	1.780	4.560	2.475	1.485	3.960
ECONOMY									
		110							
BE1	Fixed		cents/day	63.000	0.000	63.000	63.000	0.000	63.000
BE2	General Purpose		cents/k/wh	4.480	1.780	6.260	4.175	1.485	5.660
NIGHT SAVER									
		20							
BN1	Fixed		cents/day	100.000	0.000	100.000	100.000	0.000	100.000
BN2	Day (7am-11pm)		cents/k/wh	3.180	1.780	4.960	2.875	1.485	4.360
BN4	Night (11pm-7am)		cents/k/wh	1.441	0.669	2.110	1.136	0.374	1.510
BUSINESS CONTROLLED OPTIONS									
BC3	Controlled (Hot Water)		cents/k/wh	1.847	1.113	2.960	1.542	0.818	2.360
BC4	Priority (Hot Water)		cents/k/wh	2.097	1.113	3.210	1.792	0.818	2.610
BC9	Night Rate (11pm-7am)		cents/k/wh	1.441	0.669	2.110	1.136	0.374	1.510
<i>Business Controlled Options can only be used in conjunction with Business Standard or Business Economy</i>									
LARGE BUSINESS (connections greater than 150kVA or annual kWh greater than 100,000 kWh)									
TIME OF USE									
		100							
	Metered Installation		\$/year	479.93	0.00	479.93	479.93	0.00	479.93
	Winter Demand (kVA)		\$/kVA/year	36.38	23.00	59.38	33.98	20.00	53.98
	Energy		cents/k/wh	0.704	0.946	1.650	0.899	0.651	1.550
	Power Factor <0.95		\$/kVA/rmth	5.00	0.00	5.00			
Capacity Supplied Options									
T-03kVA	16kVA - 42kVA		\$/year	675.21	0.00	675.21	613.83	0.00	613.83
T-04kVA	43kVA - 69kVA		\$/year	1,109.27	0.00	1,109.27	1,008.43	0.00	1,008.43
T-05kVA	70kVA - 110kVA		\$/year	1,768.42	0.00	1,768.42	1,607.65	0.00	1,607.65
T-06kVA	111kVA - 138kVA		\$/year	2,218.56	0.00	2,218.56	2,016.87	0.00	2,016.87
T-07kVA	139kVA - 218kVA		\$/year	3,504.68	0.00	3,504.68	3,186.07	0.00	3,186.07
T-08kVA	219kVA - 300kVA		\$/year	4,822.95	0.00	4,822.95	4,384.50	0.00	4,384.50
T-09kVA	301kVA - 500kVA		\$/year	8,038.25	0.00	8,038.25	7,307.50	0.00	7,307.50
T-10kVA	501kVA - 750kVA		\$/year	12,057.38	0.00	12,057.38	10,961.25	0.00	10,961.25
T-11kVA	751kVA - 1000kVA		\$/year	16,076.50	0.00	16,076.50	14,615.00	0.00	14,615.00
T-12kVA	1001kVA - 1500kVA		\$/year	24,114.75	0.00	24,114.75	21,922.50	0.00	21,922.50
T-13kVA	1501kVA - 2000kVA		\$/year	32,153.00	0.00	32,153.00	29,230.00	0.00	29,230.00
All prices are GST exclusive. All pricing is available on our website www.nel.co.nz									