

Nelson Electricity Ltd



Pricing Methodology Disclosure 2007

Nelson Electricity Limited

Pricing Methodology Disclosure

For the period beginning 1 April 2007

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 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	7,390
2a	1,448
2b, 3 and 4	88
5	1
6	1
Total	8,928

- Anytime Peak per group.

Load Group	Peak kVA
1	18,948
2a	8,619
2b, 3 and 4	11,963
5	1,693
6	3,250
Total	44,472

- Winter Demand Peak per group.

Load Group	8:30 am - 11:30 am	5:00 pm - 6:00 pm	CPD Allocation
1	10,184	16,330	11,407
2a	7,787	4,899	7,208
2b, 3 and 4	11,185	7,999	10,546
5	1,523	1,002	1,419
6	2,629	2,629	2,629
Total	33,308	32,858	33,210

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	29.737	26.879	56.616
2a	14.108	16.410	30.518
2b, 3 and 4	17.620	21.932	39.552
5	2.471	3.331	5.803
6	7.940	9.553	17.493
Total	71.876	78.105	149.981

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	\$298	\$691	\$736	\$536	\$1,256	\$3,517
2a	\$126	\$441	\$272	\$228	\$533	\$1,601
2b,3,4	\$124	\$492	\$316	\$223	\$522	\$1,676
5	\$15	\$65	\$44	\$26	\$62	\$212
6	\$18	\$147	\$85	\$32	\$75	\$357
Total	\$580	\$1,837	\$1,453	\$1,045	\$2,448	\$7,363

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 subtransmission 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 2007 had to be set in January 2007.

NEL has not breached the 31 March 2007 Price Path Threshold by \$157,460, but had not, however, passed on to consumers the full value of the 31 March 2006 Breach of \$182,150. This meant a further \$24,690 needs to be passed on to consumers. This is being undertaken by reducing the target Maximum Revenue based on 1 April 2007 prices and 2003 Quantities from \$7,171k down to \$7,130k. The basis for the revenue reduction is detailed below. It should be noted that when the calculation was made in the table on the next page, it was in January 2007 and at that stage NEL estimated that there was a requirement of \$40,730 to still be passed back to consumers instead of the 31 March 2007 actual of \$24,690.

NEL Threshold Compliance Assessment

		January 2007 Estimate
Assessed Revenue Position for 31 March 2007	31 March 2007 Threshold Compliance Estimate	
Max Notional Rev 31 March 2006		\$5,135,099
CPI-X adjustment estimate		2.30%
Max Notional Rev 31 March 2007		\$5,253,206
Estimated Pass Through Costs		
Estimated Transmission (Including LRR)		\$1,910,141
Loss Rental Rebate Monthly Estimate.	LRR @ \$10,000 / month (Dec - Mar)	
Estimated Rates		\$12,631
Estimated Electricity Commission		\$16,387
Assessed Maximum Revenue at PMar07 x QMar03		\$7,192,365
Less 31 March 2006 Breach		\$182,150
NEL Assessed Maximum Target Revenue at PMar07 x QMar03		\$7,010,215
NEL Pricing Estimated Notional Revenue		\$7,050,945
NEL will under recover to offset the March 2006 breach by		-\$40,730
NEL will not breach the 31 March 2007 Threshold by		\$141,420

		January 2007 Estimate
Assessed Revenue Position for 31 March 2008	31 March 2008 Threshold Compliance Estimate	
Max Notional Rev 31 March 2007		\$5,253,206
CPI-X adjustment estimate		1.50%
Max Notional Rev 31 March 2007		\$5,332,004
Estimated Pass Through Costs		
Estimated Transmission (Including LRR)		\$1,807,248
Loss Rental Rebate Monthly Estimate.	LRR @ \$12,000 / month	
Estimated Rates		\$13,389
Estimated Electricity Commission		\$18,000
Assessed Maximum Revenue at PMar08 x QMar03		\$7,170,641
Less over recovery for March 2007		\$40,730
NEL Assessed Maximum Target Revenue at PMar08 x QMar03		\$7,129,912
NEL Pricing Estimated Notional Revenue		\$7,121,245
NEL will under recover to offset the March 2007 over recovery by		\$8,667
NEL will not breach the 31 March 2008 Threshold by		\$49,396

The table on the next page demonstrates the assessed maximum notional revenue as at 31 March 2008 based on the 1 April 2007 prices and 2003 quantities will be \$7,121k (\$8,667 below the assessed maximum allowable revenue). This equates to total revenue of \$7,363k 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 2007

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)	Notional Distribution Revenue (\$)		Notional Other Revenue (\$)	Total Revenue (\$) P _{1,2006} Q _{1,0}
						Fixed		Variable (c/kWh)		Fixed	Variable		
						\$/day	c/kVA/day						
Unmetered													
Streetlights		1						200.12				-	-
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						3.96			-	1,235,367
RS3			18,613,715						2.36			-	439,284
RS4			2,554,965						1.51			-	38,580
Residential Economy													
RE1		120						0.15				6,570	-
RE2			685,741						6.66			-	45,670
RE3			432,395						3.76			-	16,258
RE4			68,374						2.11			-	1,443
Business Standard													
BS1		1180						1.00				430,700	-
BS2			23,487,663						3.96			-	930,111
Business Economy													
BE1		111						0.63				25,524	-
BE2			488,645						5.66			-	27,657
Business Night Saver													
BN1								1.00				-	-
BN2			459,781						4.36			-	20,046
BN4									1.51			-	-
Business Controlled													
BC3			767,729						2.36			-	18,118
BC4			216,386						2.61			-	5,648
BC9			640,241						1.51			-	9,668
Time of Use													
Metered Installation Charge		100						1.31				47,993	-
Energy			44,194,288						1.55			-	685,011
Winter Demand kW				5205				15,5699				295,800	-
Winter Demand kVA				6923				14,7890				373,704	-
Capacity Supply Group 3					5			614				3,069	-
Capacity Supply Group 4					3			1,008				3,025	-
Capacity Supply Group 5					9			1,608				14,469	-
Capacity Supply Group 6					11			2,017				22,186	-
Capacity Supply Group 7					38			3,186				121,071	-
Capacity Supply Group 8					12			4,385				52,614	-
Capacity Supply Group 9					11			7,308				80,383	-
Capacity Supply Group 10					7			10,961				76,729	-
Capacity Supply Group 11					3			14,615				43,845	-
Capacity Supply Group 12					1			21,923				21,923	-
TOU Sealord													
Fixed		1			1			104,000				104,000	-
Winter Demand				2629				20,1000				192,677	-
Energy			16,795,107						0.28			-	47,026
Σ P_{1,2006} Q_{1,0}													
Total Other Charges													

Pricing Schedules

		Line Charges from 1 April 2007		
Price Option	Unit Charges	Local Line	National Line	Total Line
<u>RESIDENTIAL</u>				
STANDARD				
<i>Fixed</i>	cents/day	63.000	0.000	63.000
<i>Variable</i>				
General	cents/kWh	2.475	1.485	3.960
Controlled	cents/kWh	1.542	0.818	2.360
Night Rate	cents/kWh	1.136	0.374	1.510
ECONOMY				
<i>Fixed</i>	cents/day	15.000	0.000	15.000
<i>Variable</i>				
General	cents/kWh	5.175	1.485	6.660
Controlled	cents/kWh	2.942	0.818	3.760
Night Rate	cents/kWh	1.736	0.374	2.110
<u>BUSINESS</u>				
STANDARD				
<i>Fixed</i>	cents/day	100.000	0.000	100.000
<i>Variable</i>				
General	cents/kWh	2.475	1.485	3.960
ECONOMY				
<i>Fixed</i>	cents/day	63.000	0.000	63.000
<i>Variable</i>				
General	cents/kWh	4.175	1.485	5.660
NIGHT SAVER				
<i>Fixed</i>	cents/day	100.000	0.000	100.000
<i>Variable</i>				
Day	cents/kWh	2.875	1.485	4.360
Night	cents/kWh	1.136	0.374	1.510
CONTROLLED				
Controlled	cents/kWh	1.542	0.818	2.360
Priority Control	cents/kWh	1.792	0.818	2.610
Night rate	cents/kWh	1.136	0.374	1.510

All prices are GST exclusive

Time of Use Prices

TOU Site > 150kVA or > 100,000 kWh

NETWORK CHARGES:

Prices From 1 April 2007			
	Total	NEL Network	Transpower
Metered Installation (\$/Metered Installation/Yr)	479.93	479.93	0.00
Energy (c/kWH)	1.550	0.749	0.751
Winter Demand - 2 Options			
Power Factor > 0.95			
Winter Demand (\$/WD kW/Yr)	56.83	35.78	21.05
or			
Power Factor < 0.95 or with kVA metering			
Winter Demand (\$/WD kVA/Yr)	53.98	33.98	20.00
Capacity Supplied			
	Total	NEL Network	Transpower
	Charge \$/Yr	Charge \$/Yr	Charge \$/Yr
Group3 15kVA - 42kVA	613.83	613.83	0
Group4 43kVA - 69kVA	1008.43	1008.43	0
Group5 70kVA - 110kVA	1,607.65	1,607.65	0
Group6 111kVA - 138kVA	2,016.87	2,016.87	0
Group7 139kVA - 218kVA	3,186.07	3,186.07	0
Group8 219kVA - 300kVA	4,384.50	4,384.50	0
Group9 301kVA - 500kVA	7,307.50	7,307.50	0
Group10 501kVA - 750kVA	10,961.25	10,961.25	0
Group11 751kVA - 1000kVA	14,615.00	14,615.00	0
Group12 1001kVA - 1500kVA	21,922.50	21,922.50	0

TOU Site > 2000kVA

NETWORK CHARGES:

Prices From 1 April 2007			
	Total	NEL Network	Transpower
Fixed (\$/Yr)	0.000	0.000	0.000
Winter Demand (\$/Winter Demand kVA/Yr)	79.005	25.005	54.000
Energy (c/kWH)	0.357	0.160	0.147
Capacity Supplied (\$/kVA/Yr)	13.490	13.490	0.000