Line Charge Methodology 2010-2011

Pursuant to Part 4, Section 14, Provisions 4 and 5 of the Electricity Distribution (Information Disclosure) Requirements 2008
Issued 31 October 2008

March 2010

1 INTRODUCTION

This document describes the methodology that Network Waitaki Limited (NWL) has used in determining its Distribution and Transmission charges from 1 May 2010 until the next review.

1.1 Legislative Compliance

This document has been prepared to comply with provisions 4 and 5 of Part 4, section 14, of the Commerce Commission's Electricity Information Disclosure Requirements 2008 issued 31 October 2008.

Requirement 4 states:

Requirements 22 and 23 of the Original requirements, which relate to disclosure of pricing methodologies , continue to apply in respect of Distribution businesses after the 2006/2007 Financial year as if references in those requirements to a disclosing entity were references to a Distribution business.

Requirement 5 states:

Part 6 of the Original requirements which relates to disclosure of line charges, continues to apply in respect of Distribution businesses after the 2006/2007 Financial year as if references in that Part to a disclosing entity were references to a Distribution Business.

Requirements 22 and 23 of the original requirements require the disclosure of:

- the methodology used to calculate the prices charged;
- the key components of revenue required to cover costs and profits of the lines business activities;
- the consumer groups used to calculate the prices being charged, including:
    - the rationale for consumer grouping;
    - the method of determining which groups consumers are in;
    - the statistics relating to each group;
- the method and rationale by which components of the revenue are allocated to consumer groups, and the numerical value of the different components;
- the rationale and method used to determine the proportions of charges which are fixed and the proportions which are variable.

2 PRICING OBJECTIVES

2.1 Revenue

Network Waitaki Ltd must obtain sufficient revenue to:

1. meet its contractual obligations for connection to the Transpower grid; and
2. meet its contractual obligations for the delivery of energy over the distribution network; and
3. comply with statutory requirements on public safety, environmental protection, and quality of supply; and
4. provide for new investment; and
5. provide a rate of return on funds that is acceptable to the owners.

To meet the revenue requirement, NWL uses the following principles:

- to provide pricing which is simple to understand and administer and which complies with regulations;
- to maintain the stability of historic pricing regimes in order to lesson price shocks to consumers;
- to provide pricing which will not differentiate between urban and rural consumers;
- to provide pricing which allows the network to be operated safely, reliably, and efficiently;
- to provide pricing which allows for an adequate level of return to the shareholders.

2.2 Efficiency

For individual contracts

Improvements in the efficiency of electricity delivery will be achieved by the monitoring of power factor, and the use of demand charges.

For mass-market contracts

Improvements in the efficiency of electricity delivery will be achieved by promoting efficient investment in and operation of the network and by clearly signalling the fixed and variable costs of delivery.

2.3 Fairness

As a supplier of essential services NWL has endeavoured to set fair and reasonable tariffs for each consumer group, however, given the wide variations in usage within each consumer group, achieving a fair tariff is a difficult objective. What one customer perceives as fair may be perceived by another customer as unfair based solely on their usage patterns.

Customers are placed in load groups based on the capacity of supply they require. The charges applied to each group reflect the value of the assets that they use, based on both group capacity and demand.

Large customers with time-of-use metering are normally subject to individual charges that reflect their use of network assets together with the associated transmission costs.

The simple tariff structure lowers the financial costs of new retailers entering the market in NWL's area.

2.4 Simplicity

Network Waitaki has been working towards simplifying its tariff structure by rationalising the range of controlled rates it provides. However, it has retained the same number of consumer groups to signal the cost of usage patterns more accurately within each group.

2.5 Transparency

Tariffs should reflect costs and signals contained in the tariff and should be in a form that will allow the consumer to respond in a positive manner.

3 COST STRUCTURE

The pricing methodology is based on cost recovery. Consequently, the pricing structure closely relates to the corresponding cost structure. The following cost categories are involved:

3.1 Distribution Costs

Distribution costs are comprised of four main cost pools:

1. Operation and Maintenance
    I. Maintenance costs are based on NWL Asset Management Plan, with the allocation of costs between asset categories being determined by the 2010-2011 maintenance budget.
    II. Operating costs include all other network direct and indirect expenses excluding administration costs. The total figure is equivalent to the NWL 2010-2011 budget, and is allocated across network components on the basis of Optimised Replacement Cost (ORC).
2. Depreciation

    Depreciation for each asset is calculated by dividing the financial carrying value of network property, plant and equipment by the ODV Standard Life for that asset, which results in a very long depreciation period with a correspondingly low depreciation requirement.

3. Return on Asset

    A provision for future investment in the network based on the 2010-2011 budget. This provision aims to:

    - provide for growth;

- deliver appropriate service standards where network usage has changed;
- replace assets that have reached the end of their economic life with modern solutions.

4. Administration

   A provision for support services related to distribution costs, based on the 2010-11 budget.

3.2 Transmission Costs

Transmission costs are determined by Transpower NZ Ltd's Pricing Methodology currently in effect, and comprises the following price components:

1. Interconnection Charge

   This charge is based on the average of the 100 highest half-hour coincident regional peak demands. The charges for the 2010/2011 financial year are based on the demands recorded between 1 April 2008 and 31 March 2009. All of the NWL GXPs are located in the lower South Island region.

2. Connection Charge

   This charge represents the fixed costs associated with the dedicated assets at each GXP. Shared assets are still allocated on the basis of each off-take customer's share of the 12 highest half-hour demand peaks measured at the GXP.

Transmission costs also include "Avoided Transmission Costs". These are costs associated with transmission assets that have been provided by the distributor rather than by Transpower. In many instances, distributors can provide certain classes of transmission assets at a lower cost to consumers than assets provided by Transpower.

3.3 Capital Costs

Network Waitaki is currently in a period of major capital growth that is being driven by irrigation and dairy-farm conversions. In addition, a number of major assets are becoming capacity-constrained. Capital expenditure will therefore continue to exceed the norm as capacity is increased. Additional information concerning the assumptions governing NWL capital investment can be found in the Company's Assets Management Plan.

3.4 Grid Exit Points

NWL has connections to the Transpower network at the following Grid Exit Points:

- Oamaru;
- Waitaki;
- Twizel.

The Oamaru Grid Exit Point accounts for approximately 89% of the total network demand and 83% of the total Transpower charges and supplies 86% of the total customer base. Transmission charges have therefore been averaged out over the whole consumer base.

3.5 Load Group Characteristics

Group Code	Capacity Range kVA	Group Connections	Energy Delivered GWhr	After Diversity Demand MW	Group Capacity MVA
15C, 15U , & DLU	0-15	10,283	86.5	15.1	58.8
30C & 30U	16-30	664	9.1	1.5	6.2
50C & 50U	31-50	812	32.0	4.1	28.2
100	51-100	206	15.9	2.6	18.6
200	101-200	55	9.4	1.7	9.4
300	201-300	39	12.0	2.0	12.6
500	301-500	10	4.2	0.8	6.4
750	501-750	1	1.8	0.5	0.8
Individual Contract	NA	28	54.7	6.2	24.8
Total		12,098	225.6	34.6	165.7

3.6 Annual Cost Structure

The annual cost structure and revenue requirements for 2010-2011 are:

Annual revenue requirements for 2010-2011	
Distribution requirements	
Operation and maintenance	1,720,458
Depreciation	2,897,368
Administration	1,725,550
Return on assets	2,531,774
Total distribution revenue requirements	**8,875,150**
Transmission requirement	
Transmission charge	3,343,524
Avoided transmission charge	182,309
Total transmission requirements	**3,525,833**
Total revenue requirements	**12,400,983**

4 REVENUE FACTORS

4.1 Asset Valuation

For the purposes of revenue calculations, the Distribution assets are valued at the August 2004 ODV. Each load group utilises some or all of these assets to a greater or lesser degree, and the cost recovery from each load group is based on its utilisation of these assets. Allocation of the assets utilised by each group is based on the capacity (kVA) requirements of each load group, and the after-diversity maximum demand (kW) that they place on the network.

4.2 Maintenance of Existing Assets

The annual maintenance programme is driven by safety requirements, security of supply objectives, and fault response and repair. The NWL Asset Management Plan contains details of the planned maintenance programme set out under the following asset categories:

- Subtransmission (33kV lines and cables);
- Zone Substations (33kV – 11kV);
- High Voltage Distribution (11kV lines, cables and associated switchgear);
- Distribution Substations (33/11kV-400/230V transformers and sites);
- Low Voltage Distribution (400/230V lines, cables and associated switchgear).

These costs are allocated across the load groups based on their share of the ODV asset value of the assets they utilise.

4.3 Depreciation

Depreciation is calculated on a straight-line basis in accordance with the Company's accounting policies. The depreciation is allocated against the asset groups listed above, and is recovered from load groups based on their share of the ODV asset value of the assets they utilise.

4.4 Administration

Administration costs cover the costs of operating the business for billing etc. These costs are not asset-related and are recovered as a fixed per-connection charge.

4.5 Return on Assets

A return on assets is required to fund the capital development and replacement programme and provide a return to the owners. NWL is consumer-trust owned, and this return currently takes the form of an annual discount to consumers. The rate of return is recovered from load groups based on their share of the ODV asset value of the assets they utilise.

5 PRICING STRUCTURE

NWL pricing structure is split into two main headings standard contracts and individually assessed network contracts.

Standard contracts recover network costs by means of a fixed annual charge based on the consumer load group, and a variable kW charge as shown in the schedule of charges. This contract applies to the majority of consumers.

Individually assessed network contracts recover network costs by means of a fixed annual charge based on the individual customer's asset usage, capacity requirements, and contribution towards the system peak demand. The consumers in this contract group are typically larger "time of use" metered installations.

5.1 Standard Contract Consumer Load Groups

Load groups are based on the standard distribution transformer capacities used on the network, with no distinction being made between a single-phase and three-phase connection. The minimum connection capacity for a single-phase supply is 15kVA, while the minimum connection capacity for a three-phase supply is 30kVA. Consumers are allocated into the various load groups based on their contracted connection capacity, with no distinction being made between domestic and non-domestic connections with the exception of the Domestic Low User (DLU) category which is available only to primary domestic supplies, and applies irrespective of the connection capacity.

The load groups are:

Load Group	Description	Maximum Fuse Rating
DLU	Domestic Low User	Dependant connection capacity
15C	0 - 15kVA controlled	1 x 63A fuse
15U	0 - 15kVA Uncontrolled	1 x 63A fuse
30C	16 - 30kVA Controlled	1 x 100A fuse or 3 x 40A fuses
30U	16 - 30kVA Uncontrolled	1 x 100A fuse or 3 x 40A fuses
50C	31 - 50kVA Controlled	3 x 80A fuses
50U	31 - 50kVA Uncontrolled	3 x 80A fuses
100	51 - 100kVA	3 x 160A fuses
200	101 – 200kVA	3 x 300A fuses
300	201 – 300kVA	3 x 400A fuses
500	301 – 500kVA	NA
750	501 – 750kVA	NA
IND	Individually Assessed	NA

Street lighting is a specialist load group, which utilises dedicated LV assets, and is covered by an individually assessed network contract.

5.2 Standard Contract Annual Fixed Charges

Although the majority of network costs are fixed, passing these costs through to consumers as a predominantly fixed cost would not provide consumers with the pricing signals necessary to encourage them to use the resources efficiently.

To this end, Network Waitaki has in prior years reduced the fixed portion of its charges for all load groups with the exception of the Domestic Low User category, and the Individual Contract consumers and increased its variable charges to encourage effective use of the company's resources.

0 – 50kVA Load Groups

Consumers in the 15, 30, and 50kVA groupings are typically domestic or small commercial installations which have water-heating or other loads that can be controlled. NWL has developed a number of control options for those consumers that foster economic use of the network assets and enable load to be moved to off-peak periods. In recognition of this, the fixed charges for installations that provide year-round access to controllable load are lower than for installations with no controlled load. In addition controlled installations can utilise two-rate, night/day metering, which enables consumers to benefit from the cheaper night rate charges that apply between 11pm and 7am.

The total costs associated with each load group are allocated on the portion of the assets that they utilise. The load group share of the assets is determined by comparing the group capacity with the total network capacity and the group-after-diversity maximum demand with the network maximum demand. Costs are allocated 50% on group after diversity maximum demand (GADMD), and 50% on the group capacity. The fixed component of the revenue from these groups is set at a nominal 19%.

In addition a LU option has been introduced in accordance with the Electricity Low Fixed Charge Tariff Option for Domestic Consumers. This option attracts a higher variable rate, and is revenue-neutral for a consumer using 9,000kWhr per annum.

51 – 750kVA Load Groups

Installations in the 100 – 750kVA load groups are predominantly commercial, light industrial, or farming, and do not normally have loads that can be controlled externally. Load control is not generally available for these load groups, although limited access to night-rate tariffs are available for irrigation supplies and for installations with TOU metering. These installations are normally supplied from a dedicated transformer and therefore do not utilise the same range of network assets as small low-voltage connections. Energy use within these load groups is much higher than the <50kVA groups resulting in the costs being predominantly governed by energy use rather than fixed charges. This provides consumers within these load groups with clear pricing signals that relate directly to consumption.

The total costs associated with each load group are allocated on the portion of the assets that they utilise. The load group share of the assets is determined by comparing the group capacity with the total network capacity and the group after diversity maximum demand with the network maximum demand. Costs are allocated 50% on group after diversity maximum demand, and 50% on the group capacity.

5.3 Standard Contracts Variable Charges

Standard Contracts Variable charges are based on GXP totals adjusted to account for losses and individual contract customer-usage. Day rates apply to all units transported over the network between 7am and 11pm and night rates to all units transported over the network between 11pm and 7am. Night rates are lower than day rates to encourage retailers to develop tariffs that reward customers for off-peak usage.

5.4 Individually Assessed Network Contracts

Individually Assessed Network Contracts customer charges are assessed from the TOU metering and the contracted capacity required at the installation. The assets required to supply each installation are assessed and valued at ODV, and the contribution that the installation makes towards the network system demand is determined from the TOU metering data. The costs associated with the network assets are then recovered as a fixed charge based 55% on demand and 45% on contract capacity. Customers in this group can reduce their costs by improving their utilisation of assets and controlling their peak demands.

5.5 Transmission Charges

The following methodology has been used as the basis for the recovery of transmission charges in a way that is equitable to all groups and reflects Transpower's pricing structure.

Transpower Connection Charges and NWL Avoided Transmission Costs are fixed asset-based charges, and are allocated between load groups based on the group capacity requirements. These costs are recovered as a fixed charge.

Transpower Interconnection Charges are determined by the average of the 100 highest half-hour coincident regional peak demands recorded between 1 September and 30 August each year.

These costs are recovered from consumers on standard contracts as a variable (kWhr) charge plus a small fixed charge, while for individual assessed contract customers these costs are recovered as a fixed charge.

5.6 Standard Contracts - Transmission Charges

Transpower Connection Charges are recovered by means of a fixed charge and a variable charge. The fixed charge is based on the assessed capacity (kVA) requirements of each load group.

Transpower Interconnection Charges are recovered by means of a variable (kW) charge based on group demand and consumption.

The fixed portions of the charges for standard contract are kept a low level so that consumers with lower consumption levels are not subsiding consumers who have a high consumption level. The variable charges are based on GXP totals adjusted to account for losses and individual contract customer usage. Day rates apply to all units transported over the network between 7am and 11pm, and night rates to all units transported over the network between 11pm and 7am.

5.7 Individually Assessed Network Contracts - Transmission Charges

Transpower Connection Charges are recovered by means of a fixed charge based on the capacity (kVA) requirements of each consumer.

Transpower Interconnection Charges are recovered by a fixed charge based on the average of the 12 highest half-hour demands (kW) recorded by each consumer in the previous 12 months.

5.8 Transmission Charges Relating Loss and Constraint Rebates

Loss and Constraint Rebates are credits rebated by Transpower, resulting from over-recovery of costs and are included in transmission charges.

6 LOSSES

6.1 General

Losses represent the percentage of electricity entering the network that is either consumed in the delivery process or lost, and can be categorised as either technical losses or non-technical losses.

Technical losses comprise:

(a) standing losses arising from zone and distribution transformers; and

(b) variable losses arising from resistive losses in conductors. Resistive losses are proportional to the square of the current passing through the conductor.

Non-technical losses comprise:

(a) losses arising from metering faults or errors; and

(b) losses arising from electricity theft etc.

The energy measured at customers' installations is therefore after losses, and must be multiplied by the overall "loss factor" to determine each retailer's purchase quantities at each GXP.

6.2 LV and HV Connection

The majority of customers take supply and are metered at 400/230V and the loss factor applied to these sites must account for distribution transformer and low voltage reticulation losses. A small group of customers take supply and are metered at 11,000V and the loss factor applied to these customers does not include distribution and LV reticulation losses.

6.3 Loss Factor Allocation

The average loss factor for the network is calculated from data supplied by the National Reconciliation Manager. This information is compared with the GXP data to determine the overall loss factor.

Appendix 1

Allocation of ODRC

Load Group	ODRC Total	LV	Trans.	11kV	33kV
Standard Contract Domestic Low User	$4,590,350	$671,591	$918,207	$2,429,497	$571,055
0 - 15 Controlled	$15,236,729	$2,229,095	$3,047,827	$8,064,289	$1,895,518
0 - 15	$3,385,059	$495,275	$677,107	$1,791,567	$421,110
16 - 30 Controlled	$464,469	$85,816	$88,722	$234,752	$55,179
16 - 30	$1,703,034	$248,525	$340,807	$901,746	$211,956
31 - 50 Controlled	$862,342	$180,766	$159,700	$422,554	$99,322
31 - 50	$5,638,589	$1,056,287	$1,073,682	$2,840,871	$667,749
51 - 100	$3,776,914	$0	$884,971	$2,341,558	$550,385
101 - 200	$2,454,634	$0	$575,147	$1,521,789	$357,698
201 - 300	$3,119,380	$0	$730,904	$1,933,909	$454,567
301 - 500	$1,553,079	$0	$363,903	$962,856	$226,320
501 - 750	$661,140	$0	$154,912	$409,884	$96,344
Sub Total	$43,445,719	$4,967,355	$9,015,889	$23,855,272	$5,607,203
Individual Contract	$2,670,279	$255,057	$252,120	$1,222,156	$940,946
Totals	**$46,115,998**	**$5,222,412**	**$9,268,009**	**$25,077,428**	**$6,548,149**

Appendix 2

Allocation of Network and Transmission Costs

Load Group	Connections	ADMD kW	Capacity kVA	Operation & Maintenance	Depreciation	Administration	Return on Assets	Total Network Revenue	Transmission Revenue
Standard Contract									
Domestic Low User	1,937.00	2,842.54	11,078.00	168,322.00	282,562.00	265,334.00	244,705.00	960,923.00	254,893.00
0 - 15 Controlled	6,678.00	9,799.26	38,193.00	580,272.00	974,099.00	914,766.00	843,589.00	3,312,726.00	878,733.00
0 - 15	1,668.00	2,447.37	9,540.00	144,925.00	243,284.00	228,486.00	210,689.00	827,384.00	219,474.00
16 - 30 Controlled	199.00	292.16	1,855.00	18,092.00	30,251.00	27,259.00	26,191.00	101,793.00	31,540.00
16 - 30	465.00	1,169.52	4,343.00	69,016.00	115,893.00	63,697.00	100,368.00	348,974.00	103,270.00
31 - 50 Controlled	118.00	494.62	4,097.00	31,686.00	52,829.00	16,164.00	45,730.00	146,409.00	60,529.00
31 - 50	694.00	3,637.31	24,095.00	226,346.00	378,304.00	95,066.00	327,526.00	1,027,242.00	400,125.00
51 - 100	206.00	2,591.23	18,615.00	129,381.00	220,839.00	28,218.00	191,455.00	569,893.00	295,859.00
101 - 200	55.00	1,728.97	9,357.00	86,328.00	147,352.00	7,534.00	127,746.00	368,960.00	174,565.00
201 - 300	39.00	2,044.21	12,608.00	102,068.00	174,219.00	5,342.00	151,038.00	432,667.00	217,913.00
301 - 500	10.00	838.29	6,413.00	41,856.00	71,444.00	1,370.00	61,937.00	176,607.00	98,629.00
501 - 750	1.00	488.41	750.00	24,387.00	41,625.00	137.00	36,086.00	102,235.00	35,194.00
Sub Total	12,070.00	28,373.89	140,944.00	1,622,679.00	2,732,701.00	1,653,373.00	2,367,060.00	8,375,813.00	2,770,724.00
Individual Contract	28.00	6,216.11	24,763.00	97,779.00	164,667.00	72,177.00	164,714.00	499,337.00	755,109.00
Totals	**12,098.00**	**34,590.00**	**165,707.00**	**1,720,458.00**	**2,897,368.00**	**1,725,550.00**	**2,531,774.00**	**8,875,150.00**	**3,525,833.00**

Appendix 3

Schedule of Charges

Code	Load Group Description	Number Of Connections	**Fixed Charges** Annual Charges (ex gst)		**Variable Charges** Per Unit Charges (ex gst)			
			Distribution	Transmission	Distribution		Transmission	
					Day	Night	Day	Night
DLU	Domestic Low User	1,937	$ 34.75	$ 20.00	$ 0.06352	$ 0.00655	$ 0.02524	$ 0.00261
15U	0-15kVA	1,668	$ 94.90	$ 80.30	$ 0.05425	$ 0.00559	$ 0.01621	$ 0.00167
15C	0-15kVA Controlled	6,678	$ 87.60	$ 32.85	$ 0.05425	$ 0.00559	$ 0.01621	$ 0.00167
30U	16-30kVA	465	$ 105.85	$ 94.90	$ 0.05425	$ 0.00559	$ 0.01621	$ 0.00167
30C	16-30kVA Controlled	199	$ 94.90	$ 47.45	$ 0.05425	$ 0.00559	$ 0.01621	$ 0.00167
50U	31-50kVA	694	$ 142.35	$ 127.75	$ 0.05425	$ 0.00559	$ 0.01621	$ 0.00167
50C	31-50kVA Controlled	118	$ 135.05	$ 80.30	$ 0.05425	$ 0.00559	$ 0.01621	$ 0.00167
100	51-100kVA	206	$ 178.85	$ 189.80	$ 0.05425	$ 0.00559	$ 0.01621	$ 0.00167
200	101-200kVA	55	$ 343.10	$ 379.60	$ 0.05425	$ 0.00559	$ 0.01621	$ 0.00167
300	201-300kVA	39	$ 459.90	$ 507.35	$ 0.05425	$ 0.00559	$ 0.01621	$ 0.00167
500	301-500kVA	10	$ 616.85	$ 792.05	$ 0.05425	$ 0.00559	$ 0.01621	$ 0.00167
750	501-750kVA	1	$ 908.85	$ 1,189.90	$ 0.05425	$ 0.00559	$ 0.01621	$ 0.00167
IND	Individually Assessed	26	Individually Assessed		NA	NA	NA	NA