
# Pricing Methodology Disclosure

**For prices applying from 1 April 2017**

Pursuant to:

Electricity Distribution (Information Disclosure) Requirements 2012

and

Distribution Pricing Principles and Information Disclosure Guidelines

# Table of Contents

# Index of Figures

# Glossary – Definitions and Abbreviations

| | |
|---|---|
| **AMD** | Anytime Maximum Demand. |
| **ACOT** | Avoided Cost of Transmission is a payment made to a distributed generator based on output during time periods used to set Transpower's interconnection charges. These times period are referred to as Regional Coincident Peak Demand, (RCPD) periods is highest. |
| **Asset** | Equipment or plant that is part of MLL's electricity distribution network. |
| **Bypass** | If a consumer chooses to obtain its electricity supply from an alternative source to the distribution network. |
| **Code** | Electricity Industry Participation Code 2010. |
| **Demand** | The rate of expending electrical energy expressed in kilowatts (kW) or kilovolt amperes (kVA). |
| **Commerce Commission (Commission)** | Commerce Commission oversees the regulatory provisions of the Commerce Act 1986 which Electricity Distributors are subject to. |
| **Consumer** | An end-user who is supplied electricity. |
| **Controllable Load** | The load, mostly electrical water heating load, that MLL is able to switch off during periods of high Network demand. |
| **Cost Allocation Model** | A model that allocates the actual costs of owning and operating the distribution network to the consumer groups based on a cost allocation methodology. |
| **Consumer Price Index (CPI)** | A measure of the change in price of a basket of consumer goods and services. |
| **Distributed Generation** | Electricity generation that is connected directly to the distribution network. Also referred to as 'embedded generation'. |
| **Distributor or Electricity Distribution Business (EDB)** | A business responsible for delivering electricity from the national grid to homes and businesses. Also commonly referred to as an ELB (Electricity Lines Business). |
| **Distribution Pricing Principles** | Published by the Electricity Authority in February 2010. These principles set out economic concepts that should be reflected in Distributors' pricing methodologies. Also known as the "Pricing Principles". |

| | |
|---|---|
| **Electricity Authority (Authority)** | The Electricity Authority is an independent Crown entity responsible for regulating New Zealand's electricity market. Its objective is to promote competition in, reliable supply by, and the efficient operation of the electricity industry for the long-term benefit of consumers. |
| **GXP** | Grid Exit Point. The point where MLL's network connects to Transpower's transmission network and where electricity flows from Transpower's network onto MLL's network. |
| **HV** | High Voltage. |
| **ICP** | Installation Connection Point is where a consumer connects to MLL's electricity distribution network. |
| **kWh** | Kilowatt hour is a measure of electricity consumption - this is the unit in which retail sales of electricity are measured. |
| **kVA** | Kilovolt Ampere. |
| **Load Management** | When MLL controls the electrical water heating load (or other controllable load) by switching it off during periods of high demand or during faults or emergency situations. |
| **LV** | Low Voltage. |
| **Network Peak Demand** | When the network's consumption is at its highest. |
| **Pricing Methodology Disclosure Guidelines** | Published by the Electricity Authority on 1 March 2010. These guidelines specify the information that a distributor should make available so that a third party may determine if a pricing methodology is consistent with the pricing principles. |
| **ToU** | Means Time of Use, a metering set up that measures half hourly data allowing pricing that varies depending on time of day and measurement of peak demands. |

# Overview of Pricing Methodology Disclosure

**Section 1.** - Includes an introduction to MLL, the regulatory context for this disclosure and overview of the pricing process.

**Section 2.** – Sets out the regulatory framework for the Pricing Disclosure. Appendix A includes more detailed analysis of the regulatory requirements including the pricing principles and the Information Disclosure requirements with respect to pricing.

**Section 3.** – Discusses some of the issues and considerations in using a cost allocation model to apportion network costs to consumer groups.

**Section 4.** - Provides a detailed explanation of the pricing methodology and cost allocation including;

- the rationale for each of the consumer groups, and
- a description of the methodology used to allocate assets to ICPs and therefore consumer groups.

**Section 5.** - Discusses the potential reform of pricing for distribution services and is MLL's response to the Electricity Authority's request for a "Pricing Roadmap".

**Section 6.** - Examines the consistency of MLL's pricing methodology with the pricing principles and highlights some of the challenges and trade-offs that arise when applying these principles.

# 1. Background

## 1.1 Overview of Marlborough Lines

Marlborough Lines Limited (MLL) is an electricity distribution business (EDB) with significant other investments. This disclosure is for the Marlborough network. The network has approximately 25,000 customers, which are homes and businesses across the Marlborough region. The area supplied includes the provincial centre of Blenheim and the smaller towns of Picton, Havelock, Seddon and Ward.

The network also extends to a number of very isolated areas (including the Marlborough Sounds), that pose unique challenges for electricity supply. Unlike many other regional networks the company has a single point of supply from the National Grid to the Grid Exit Point (GXP) in Blenheim. Relative to its size the Marlborough Network has an extensive sub-transmission system. There are 16 zone substations on the Marlborough Network with the most recent addition being Cloudy Bay completed in March 2013.

MLL has an electrical contracting business in Marlborough that undertakes capital and maintenance work for the network and other local users. MLL has around 135 staff based in Blenheim at a centrally located office and a depot for the Contracting activities.

The MLL Group also has investments including a 50% share of Nelson Electricity and 85% of the Yealands Wine Group.

MLL has an 'interposed' relationship with the Marlborough consumers i.e. the contractual relationship to deliver services is through the energy retailers on the network. Consequently, MLL does not have a contractual relationship for the network services with the consumers on its network.

MLL has a Use of System Agreement with all the retailers that operate on its network. Currently there are 15 energy retail brands offering services in Marlborough. Some retailers have multiple brands.

Lines charges are billed to the retailers monthly, based on consumption data provided to MLL by consumers' Metering Equipment Providers (MEP), which are selected by a consumer's retailer.

## 1.2 Ownership Structure of MLL

MLL is owned by the Marlborough Electric Power Trust (MEPT), which holds shares on behalf of the consumers connected to the network in Marlborough. The MEPT has six elected trustees. Elections are held biannually with the last election for four trustees held in March 2016.

## 1.3 Price Changes for Current Year

No change to prices occurred on 1 April 2017. Pricing will be reconsidered during the coming year.

A number of factors meant that Marlborough Lines delayed changing its pricing last year until 1 November 2016. In November fixed charge were increased by 5.8% for all consumers other than the large commercial and industrial consumers. For Low Fixed Charge plans the equivalent increase was made on the variable rates as the LFC Regulations prevented any increase on the fixed charge component. The structure of prices for all consumers remained unchanged from the prior year.

Prices are set to reflect the needs of the company, the Marlborough consumers and stakeholders, together with the wide ranging requirements provided by the comprehensive regulatory framework.

## 1.4 Regulatory Status of MLL – Exempt from Price Control

MLL meets the criteria specified for a consumer owned Electricity Distribution Business, EDB, under Part 4 of the Commerce Act and consequently has 'exempt' status. Electricity distributors that are exempt are not subject to the Default Price-quality Path (DPP) provisions. However, the company is still required to comply with a number of regulatory obligations including the Information Disclosure (ID) regime.

The Electricity Authority also has regulatory oversight of the Electricity industry and sets out a number of compliance obligations for EDBs.

## 1.5 Background to Pricing Methodology Disclosure Document

MLL's Pricing Methodology disclosure continues to evolve to address pertinent issues.

This year section 5 discusses the reform of pricing for distribution services.

An important aspect of the Pricing Methodology Disclosure is an explanation on the allocation of network costs, including transmission costs, across consumers and the structure and quantum of charges set to recover those costs. Transmission costs include Transpower charges and Avoided Cost of Transmission, (ACOT), paid to embedded generators.

MLL considers that this disclosure is consistent with the current regulatory framework. The document has been prepared in accordance with the Electricity Distribution Information Disclosure (ID) Requirements, published by the Commerce Commission and the Distribution Pricing Principles set out by the Electricity Authority.

Although the pricing principles are voluntary, the Electricity Authority encourages EDBs to carefully consider the pricing principles and to disclose the consistency or otherwise of the company's pricing methodology with these principles. These matters are discussed in section 6.

## 1.6 Overview of the Pricing for FY2017/18

### 1.6.1 Target Revenue and Cost Estimates

This document is required to outline the costs of the network business that are targeted to be recovered through charges for network services. The revenue estimates included in this document are based on the prices applying at 1 April 2017.

The estimated costs of operating the network business for the year from 1 April 2017 to 31 March 2018 have been grouped into the categories of system operation and maintenance, administration and overhead, transmission costs, depreciation, taxation and a return on assets used in the provision of network services. The numerical value of each of these cost components is clearly stated in section 4.3.

### 1.6.2 Overview of Customer Groups

Network consumers are grouped together into a number of consumer groups based on common characteristics. The four consumer groups referred to in the cost allocation model are; Residential, General (Small/Medium Commercial), Larger Commercial/Industrial and Irrigation users.

Section 4 outlines the rationale for the consumer groups, the allocation of consumers into their groups and the network statistics for each of group.

### 1.6.3 Overview of Cost Allocation Methodology

Once total costs and consumer groups are identified a methodology allocates the costs between consumers and therefore groups. The result is an estimate of the total cost of providing network services for each consumer group.

The majority of costs are allocated based on the proportion of assets used to supply the connections within each consumer group. This is because most costs incurred by the network relate to the assets required to provide a service. For example the return on capital, return of capital (depreciation), and the servicing/maintaining of assets. Generally the more assets required to service a connections the higher the costs are to provide network services.

The value of network assets, at replacement cost, is shared across all connections on the network based on whether an asset is used to service the connections. The value of the assets attributable are then summated for each connection and totalled for each consumer group.

There are a number of different cost allocators that could be used: Different EDBs apply different cost drivers and techniques. Although the share of assets is the predominantly cost driver used, MLL also uses consumption, measured in kWh and number of ICPs to allocate overhead and administration costs. Revenue is used to allocate the estimate of taxation expense.

### 1.6.4 Structure of the Pricing Plans for Each Group

The pricing structures vary across the consumer groups and the structures used support the recovery of revenue consistent with the pricing principles. Although most of the cost of operating an electricity network is fixed, revenue for network services is generally made up of fixed and variable pricing elements.

A description of the current methodology and the use of fixed, variable charges, demand and capacity charges is discussed in section 4.0.

### 1.6.5 Comparison of Annual Revenue and Allocated Cost for Each Group

The forecast revenue is compared with the cost allocated to each group. The reasons why there are differences between revenues and the estimates of costs is also discussed.

## 1.7 General Issues with Cost Allocation Model

MLL has always utilised a cost allocation model to ensure prices are fair and equitable. It is also cognisant of the pricing principles published by the Authority.

However many network assets and other non-asset related costs are shared over a large number of consumers. Even with detailed half hourly data for our large customers, assumptions and judgements are still required to share costs between consumers. In essence many costs have to be allocated rather than accurately attributed to a defined group of consumers. There are a number of different and valid approaches to the allocation of network costs to groups of consumers.

## 1.8 Discount Policy

MLL pays "posted" discount to consumers in March of each year. The Information Disclosure Requirements state revenue is to be expressed net of the payment of "posted" discounts.

MLL has set the discount as a relatively equal proportion of each price so each customer is rewarded proportionately through the discount process regardless of their pattern of consumption.

The exceptions to the discount being an equal proportion of each price are:

- the regional peak demand charge that applies to the large commercial and industrial consumers group is set at a level to recover the transmission costs applicable to that group and therefore no discount applies to the price
- discounts are not paid to customers in the areas demonstrably unprofitable.

The discount is a credit for a portion of the lines charges paid for network services in the prior 12 month period. The calculation period runs from 1 February to 31 January each year to provide sufficient time to calculate each qualifying consumer's discount. Discounts are paid to a consumers' electricity retailer and the amount is then credited to their account.

Consistent with the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004, (LFC Regulations), the costs faced by the typical residential user -as defined in the regulations- are equal on a pre and post-discount basis.

# 2. Regulatory Framework

MLL is subject to the following key regulatory requirements.

- Part 4 of the Commerce Act which requires formal disclosure of a significant amount of company specific information in accord with the Electricity Distribution Information Disclosure requirements.
- The Electricity Industry Act which provides the Electricity Authority with particular responsibility for monitoring pricing structures and approaches to distributor pricing.
- The Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulation 2004, (the LFC Regulations), which require all EDBs to offer a low fixed charge option to domestic consumers using less than 8,000 or 9,000kWh per annum at their principal place of residence.
- Restrictions on pricing differentials between urban and rural consumers.
- A range of obligations set out in the Electricity Participation Code.

Appendix A provides an overview of the regulatory requirements that impact MLL's pricing decisions and Disclosures.

# 3. Approach to Setting Prices

## 3.1 Introduction

The following section outlines some of the high level considerations that set the context within which a detailed cost allocation model operates and how this process influences specific charges for each consumer group.

MLL considers that a number of factors need to be taken into account when network prices are determined and changes to network charges should be undertaken on a consistent and progressive basis. Prices have been shaped by consumer feedback, government policy and regulation over a period of many years.

The primary determinant in the company's charges for network services is to meet the needs of the users of the network, consistent with the regulatory requirements and the principles of fairness and equality.

MLL conducts customer research to inform the company's management and directors of consumer views.

A stable price structure provides network users with the opportunity to respond to changes in price levels or charging structures. However new structures are also required to provide pricing signals consistent with the pricing principles and specifically to address changes in technology.

Within the network there is cost sharing, both within consumer groups and between consumer groups. The company will continue to refine the estimates made of the costs of supply for all categories of network users, and the implementation of changes will be tempered with the need to satisfy regulatory requirements and meet the requirements of the network users overall, whilst ensuring that changes are consistent with the long-term interests of all stakeholders.

## 3.2 Pricing to Provide Adequate Revenue Recovery

MLL targets revenue for lines services consistent with the company's network operations achieving a commercial rate of return. Pricing structures are also designed to manage revenue risk to ensure financial sustainability e.g. fixed components mean that revenue varies less than consumption which may depend on weather and prevailing economic conditions from year to year.

## 3.3 Payment of Discounts

The IRD is currently reviewing the deductibility of the discount payment made by distributors to their consumers via energy retailers.

MLL anticipates it will continue to pay discounts for the 12 months ending 31 March 2018. The pre and post discount price is published and therefore the payment is considered to be a "posted" discount.

As in prior years the discount payment will be subject to qualification criteria. More than 90% of consumers will receive a discount, however customers in areas deemed "remote" do not receive a discount because these areas are uneconomic to service. In addition an installation must be connected to the network and occupied on a qualification date, typically in mid-March of each year.

## 3.4 Consideration of the Impact of Changes on Individual Consumers

The changes made from 1 November 2016 increased the cost for a typical residential consumer by, 2.5%, $24.45 per annum excluding GST on a pre discount basis, (3.1%, $24.45 per annum on a post discount basis). When significant changes are made the effects on individual consumers are considered carefully, and our approach has been to avoid changes that produce a rate shock greater than 15% (of the delivery charge component) to any customer.

## 3.5 Prices to be Cost Reflective Subject to Consumer Considerations

Pricing aims to reflect the cost that a consumer or consumer group places upon the network. For residential and small business customers there are clear trade-offs between pricing which is cost reflective and pricing that is relatively simple and easy to understand.

When determining what pricing structures are appropriate, MLL has considered consumers' expectations and their understanding of concepts applicable to charges for distribution services. These vary across consumer groups, e.g. an industrial consumer is typically better placed to understand more complex price structures such as those based on consumer peak demand than a domestic consumer.

A consistent price structure is also considered to be important. Change creates unnecessary transaction costs and if made frequently discourages consumers from responding to price signals that are provided.

There is regular liaison between company staff and the energy retailers who deal with the network charges for their customers, and Marlborough Lines consults with retailers prior to making changes in pricing structures.

The issues of incorporating more cost-reflective pricing are further explored in Section 5.

## 3.6 Results of Consumer Research

A customer satisfaction monitor is undertaken which assesses views on a number of issues such as overall satisfaction, reliability of supply, company performance, ownership preferences, community involvement, and attitudes to regulation. Residential and business consumers are represented in the survery.

The key indicators have been consistently high over recent years. The most recent survey was completed in August 2016. Figure 1 below outlines the level of customer satisfaction in key areas.

**Figure 1: Customer Satisfaction Survey Results**

| | 2012 | 2013 | 2014 | 2015 | 2016 |
|---|---|---|---|---|---|
| **Reliability** | 93% | 96% | 96% | 96% | 96% |
| **Quality** | 91% | 95% | 93% | 94% | 95% |
| **Faults Quantity** | 88% | 92% | 91% | 91% | 92% |
| **Faults Service** | 95% | 92% | 91% | 88% | 91% |
| **Faults Duration** | 94% | 89% | 94% | 83% | 88% |

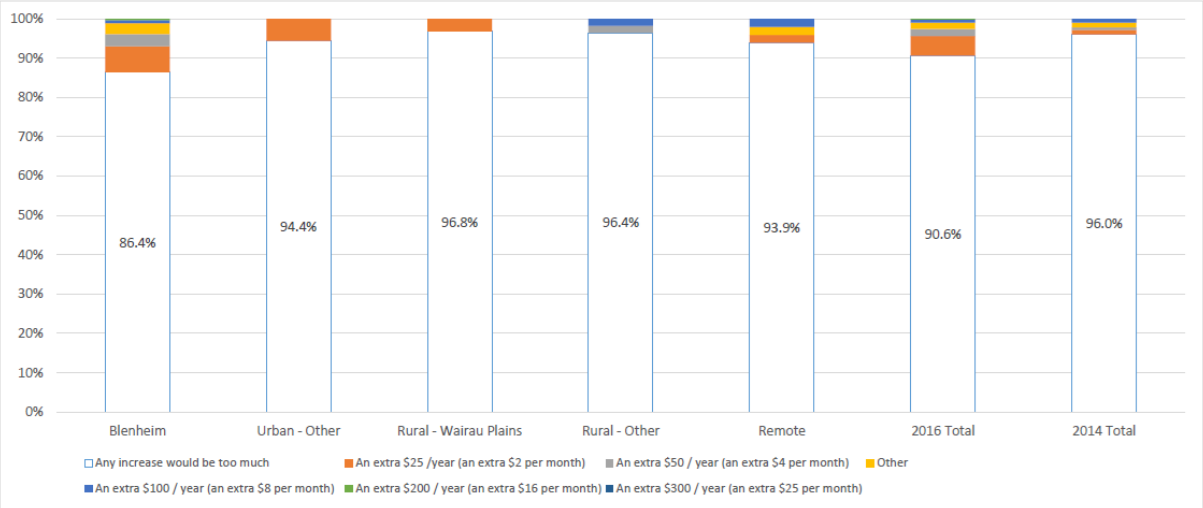
In addition to the customer satisfaction monitor further research was undertaken in 2014 and 2016 to address the revised ID requirements. Section 2.4.1.(3) of the ID directs EDBs to seek the views of consumers on price and quality matters and for the company to consider the views expressed by consumers in the pricing decisions made by the company.

The price quality research segmented consumers by predominant end use and geographic areas. The results of the research in 2016 show that the most important aspects of network performance for consumers is the information and availability of supply, followed by customer service and frequency and duration of outages.

Customers were also asked specifically about price and quality trade-offs. 91% of domestic customers stated that "any increase would be too much" when asked if they would be prepared to pay for improvements to the quality of their power supply. 80% of all customers did not want lower prices if this reduced the level of service.

The customer research programme provides regular feedback which is incorporated in the Company's planning processes.

**Figure 2: Price Quality Trade-off Results – Domestic Customers**




(2014, n=498, 2016 n=500)

# 4. Allocation of Costs and Derivation of Tariffs

## 4.1 Introduction

The following section outlines derivation of total cost, the target revenue, the explanation of consumer groups and the methodology to allocate the costs of owning and operating the network to consumer groups. The rationale for the cost driver selected and network statistics for each consumer group are also included.

The estimate of revenue from each consumer group for the 12 months from 1 April 2017 to 31 March 2018 is compared with the estimate of costs to serve each group. Although alignment of the costs and revenues may be achieved over time, in some cases this is inappropriate or difficult to achieve because of regulatory requirements.

## 4.2 Assessment of Costs - 1 April 2017 to 31 March 2018

The company aims to generate sufficient revenue to cover costs for the coming year, including a return on the Network's assets subject to constraints.

The Return on Investment is calculated by applying the cost of capital published for the current regulatory period to an estimate of the Regulatory Investment Value (RIV) as at 31 March 2017. The RIV disclosed as at 31 March 2016 is $221.244m.

This value is adjusted for capital expenditure, annual revaluation and regulatory depreciation to derive an estimate as at 31 March 2017 of $223.333m. The estimated RIV is multiplied by the Commerce Commission's estimate of post-tax WACC for the current five year regulatory period of 5.97%[1] to give a required return on investment of $13.333m.

The WACC for Information Disclosure purposes is updated annually. For the Disclosure year to 31 March 2017 the range - 25th to 75th percentile - was 4.05% to 5.48% with a mid-point of 4.77%.

Figure 3 sets out the calculation used to determine the estimated Return on Investment component of total cost of owning and operating the network.

**Figure 3: Marlborough Lines Estimate of Regulatory Investment and Return**

| Calculation of Return on Investment | | |
|---|---|---|
| Regulatory Investment Value (RIV) at 31 March 2016 | | 221,244 |
| Revaluation at 1.6% estimate | | 3,540 |
| Estimate of Depn for FY17 | | 9,495 |
| CAPEX for FY17 | | 8,044 |
| **Estimated Regulatory Investment Value 31 March 2017** | | **223,333** |
| Return on RIV - DPP WACC post tax mid point | 5.97% | 13,333 |

Figure 4 outlines the company's current best estimate of costs for the network business for 1 April 2017 to 31 March 2018. Marlborough Lines changed it financial year to a 30 June year end in 2016.

[1] Cost of Capital Determination for Electricity Distribution Businesses' Default Price-Quality Paths and Transpower's Individual Price-Quality Path [2014] NZCC 28, Commerce Commission, 31 October 2014, Page 2.

**Figure 4: Marlborough Lines Network Cost Estimate by Category**

| $'000 | 2017/18 Estimates |
|---|---|
| Transmn. Interconnection & ACOT | 6,798 |
| Transmn. Investment & Connection | 1,049 |
| System Operations & Mtce | 10,537 |
| Admin & Overheads | 4,242 |
| Depreciation | 9,631 |
| Taxation Expense | 1,686 |
| Return on Investment | 13,333 |
| **Total Costs for FY18** | **47,276** |
| Misc. Revenue | 2,605 |
| **Costs Net of Misc. Revenue** | **44,671** |

In addition to revenue for lines services the network receives some miscellaneous revenue e.g. income from vested assets, capital contributions and sale of reusable or recyclable materials. The miscellaneous revenue received by the network is deducted from the estimate of total costs.

## 4.3 Classification of Consumers into Groups

All network connections are categorised into four broad consumer groups, based on the predominant end use of energy and the installed capacity of each connection.

Initially consumers are categorised as being residential or non-residential. The classification is based on their predominant end use and aligned with the commonly adopted statutory definition for a 'domestic consumer' and 'domestic premises' contained in section 5 of the Electricity Industry Act 2010.

**Figure 5: Definitions of Domestic Consumer and Premises - s5 Electricity Industry Act**

**Electricity Industry Act 2010**
(5) Interpretation

In this Act, unless the context otherwise requires,—

> ***domestic consumer*** *means a person who purchases or uses electricity in respect of* ***domestic*** premises
>
> ***domestic premises*** *means premises that are used or intended for occupation by a person principally as a place of residence; but does not include premises that constitute any part of premises described in section 5(c) to (k) of the Residential Tenancies Act 1986 (which refers to places such as jails, hospitals, hostels, hotels, and other places providing temporary* accommodation)

The different characteristics of residential consumers, such as greater diversity in demand patterns, different consumption patterns, compared to businesses consumers make it logical to have a

residential consumer group. Residential users also have a higher proportion of their total load associated with water and space heating which is generally able to be interrupted by the company's ripple control system. There are also regulatory constraints that apply only to residential consumers e.g. the Low Fixed Charge Regulations.

Residential customers often have their peak demands occurring between 7.30 - 9.30am and 5.30 - 9.00pm. The utilisation of network capacity during these times is a key driver of the costs they place on the network. 85% of network connections are classified as Residential consumers.

The non-residential consumers are then further divided into three groups, one group for irrigation installations and two groups for commercial consumers, split based on whether the maximum capacity supplied to the installation is greater or less than 150 kVA.

The four consumer groups are therefore Group 1 – Residential (Domestic), Group 2 - Irrigation, Group 3 – General - Small and Medium Commercial, and Group 4 - Larger Commercial and Industrial.

Group 2 is the irrigation consumer group and includes both small and larger capacity connections. These consumers have a distinct usage pattern which lead to them being grouped separately from other commercial users. Their peak demand occurs during the summer months and their consumption in kWh is far more variable from season to season than other users. To qualify for the specific irrigation pricing plan an installation must be fitted with a relay to ensure the load is interruptible, which provides the network with the ability to restrict usage during periods of peak network demand if required.

The unique pattern of consumption drives the costs they the place on the network and is different than for other groups. These installations were generally not operating at times of network peak demand or during Regional Coincident Peak Demand (RCPD) periods

The third group are made up of predominantly small to medium commercial connections with a capacity requirement of less than 150kVA. Within this group there are a number of load groups with stepped fixed charges based on the capacity provided.

The fourth group is larger commercial industrial connections with a capacity requirement in excess of 150kVA. MLL requires these consumers to have half hourly or Time of Use (ToU) metering installed. This group also includes a number of large consumers with 11kV supplies.

The grouping of non-residential consumers by capacity has been adopted as the capacity provided generally reflects the initial and ongoing investment required to be made by the network, the maintenance costs incurred, and is also an indication of their likely contribution to peak demands.

Figure 6 outlines the four consumer groups, the relevant fixed charge price codes and the estimated number of ICPs in each group for the year commencing 1 April 2017.

**Figure 6: Consumer Groups – Number of ICPs and Price Category Codes**

| Group | Description | Fixed Charge Codes | No. of ICPS |
|---|---|---|---|
| 1 | Residential | DS,DSNL,DL,DT | 21,478 |
| 2 | Irrigation | PM,PH,PK | 340 |
| 3 | Small Med. Comml. <150 kVA | NS,NH,NT,US,UL,RT,RV,RX | 3,316 |
| 4 | Lge. Comml. & Industrial > 150kVA | BF,BHC,BHM | 116 |
| **Total number of installations** | | | **25,250** |

## 4.4 Cost Allocation Methodology

### 4.4.1 Network Statistics

The relative use of the network is measured in a number of different ways an expressed as network statistics. These network statistics are the basis of the allocation of costs to each of the consumer groups. The table below summarises the network statistics for each consumer group and the network as a whole.

**Figure 7: Network Statistics**

| Consumer Group | No. of ICPS | GWH/Yr | Capacity BDMD MVA | Peak Demand ADMD MVA | Demand RCPD MW | Assets $m |
|---|---|---|---|---|---|---|
| 1. Residential | 21,478 | 144 | 353 | 28 | 24 | 199 |
| 2. Irrigation | 340 | 17 | 28 | 2 | 3 | 27 |
| 3. Small Med Comml. | 3,316 | 78 | 123 | 14 | 13 | 114 |
| 4. Lge. Comml. Industl | 116 | 129 | 54 | 27 | 18 | 48 |
| **Total** | **25,250** | **367** | **558** | **70** | **58** | **387** |

The "Number of ICPs" connected and "Consumption" measured in kWh, for each ICP is readily available from the network's billing system. Estimating these variables for the coming year is part of the company's budgeting process.

The "Capacity" stated on a before diversity maximum demand basis, (BDMD) is for information purposes only. For consumer Groups 1, 2 and 3, the value is based on the fusing as most of these connections do not have half hourly metering. All Group 4 connections have half hourly metering and therefore the actual maximum demand of each connection is summed together for the group[2].

"Peak Demand" is the estimation of each connection group's load during periods of peak network demand. This is measured if available, or estimated on an after diversity maximum demand basis, (ADMD). Where half hourly metering is installed for larger customers the actual data is available.

The proportion of network demand utilised by the larger commercial and industrial customers at times of peak demand varies from year to year. For the most recent year is it 27MVA. The peaks periods for this assessment included some periods in April 2016 when the wine processing was underway and periods of high demand during the winter months of 2016.

Where half hourly data is generally not available for the other smaller customers estimates are based on the fuse size and customer type. The estimates of demand at peak times is supported by knowledge built up through periodic data logging performed at particular substations where load is primarily residential or primarily small/medium commercial.

[2] An alternative would be to use the minimum of transformer and fuse size for the large industrial customers' estimate of before diversity maximum demand. This value is 70kVA, and although less accurate, is more comparable to the numbers used for the other consumer groups.

The results indicate that irrigation demand is low at times of peak demand on the network. This is because irrigation is generally not operating during the time of network peak demands in April or the winter months.

The diversity factor is significantly higher for residential users than non-residential users. The difference in diversity factor between residential and businesses is increased further by the number of non-permanent residences connected to the Marlborough network.

### 4.4.2 Allocation of Assets

The allocation of assets between consumer groups can be done in a number of ways depending on the availability and flexibility of the data and information systems. MLL's approach is to assign a value of assets to each ICP then summate these to get a total of each consumer group.

As assets are frequently shared, after diversity maximum demand (ADMD) is used to allocate the value of the asset across all of the ICPs supplied by each asset. The major asset categories were allocated as follows:

- The service, and in some cases the transformer, were assigned to a single ICP.
- The transformer and associated sub-site assets values, if shared, were assigned to the ICPs they supply on the basis of their respective ADMDs.
- The value of the 11kV feeder assets were assigned in sections to all of the ICPs normally supplied by that feeder and using a particular section of the feeder on the basis of the ICP's ADMDs[3].
- The zone substation asset values were assigned to all of the ICPs supplied by that zone substation on the basis of the ICP's ADMDs.
- The 33kV network and global assets were assigned to ICPs on the basis of their use of the assets.

The Replacement Cost (RC) rather than the Depreciated Replacement Cost (DRC) was used. If DRC was used the allocation of operating and maintenance costs would have needed to reflect the respective asset age profiles.

The Marlborough network also has a number of geographic areas that are uneconomic to service. The assets for these areas have been shared amongst the groups in the same proportion as the economic assets. The costs of providing a supply to areas in remote locations such as the Marlborough Sounds is therefore shared by all network consumers, rather than falling primarily on the residential consumer group.

### 4.4.3 Application of Cost Indicators to Cost Categories

The intention of the methodology is to ensure the cost allocator applied to each category of costs reflects a substantial relationship between the category of costs and the underlying activity driving those costs.

[3] The division of each feeder into sections was done for the first time for the April 2016 disclosure. A new information system allowed the network data to be analysed in this way.

System operations and maintenance, depreciation, and return on investment are considered to be asset related. These costs have been allocated based on the assets required to service the consumers in each group.

Administration and overhead costs are related to the company's servicing of all customers and other company obligations. These shared costs are not directly attributable to any particular consumer group. The number of ICPs and volume has been combined to form a cost allocator for the administration and overhead costs.

The taxation charge, which is relatively small, has been allocated based on the forecast of revenue from network services for each group.

The quantum of costs to be allocated and cost allocator selected are summarised in Figure 8 below.

**Figure 8: Cost Allocator**

| $'000 | 2017/18 Costs | Misc Revenue | Net of Misc Revenue | Allocation to Group based on |
|---|---|---|---|---|
| Transmission Costs Excl NIC | 6,798 | | 6,798 | Share of RCPD |
| Transmission NIC | 1,049 | | 1,049 | Share of Assets |
| System Operations & Mtce | 10,537 | 696 | 9,840 | Share of Assets |
| Admin & Overheads | 4,242 | 280 | 3,962 | MWH /ICPs |
| Depreciation | 9,631 | 636 | 8,995 | Share of Assets |
| Taxation Expense | 1,686 | 111 | 1,574 | Net Revenue |
| Return on Investment | 13,333 | 881 | 12,452 | Share of Assets |
| **Total Costs for 2017/18** | **47,276** | **2,605** | **44,671** | |
| Misc Revenue | 2,605 | | | |
| **Costs Net of Misc Revenue** | **44,671** | | | |
| **Estimated revenue** | **35,260** | | | |
| **Difference (shortfall)** | **(9,411)** | | | |

### 4.4.4 Allocation of Transmission Costs to Groups

For Marlborough the majority of transmission charges are interconnection charges. Interconnection charges for the year from 1 April 2017 are based on the demand measured on the network during the 100 Regional Coincident Peak Demand (RCPD) periods in the 12 months from 1 September 2015 to 31 August 2016.

The table below sets out annual transmission charges for Marlborough Lines.

**Figure 9: Transmission Charges**

| | | 31 Mar 2014 Actual | 31 Mar 2015 Actual | 31 Mar 2016 Actual | 31 Mar 2017 Actual | 31 Mar 2018 Estimate |
|---|---|---|---|---|---|---|
| Interconnection rate | $/ kW | 99.44 | 114.47 | 110.35 | 114.64 | 123.98 |
| Peak Demand - MW | MW | 62.7 | 59.0 | 59.7 | 59.7 | 57.7 |
| **Intcontn. + ACOT** | $'000 | **6,230** | **6,756** | **6,587** | **6,841** | **7,148** |
| Connection Chrgs. | $'000 | 617 | 604 | 607 | 601 | 613 |
| New Investment Chrgs. | $'000 | 466 | 523 | 492 | 464 | 436 |
| Loss Rentals Rebates | $'000 | (379) | (274) | (422) | (382) | (350) |
| **Total Transmission** | $'000 | **6,933** | **7,609** | **7,264** | **7,525** | **7,847** |
| *Annual Change* | | *26.0%* | *9.8%* | *-4.5%* | *3.6%* | *4.2%* |

The majority of transmission costs are allocated based on the actual and estimated contribution of each consumer group to total network demand during the RCPD periods.

Interconnection charges paid to Transpower and ACOT are expected to be $7.148m less an estimated $0.350m of loss rental rebates for the period makes $6.798m to be allocated to groups based on their share of demand during the RCPD periods in the prior year.

The larger commercial/industrial customer group contributed 18 MW of the 58 MW of network demand during the 100 RCPD periods. The balance is allocated between the other three consumer groups using an estimation of their demand during these RCPD periods.

There remains $1.049m of transmission costs relating to new investment and connection charges which are allocated based on the share of network assets allocated to each group as described above.

Figure 10 below summarises the variables used results of the allocation of transmission charges between the consumer groups.

**Figure 10: Allocation of Transmission Costs to Consumer Groups**

| Consumer Group | Demand at RCPD MW | Transmn. Interconn. $000 | Assets Prior year $m | Transmn. NIC $000 | Total $000 |
|---|---|---|---|---|---|
| 1. Residential | 24 | 2,813 | 199 | 538 | 3,351 |
| 2. Irrigation | 3 | 352 | 27 | 73 | 424 |
| 3. Small Med Comml. | 13 | 1,524 | 114 | 308 | 1,832 |
| 4. Lge. Comml. Industl | 18 | 2,110 | 48 | 130 | 2,240 |
| **Total** | **58** | **6,798** | **387** | **1,049** | **7,848** |

### 4.4.5 Results of Cost Allocation to Consumer Groups

Figure 11 below summarises the allocation of all costs net of miscellaneous revenue between the consumer groups.

**Figure 11: Allocation of Costs to Consumer Groups**

| $'000<br>Consumer Group | Transmissn. | System Opns & Mtce. | Admin & Overheads | Depreciation | Taxation | Return on Investment | Total Cost Allocated |
|---|---|---|---|---|---|---|---|
| 1. Residential | 3,351 | 5,049 | 2,461 | 4,615 | 702 | 6,389 | 22,568 |
| 2. Irrigation | 424 | 682 | 117 | 623 | 61 | 862 | 2,769 |
| 3. Small Med Comml. | 1,832 | 2,888 | 679 | 2,640 | 391 | 3,655 | 12,085 |
| 4. Lge. Comml. Industl | 2,240 | 1,221 | 705 | 1,116 | 420 | 1,545 | 7,248 |
| **Total** | **7,848** | **9,840** | **3,962** | **8,995** | **1,574** | **12,452** | **44,671** |

### 4.4.6 Comparison of Cost Allocation and Expected Revenue

Figure 12 compares the estimated revenue for the 12 months from 1 April 2017 to 31 March 2018 with the allocation of the estimated costs for the same period.

The estimate of revenue for the 12 months to 31 March 2018 is based on volume forecasts for each group.

The revenue is likely to be close to estimated levels unless there is a significant unforeseeable event. Although it may vary to some degree with the quantity of local product available for processing and unusual weather patterns.

Irrigation consumption is more variable from year to year than consumption by other consumer groups. Irrigation revenue is also more variable despite a significant portion of the revenue being fixed based on capacity provided. The estimates of revenue for the irrigation group are based on irrigation volumes achieved in an average year

**Figure 12: Revenues Estimate by Consumer Groups and Cost Estimates**

| Consumer Group | Revenue Estimated $'000 | Cost Estimated $'000 | Difference Revenue $ | Difference Revenue % |
|---|---|---|---|---|
| 1. Residential | 15,733 | 22,568 | (6,835) | -30% |
| 2. Irrigation | 1,364 | 2,769 | (1,405) | -51% |
| 3. Small Med Comml. | 8,766 | 12,085 | (3,319) | -27% |
| 4. Lge. Comml. Industl | 9,397 | 7,248 | 2,149 | 30% |
| **Total** | **35,260** | **44,671** | **(9,411)** | **-21%** |

The company's overall expected revenue is $9.411m less than what is required to cover the expected costs and make a return on investment in line with the industry cost of capital benchmark for the current regulatory period.

However note that the revenue is stated net of the posted discount on lines charges paid annually to consumers. The estimate for the discount for the period is $8.140m. There the shortfall if the discount is added back on is $1.271m, 2.70% of the estimated costs.

The expected revenue from the residential consumer group is below the costs produced by the allocation model, as is the revenue of the small to medium businesses. In the case of the irrigation consumer group the expected revenue is close to half the costs allocated under the methodology.

When specific pricing for irrigation customers was introduced the pricing was set to encourage the use of network assets at off-peak times. The revenue expected from the larger commercial/industrial customer group is above the estimated costs.

However a cost allocation model can only ever be an estimate of network costs. From year to year there are differences in results. However the results of the cost allocation model are one factors considered in pricing decisions. When prices were changed from 1 November 2016, increases were made in fixed charges for all customers except those in Consumer Group 4, the large commercial and industrial customers.

Over recent years efforts have been made to rebalance the revenue from consumer segments and move towards a more cost reflective structure. The pricing schedule has also been rationalised with the number of pricing plans reduced. A significant update in pricing plans for the larger commercial/industrial customers was implemented from 1 April 2013, however the network charges for lines services also includes historical elements.

## 4.5 Reason for Changes in Prices

MLL has chosen not to increase prices from 1 April 2017 and will reassess pricing later in the year. As discussed above this is because the price change for the previous year was delayed until 1 November 2016.

## 4.6 Fixed and Variable Proportions

The proportion of total line charges currently being charged is 44% fixed, 56% variable.

For Group 4 the capacity charges have been included as fixed and the regional peak charge has been included within variable charges. The following table looks at the proportion of fixed and variable charges for each consumer group.

**Figure 13: Proportion of Fixed and Variable Charges by Consumer Groups**

| Group | Revenue $'000 | Fixed Revenue $'000 | Fixed % |
|---|---|---|---|
| 1. Residential | 15,733 | 5,560 | 35% |
| 2. Irrigation | 1,364 | 731 | 54% |
| 3. Small Medium Commercial | 8,766 | 3,976 | 45% |
| 4. Large Comml. & Industrial | 9,397 | 5,353 | 57% |
| **Total** | **35,260** | **15,619** | **44%** |

The consideration of other pricing structures for each group is discussed in the pricing derivation section and pricing roadmap. The capacity and regional peak charges for the Group 4 consumers were changed from 1 April 2013, to address changing patterns in network consumption.

In general, fixed charges are a lower proportion of total line charge revenue for lower capacity users in Groups 1 and 3. The higher variable component in the charges for Groups 1 and 3 reflect the patterns of consumption, lower investment costs for an incremental consumer, and a controllable portion of load for residential consumers. The movement of consumers to LFC plans continues to reduce the portion of fixed charges received from the residential group.

For Group 2, the irrigation consumers, the majority of the revenue is collected from fixed charges. This is because the usage is highly varied from year to year depending on the seasonal weather patterns, but the costs to service this group are incurred by the network regardless of throughput which varies with a dry or wet season. Therefore a price structure with a higher fixed proportion is more cost reflective.

Fixed charges are a greater proportion of charges for the Group 4 consumers. These customers also understand the concept of capacity provided and peak demand and are encouraged to make decisions to ensure there is a reasonable utilisation of network assets where practicable. Variable charges provide a balance to the other components of lines charges for Group 4.

MLL assesses that most of its costs outlined above are actually fixed. If MLL were to recover its fixed proportion of costs in fixed charges, the fixed charges would need to increase. Offering variable charges to consumers may stimulate efforts to use energy efficiently but results in the costs of consumers with low consumption being shared by other ICPs.

The use of unit charges i.e. ¢/kWh, also aligns with what most consumers generally understand, particularly residential consumers who are unfamiliar with concepts such as peak demand. Variable charges are valued by consumers as they are responsive to their level of activity month to month.

## 4.7 The Derivation of the Prices to be Charged to Each Consumer Grouping

The pricing methodology is required to include sufficient information for an independent expert to assess compliance with the pricing principles and explain the derivation of the tariffs to be charged to each consumer grouping.

Since it is sometime since a completely new price structure was introduced individual prices for each consumer group now incorporate historical factors.

When assessing whether the current prices are reasonable MLL considers the following questions: Do the current prices;

- encourage consumption outside of peak demand periods to enhance the efficient utilisation of the network,
- reflect the impact of consumers' demands on transmission charges,
- ensure the costs of assets are recovered,
- reflect the use of controllable supplies within peak demand periods,
- ensure the company complies with all legislative and regulatory pricing considerations, including the Low Fixed Charge Regulations.

### 4.7.1 Consumer Group 1 - Residential Consumers -Prices

MLL utilises the industry standard residential consumer definition. Residential consumers are divided into two categories based on the capacity they require from the network. Larger capacity residential connections, >20kVA, pay a higher daily fixed price reflecting the initial and ongoing asset costs of providing a higher than normal level of capacity. The same price per unit of energy apply for both standard and large residential connections.

Fixed Daily charges are set on the basis of two capacity bands, with prices of $1.21 less $0.23 discount per day for installations with less than 20kVA capacity provided and $2.49 less $0.459 discount per day for installations with greater than 20kVA capacity provided. The relativities between the fixed charges and the variable unit rates and the capacity threshold for the fixed charges have remained consistent over recent years.

Different c/kWh prices apply depending on whether supply is available at all times or restricted either to specified time periods or subject to interruption when required to manage network requirements.

The price for uncontrolled energy is 8.457 ¢/kWh less 1.692 ¢/kWh discount, for controlled energy, 4.946 ¢/kWh less 0.990 ¢/kWh discount, and 2.14 ¢/kWh less 0.428 ¢/kWh discount for energy used by hard wired appliances only available from 11pm – 7am. The prices incentivise consumers to use controlled energy which enable MLL to manage the demands on the network during peak periods.

The methodology for allocating the transmission cost component for the residential group has been consistent for the past years. The transmission costs will be recovered primarily through the revenue from uncontrolled units. When unit prices were last set 95% of Group 1's transmission costs were divided by the estimated units to give a transmission component of 3.477¢/unit. The remaining 5% of the transmission costs are to be recovered through the 13 hour controlled units, which is equal to 0.500¢/unit. A component is allocated to the 13 hour controlled tariff as occasionally controlled load is required to be switched back on at times of RCPD to maintain consumer service levels. No transmission component is recovered from the night rate as the RCPD periods do not occur between the 11pm and 7am, the night rate period.

There is a differential between the distribution component of the uncontrolled energy rate and that of the 13 hour controlled and a further differential in the unit night rate. The night rate is set at a level to recover minimal revenue, providing a strong signal that there is available network capacity at these times.

The level of prices and difference between controlled and uncontrolled prices is cross checked by calculating the revenue that will be received from the controlled units and comparing this with the revenue that would have been received if they were charged at an uncontrolled rate. The difference should be approximately equal to the reduction in transmission costs that is made by reducing load during the RCPD periods. This is the case, therefore the difference between the controlled and uncontrolled rates is in the correct order of magnitude.

MLL has a range of small scale distributed generation (SSDG) connected to the Network. Applications to connect distributed generation are treated in accordance with Part 6 of the Electricity Industry Participation Code (The Code).

From 1 April 2014 MLL introduced a charge of 0.5¢/kWh on units imported from SSDG to the Marlborough network. This charge was designed to signal that distributed generation will have long term incremental costs impacts on the Network. For example distributed generation has the potential to increase voltage beyond regulatory limits when SSDG is importing generation.

### 4.7.2 Consumer Group 2 - Irrigation - Prices

Irrigation has a distinct pattern of energy consumption, demand is very seasonal and consumption varies from year to year. The charges are approximately 50% capacity based. This pricing structure reduces the variability of costs and revenues for customers and the network. It is more cost reflective as costs are driven by the provision of capacity rather than actual volume consumed from year to year.

The current charges for this group, including the threshold of 23kW, are based on historical patterns and relativities. The prices for the minimum fixed charge loads up to 23kW is $2.902/day less $0.549/day discount, which is equal to the cost based on the installed capacity rate of $0.126/kW/day less $0.023/kW/day discount, for a customer with a 23kW pump.

The transmission component is recovered through the capacity charge by dividing the allocated transmission charges by the estimated chargeable capacity.

The seasonal rate has been set at 2.805c/kWh less 0.561c/kWh discount, a level between the night rate and the controlled rates that apply for the commercial customers in Group 3. The non-seasonal rate is set at a level of 23.378c/kWh less 4.676c/kWh discount, which discourages use outside of the irrigation season, consistent with the assumption made on the cost of providing a supply to these installations.

### 4.7.3 Consumer Group 3 – General (Small/Medium Business) Consumers – Prices

This group has three load groups/thresholds within it; up to 45kVA, 46 to 70kVA and 71 to 150kVA. There are further subgroups with the price per installation per day varying with the capacity required, based on fusing. A limited number of connections within this group are metered with half hourly equipment for monitoring purposes only.

Fixed daily charges for this group increase with the capacity provided. For installations with capacity requirements less than 15kVA daily charges are higher than those for residential consumers. This higher price reflects the decreased diversity factor between the users within this group and the requirements for different service levels such as performing some maintenance tasks outside of standard working hours to avoid business interruption.

Uncontrolled energy prices decrease as an offset for the higher fixed charges. Two controlled energy tariff rates are available to incentivise consumers to utilise controlled load options where applicable.

The prices for supplies on thirteen hour controlled rates and night controlled rates are the same for all customers in this group. This approach has been taken to limit the number of prices and is considered a reasonable simplification as most commercial customers use an uncontrolled supply.

As capacity requirements increase, the fixed charges become more significant. This reduces the variability of revenue from the larger customers within this group. The high fixed charges are more cost reflective as when a customer's capacity requirement increases, individual consumers or several consumers together influence the asset requirements at certain points in the network.

Conversely the uncontrolled consumption charges become slightly lower with the higher capacity to reflect the economies in supplying the larger kVA connections.

The transmission component is recovered through the unit price on uncontrolled energy. The allocated transmission costs are divided by the estimated number of uncontrolled energy units consumed by the group.

The current charges for this group are based on historical tariff patterns and relativities. Pricing structures for this group will be reassessed in the future.

### 4.7.4 Consumer Group 4 – Larger Commercial/Industrial > 150kVA - Prices

When a consumer has a capacity requirement greater than 150kVA at any time during the year, the company requires a half hourly meter to be installed. Half hourly metering allows for a more detailed pricing structure and greater signalling of network constraints. Group 4 pricing plans include; a fixed daily charge, a unit charge based on energy consumed, a capacity charge, and a regional peak demand charge. Power factor charges are also levied if the power factor is less than 0.95 at the time of the customer's peak demands. The capacity based charges make up a large component of the overall charges for Group 4 consumers.

There are 116 consumers in this group. The forecast revenue for this group for the 12 months commencing 1 April 2017 is $9.40m, 27% of the total of all line charge revenue collected by MLL. A significant proportion of these consumers have a dedicated transformer for their supply.[4]

The pricing structure for the large commercial and industrial consumers is made up of four main components plus the additional power factor charges[5:]

- Fixed daily charge of $6.90/day less $1.81 discount per installation which collects 2.3% of the target revenue from this group.
- Day and night variable unit charges ¢/kWh. The differential between the day and night rate is significant at 1.9¢/kWh, and a useful pricing signal to consumers to utilise energy at off peak times. A day night variation is generally consistent with the retailers' energy unit cost signal[6], and therefore it is likely to be a potential influence on consumer behaviour. On this basis a night rate continues to be offered. Prior to 2013 there was a seasonal variation in the day unit rates but this was considered unnecessarily complex and removed. Variable unit charges will collect 21% of the target revenue from this group.
- A capacity charge of $11.05/kVA is levied based on 'assessed capacity'. The charge is levied in each month of the year on an estimate of the fixed capacity being provided to each consumer. In assessing the capacity provided to customers, MLL measures the maximum demand over the previous three years, and this, together with the size of the specific transformer drives the assessment of chargeable capacity. Capacity charges will collect approximately 55% of the target revenue from this group.

[4] Where a transformer is shared between a number of customers from more than one consumer group the transformer capacity has been allocated to each group based on an approximation of the peak load of all the connected consumers.

[5] Power factor charges are estimated to collect less than 2% of the revenue from this group.

[6] Day/night periods offered by Retailers are generally 12-8am but there is sufficient overlap with the Distributors 11pm-7am.

- A regional peak demand charge of $8.97/kVA for all months of the year will collect the majority of the transmission costs for this group. The chargeable kVA used for the Regional Peak Demand charge is the average of half hourly demands during peak periods for transmission chargers of 7:30am – 10am and 4:30pm-7pm weekdays only, May through to September. With the recent change from 12 to 100 RCPD periods MLL will monitor if these parameters continue to be a good proxy for the RCPD periods.
- The demands measured during peak periods for transmission charges drive the charges for the following year i.e. this charge works in a similar way to the interconnection portion of Transpower's charges to MLL. The Regional Peak Demand charge will collect 21% of the revenue from this group.

The prices above are for the majority of consumers within Group 4 who have low voltage supply. In addition, power factor charges are applied to consumers, based on the difference between 0.95kVAr and their power factor measured during their six highest peak periods each month.

The regional peak charge is a price signal that reflects a component of the cost of supply and may encourage consumers to reduce load during RCPD periods. The methodology used ensures consumers in Group 4 will benefit from any reduction in transmission charges that occur.

16MW of the 59.7MW, 27% of the RCPD that is the basis of transmission charges for the year from 1 April 2017 is attributable to the consumers within Group 4.

A price signal to reduce load during RCPD periods could be done in different ways. The approach chosen to nominate a defined "measurement period" for the five half hours in the morning and evening when traditionally RCPD have occurred, was adopted for a number of reasons. No additional technology was required, and consumers who can move loads are certain to benefit.

For those customers in Group 4 who own their own transformer and are responsible for their maintenance there is a reduction in the capacity price per kVA to reflect the differential cost to the network.

## 4.8 Proportion of Revenue by Price Component

The proportion of revenue by price component is outlined in Figure 22 in Appendix B.

## 4.9 Non Standard Contracts

There is currently only one non-standard contract on the network, which is for the Waihopai Power station embedded in the Marlborough network. The price is fixed under a contract put in place in 1999 when MLL sold the generation assets to Trustpower. The price increases each year by CPI. The target revenue for the year from 1 April 2017 is $66,355.

## 4.10 Power Factor Charges

A charge for reactive energy, where power factors are below 0.95, is levied to encourage investments in improving power factors. We have observed payback periods for some customers investing in equipment to correct their power factor of 12-24 months.

## 4.11 MLL Pricing Schedule

The current MLL pricing schedule is available on the MLL website.
http://www.marlboroughlines.co.nz/About-us/Disclosures/Pricing.aspx

## 4.12 Payments to Embedded Generators

There are three embedded generators on the network and one commercial SSDG that operates to supplement its own usage and uses the network for two way flows. These four generators receive monthly payments for avoided cost of transmission (ACOT). The ACOT payments are based on the average generation volume at the time of the 100 regional coincident peak demand periods multiplied by Transpower's interconnection rate. For the pricing year commencing 1 April 2017 the interconnection rate is $123.98/kW.

This methodology in effect passes through the full value of the saving in transmission charges that has occurred as a result of embedded generators reducing the network load during the RCPD periods.

The payment of ACOT to embedded generators was recently reconsidered by the Authority and these payments will no longer be required to be made from October 2018.

# 5. Pricing Roadmap Plans for Pricing Reform

## 5.1 Background to Roadmap for Pricing Reform

The Electricity Authority, (Authority) has requested all electricity lines businesses (ELBs) of which Marlborough Lines (MLL) is one, provide a "roadmap" or high level plan for reform of their pricing for electricity distribution services.

MLL agrees with the Authority that pricing for distribution services which is heavily reliant on consumption based charges (c/kWh) and/or fixed daily charges ($/day/installation) is not generally cost reflective or service based. This is because the amount charged for the services provided does not reflect the requirements a consumer places on the network and that the costs of providing supply are generally fixed.

Currently the majority of ELBs, including Marlborough Lines, use a two part pricing structure with fixed daily charges and consumption based charges for residential customers. The majority of connections on the Marlborough network do not have time of use or smart meters.

The Authority considers that if the Distributors provide more cost reflective pricing, then consumers will be able to make more efficient investment decisions, particularly with respect to solar generation and eventually battery storage technologies.

Marlborough Lines agrees with the Authority that it is important to ensure that pricing is fair to all consumers. Therefore it is desirable to avoid a situation where customers who can afford to install solar panels reduce the price they pay for distribution services to such an extent it transfers some of the costs of providing a supply to them onto other network consumers.

The transfer of costs from one group of customers to another, those with solar generation to those without, is particularly undesirable where it is likely to negatively impact vulnerable customers. It is acknowledged that currently energy costs are really challenging for some people connected to the Network and these customers may typically be less likely to install solar generation[7].

## 5.2 Looking to the Future

MLL considers there is a lot of uncertainty around the future cost and benefits of emerging technologies and how these will be taken up by consumers.

As well as the declining costs for photovoltaic panels there are currently Government sponsored initiatives to encourage the uptake of electric vehicles. Furthermore a solar generation system can be supplemented by battery storage which is also declining in cost. Peer to peer trading of electricity is already being trialled in Auckland.[8]

[7] Internationally some jurisdictions define "fuel poverty" thresholds and offer subsidies or financial support to vulnerable consumers who are unable to manage their energy costs, https://www.energy-uk.org.uk/policy/fuel-poverty.html
[8] https://www.nbr.co.nz/article/trial-peer-peer-energy-trading-system-start-auckland-december-b-193770

The adoption of these new technologies by consumers will change the way Distributors operate. A network may facilitate electricity flow from one customer to another. Distributors may also provide infrastructure and specific pricing for electric vehicles, and those consumers should have the ability to shift their load to respond to price signals and prevent inefficient network investment.

It important that, where possible, new pricing approaches are introduced before too many consumers make decisions based on old pricing models. If current pricing models encourage inefficient investments or discourage uptake of technologies, where there are benefits available, the costs of providing distribution services will be higher than they would otherwise.

As well as uncertainty around the emerging technologies, distributors are also facing uncertainty around how the cost of the national grid, transmission charges, will be recovered from users in the future[9]. It is important that new pricing models are durable and not introduced and then changed again within a short time period.

## 5.3 Approaches to Cost Recovery

There are many ways to recover the costs of a network. Section 4 of this document sets out the expected revenue by consumer group and compares this with an allocation of network costs based on Marlborough Lines' current view of an appropriate cost allocation methodology.

No one approach to allocating the cost of owning and operating a network between customers is perfect.

Marlborough Lines considers that within the electricity industry there are anomalies in pricing caused by Government policy factors which are beyond the control of network companies. These anomalies include the Low Fixed Charge Regulations and the uncertainty around the flexibility for distributors to set prices at different levels based on the geographical location of consumers.

Our current approach to pricing leads to cost sharing between customer classes, and cost sharing between urban and rural, especially remote rural customers. These customers typically gained supply at a time when government regulation mandated that uneconomic consumers be provided with a grid supply.

## 5.4 Marlborough Unique Network Characteristics

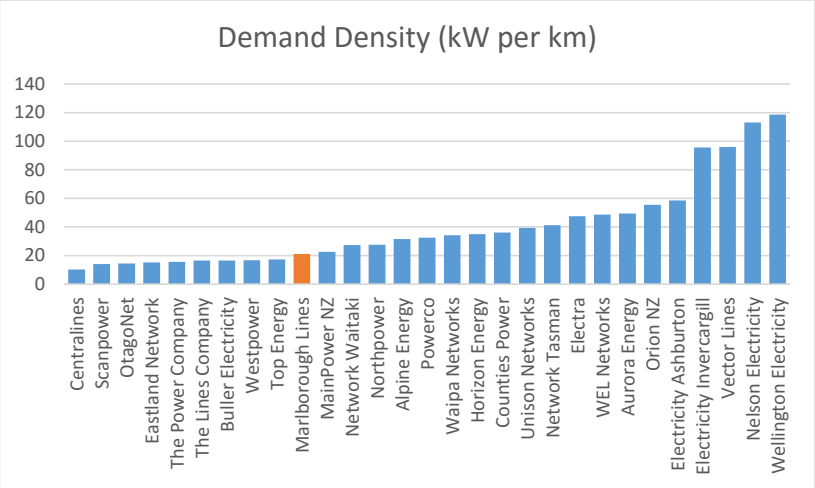
All 29 ELBs have some particular and unique characteristics. However when considering the path to pricing reform for MLL it is important to acknowledge that currently the impact of the 278 residential solar connections on the network is considerably less than either the unprofitable nature of providing supply to uneconomic areas such as the Marlborough Sounds or the impact of the low user fixed charges provided to 33% of residential customers and potentially 56%.

As explained later in this report, currently only 43% of consumers in Marlborough have smart meters which restricts the rate of change to pricing format.

[9] The Electricity Authority has a significant programme of work looking at changing the pricing methodology for the recovery of transmission costs: www.ea.govt.nz/development/work-programme/pricing-cost-allocation/transmission-pricing-review.

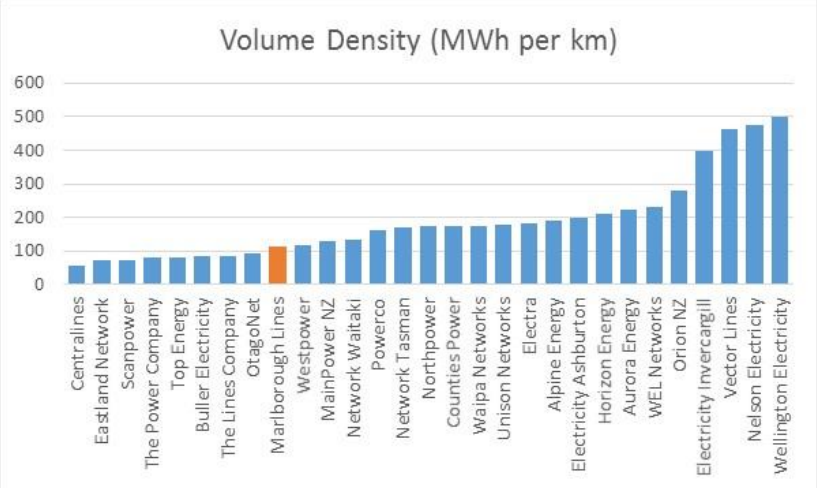
The following figures outline some key metrics for service intensity for ELB's in New Zealand. Overall they highlight the provincial nature of the Marlborough Network. In all four service intensity metrics Marlborough Lines is less than the average and median of the sample comprising all 29 ELBs in New Zealand. A low service intensity is generally expected to indicate higher costs of providing distribution services.

**Figure 14: Demand Density**



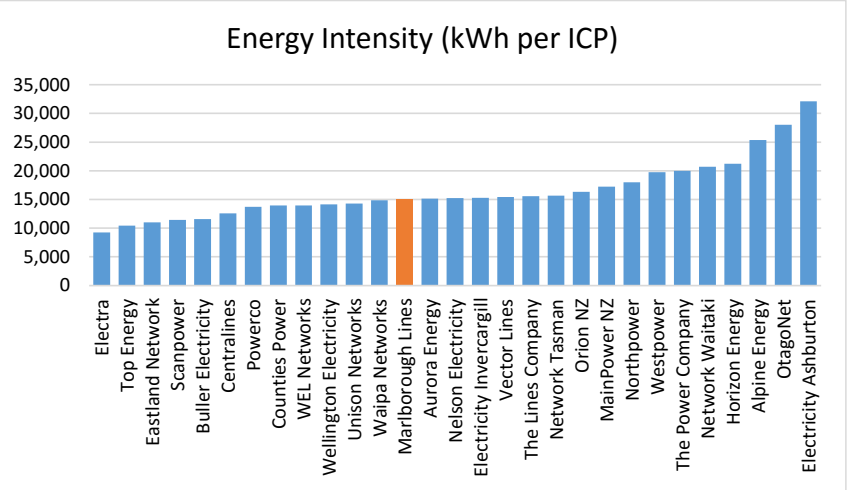

| | |
|---|---|
| Average | 40.3 |
| Median | 32.5 |
| Marlborough Lines | 21 |
| Rank | 20/29 |

**Figure 15: Volume Density**



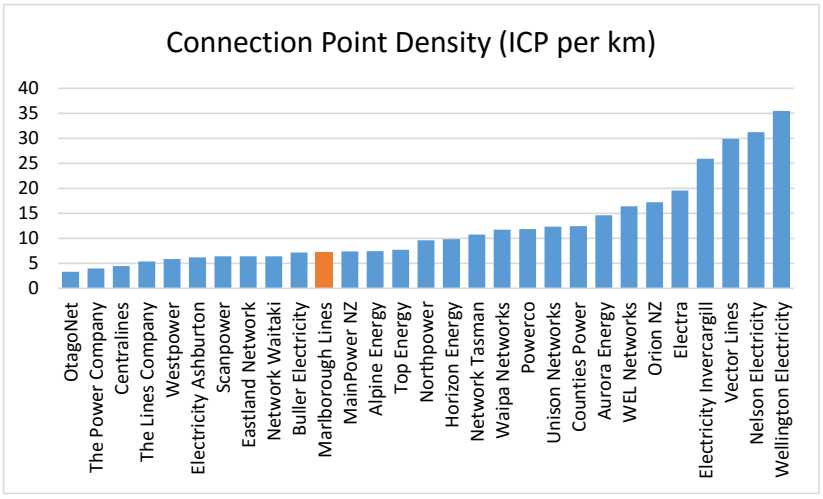

| | |
|---|---|
| Average | 189.3 |
| Median | 173.2 |
| Marlborough Lines | 111.4 |
| Rank | 21/29 |

**Figure 16: Energy Intensity**




| | |
|---|---|
| Average | 16,465 |
| Median | 15,242 |
| Marlborough Lines | 15,150 |
| Rank | 17/29 |

**Figure 17: Connection Point Density**




| | |
|---|---|
| Average | 12.2 |
| Median | 9.6 |
| Marlborough Lines | 7.4 |
| Rank | 19/29 |

Further analysis of the Marlborough network highlight the significant differences between remote and non-remote areas. In remote areas there are approximately two ICPs per kilometre of line.

The following table looks at the energy intensity of customers in remote and non-remote areas of the Marlborough network[10].

[10] The overall network score of 15,087 is slightly different from the information disclosed for the year to 31 March 2016 as it is based on a 12 month period that differs from the Disclosure year.

**Figure 18: Energy Intensity Remote/Non remote Residential Consumer Segments**

| | No. of Connections | GWh /year | kWh/ICP |
|---|---|---|---|
| **All Consumers** | | | |
| Non-Remote areas | 22,989 | 370 | 16,095 |
| Remote areas | 2,344 | 12 | 5,203 |
| **Total Consumers** | **25,333** | **382** | **15,087** |
| **Residential Consumers** | | | |
| Non-Remote areas | 19,375 | 138 | 7,111 |
| Remote areas | 2,067 | 8 | 3,955 |
| **Total Residential Consumers** | **21,442** | **146** | **6,806** |

The Marlborough Network extends out through the Marlborough Sounds and up the Awatere and other east coast valleys. Some of the lines servicing these remote areas were built in accord with Government legislation of the day which required construction of such lines. Many of these lines have never been economic.

The elimination of cost sharing would result in the cost of supply to some customers in remote areas becoming prohibitive. As customers drop off the network in remote areas, and Marlborough Lines continues to provide services to remaining customers, the costs for others increases.

From the perspective of a consumer, Marlborough Lines and the national economic good, it makes little sense for a customer to be driven from the Marlborough Lines Network through the implementation of high charges when the Marlborough Lines network is in a good state of repair and the cost of providing an alternative standalone supply is upwards of $50k per consumer.

These issues will need to be very carefully examined as the assets serving remote areas come to the end of their useful life and require replacement. The high capital cost of replacing the reticulation in remote areas[11] together with the reducing cost of non-grid alternatives and continuance of supply obligations present some real challenges.

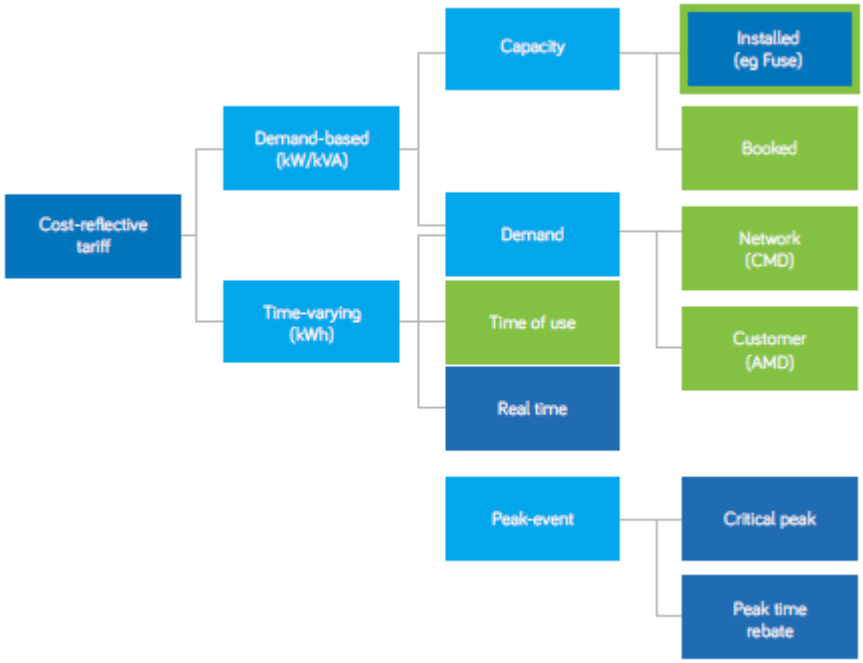
As well as relatively low service intensity, Marlborough also has a distinct lack of diversity in commercial and industrial load. The region has a high concentration of grape growing and processing, both of which have relatively low load factors and coincident load profiles - a further contributing factor to a relatively high cost of providing supply.

[11] The cost of replacing remote area assets is increasing a result of a number of factors including higher thresholds for good environmental practices and health and safety requirements.

## 5.5 Current Industry Thinking on Pricing Options

The Electricity Network Association published a discussion paper on future distribution pricing issues in September 2016. The paper focussed on four main types of pricing plans that could address some of the issues faced by the industry. These four options are highlighted in green in the figure below[12]:

**Figure 19: Future Pricing Options**




The four pricing options are:

1. Nominated (booked capacity) pricing that reflects the capacity that a consumer prefers.
2. Network Demand prices reflect demand levels at network peak times.
3. Customer Demand prices reflect demand at customer peak times.
4. Time of Use is consumer-based pricing (kWh) that varies at different times of the day.

A number of submissions on the ENA discussion paper have been received. Many retailers indicated that using fused based capacity pricing was their least favoured option. More retailers supported Time of Use pricing in principle but varied considerably on the details such as whether it was a coordinated structure nationwide or would vary according to distributor's individual peak demand periods.

One of the major retailers on the Marlborough network submitted that they favoured demand pricing. However demand pricing requires installation of more advanced metering infrastructure which is not widespread on the Marlborough network at this stage.

[12] From ENA Pricing Guidelines for Electricity Distributors - A handbook for pricing practitioners, Consultation Draft September 2016 Page 41. Available of Electricity Network Association website.

It is salient that typically MLL's cost of providing supply to consumers are largely fixed and not time dependent. MLL's network is generally not capacity constrained and the imposition of time of use charging would not necessarily result in cost reflective pricing.

## 5.6 Low Penetration of Advance Meter Infrastructure (AMI)

The Marlborough Network has a relatively low penetration of advanced meters, often referred to as "smart meters". The Network currently has 43% of its connections with AMI compared to a national average of around 75%.

These advanced meters record more detailed information, similar to that available from the metering generally installed at large commercial and industrial customer premises. Whereas legacy metering only provides a total of units used during each period. AMI may also have additional functionality such as remote reading and disconnection services.

Three out of the four pricing options examined in the ENA's future pricing option review required the more detailed information only able to be provided by AMI. Furthermore a legacy meter rather than a smart meter is installed for most of the new connections in Marlborough. This limits MLL's options to test new pricing plans on a subset of customers being comprised of new installations.

The Company considers that there will be a relatively significant number of connections where AMI is unlikely to replace legacy metering due to difficult terrain, high access costs, low consumption and poor cell phone coverage. New pricing structures therefore will somehow need to accommodate non AMI connections.

## 5.7 Low Fixed Charges

The low fixed charge regulations were mandated by the previous government for political reasons and were totally unrelated to the cost of supply.

25% of our residential customers are ineligible for low fixed charge plans by virtue of the exemptions Marlborough Lines holds.

Currently 33% of residential customers connected to the Marlborough network are on low user fixed charge plans[13]. A further 23% use less than 8,000 units and would face lower costs on these plans.

The Authority has published some guidelines on the Low Fixed Charge regulations which suggest that distributors may have more flexibility within the regulations but this is yet to be proven in practice. MLL consider there are potential issues with capacity pricing based on installed fusing of residential customers.

The installation of solar panels will result in more customers consuming less than 8,000 units per year and therefore benefitting from paying less on a low fixed charge plan.

[13] Approximately 9% of the consumers currently on MLL's LFC plans, (3% of the total residential consumers), actually use more than 8,000kWh.

So long as the low fixed charge anomaly exists together with the urban / remote rural cost sharing, which again is essentially being dictated by government policy, it is difficult to move towards totally cost reflective pricing.

## 5.8 Cost Reflective Elements in Current Pricing

Marlborough Lines agrees with the Authority that further moves to cost reflective pricing will be ultimately beneficial. Within the limitations imposed by government criteria Marlborough Lines has sought to relate its pricing to the costs of supply within its customer groups.

The table below summarises the percentage of revenues expected to be received for the year to 31 March 2017 for each of the four consumer groups on the Marlborough network.

**Figure 20: Revenue by Charge Type**

| | Residential | Irrigation | General | Large Commercial Industriral | All Consumers |
|---|---|---|---|---|---|
| Fixed Daily Charges | 35% | | | 2% | 16% |
| Unit based charges | 65% | 34% | 53% | 21% | 49% |
| Capacity charges | 0% | 60% | 45% | 60% | 30% |
| Demand Charges | 0% | | | 15% | 4% |
| Other e.g. Power factor | 0% | 6% | 3% | 1% | 1% |
| **Total** | 100% | 100% | 100% | 100% | 100% |

With the exception of the residential consumer group, a significant proportion of revenue is already obtained through capacity charges.

With respect to the residential consumer group, Marlborough Lines has taken a number of significant steps to make its pricing relatively cost reflective compared with many of its peer ELB's.

The following steps have been taken which increase the cost reflectivity of Marlborough Lines prices for residential consumers:

- Consumers in remote areas do not receive discounts on line charges.
- MLL has obtained an exemption so it is not required to offer low fixed charge plans to consumers in areas deemed remote on the network.
- MLL has obtained an exemption so it is not required to offer low fixed charge plans to consumers with capacity greater than 15kVA.
- MLL does not offer a low fixed charge plans to non-residential consumers.
- MLL maintains a dual plan structure rather than setting fixed charges at 15 cents per days for all residential consumers.
- Fixed daily charges are at least somewhat capacity based, with a higher dollars per day charged for consumers with capacity greater than a normal single phase residential connection.
- A basic time of use structure is in place with a controlled night rate offered.

- A lower unit rate applies to units supplied on a controlled basis, (able to be interrupted), which allows the network to manage peak loads and reduce the network investment required.

## 5.9 PV Impact Still Small

The likely increase in small scale generation and inefficient investment decisions if variable pricing components dominate pricing structures, were key areas of focus in the Authority's discussion paper on Emerging Technologies, released in November 2015.[14]

On the Marlborough network the number of installations with PV has increased in recent years. However the impact on distribution charges from 278 consumers with PV is still a relatively small distortion compared with the impact of the LFC Regulations and the cost of providing supply to consumers in remote areas.

The Marlborough region has high sunshine hours. Despite this favourable climate consumers are unlikely to rely on their own solar generation for all their electricity needs. Therefore these consumers are likely to stay connected to the network and use it to receive power as well as exporting their excess generation for use by other consumers.

The company's view is that a reliable alternative non-grid electricity system will also likely include diesel generators as well as batteries, notwithstanding Marlborough's high incidences of sunshine.

Marlborough Lines is cognisant of the public and regulatory responses to Unison's introduction of a distribution pricing plan specific to consumers who had installed PV.

## 5.10 Cost Reflectivity Trade-offs with Transaction Costs

Marlborough Lines has also sought to structure its pricing within categories commonly used in the electricity industry. This simplifies billing by retailers and facilitates retailers selling electricity over the Marlborough Lines network. Currently there are some 16 retailers trading electricity over Marlborough Lines' network and it is important to ensure that any change in network pricing does not inhibit retail competition.

Over past years we have received positive feedback from retailers when refining our pricing structures and reducing the number of plans offered. Paradoxically simplification of pricing systems inherently results in a divergence from cost-reflective pricing.

Stability of network pricing is also considered important not only in the interests of consumers but in terms of the commercial interests of the Company and satisfaction of political interests. The only network in New Zealand to move to pricing principally based on capacity has attracted an inordinate amount of criticism to the extent it has been a diversion to its business operations.

[14] EA Distribution Pricing Implications of Evolving Technologies Consultation Paper, 3 November 2015.

## 5.11 A Cautious Approach Proposed Initially Targeting Incremental Improvements

As a provincial network with some unique issues MLL feels that it is essential to stay well informed on industry initiatives with respect to pricing reform for mass market customers.

MLL has a strong commitment to customer engagement and considers it is imperative that appropriate levels of information are provided and widespread consultation is undertaken before embarking on significant changes. Our interaction with customers tells us they want stability of pricing.

We remain committed to making incremental improvements in our current structures and this will ultimately make the transition to new arrangements smoother.

We have already identified that the distinction between some small business and residential connections is becoming increasingly blurred and this has implications on the enforceability of rules that set out eligibility of consumers for particular groups.

In all cases where significant reform of pricing is undertaken there will be winners and losers. As outlined above, there are a number of factors which need to be taken into account. Ultimately the views of the majority of consumers need to be considered.

The results of pricing reform need to ensure that the greater good of the majority of consumers is taken into account provided that no particular consumer or group of consumers is unduly penalised.

## 5.12 Vegetation Levy

The company sees an opportunity to address the high cost of vegetation maintenance on the Marlborough Network. There is the potential to target the recovery of these costs from those who benefit from extensive vegetation management.

Marlborough Lines believes it is appropriate to consider a vegetation levy for consumers in areas where vegetation management cost are disproportionate to the costs in other areas of the network such as the Marlborough Sounds. By way of example a levy in the order of $500 per annum would provide a million dollars per annum which is approximately 50% of the costs Marlborough Lines incurs on an annual basis to keep trees and vegetation clear of the lines.

The intensive vegetation management required is not only in the interests of the reliability of the electricity supply but also to discharge Marlborough Lines' legislative responsibilities relative to minimising the risk of fire.

## 5.13 Conclusion

It is the view of Marlborough Lines that until a number of the factors outlined above are addressed it is inappropriate to move to a completely cost-reflective methodology in recovery of network company costs.

Ideally it would be Marlborough Lines' intent to progressively increase charges relative to consumers' capacity and reduce charges based on kWh consumed. We cannot go to more sophisticated pricing for residential consumers until the incidence of smart meter installations increases beyond the current 43%.

However until the regulated low user fixed charge is eliminated further increases in fixed charges may well result in continued customer migration to low user fixed charge plans.

As a responsible network company Marlborough Lines will continue to monitor the situation relative to pricing to ensure that its charges satisfy the greater good of the majority of the consumers without imposing unduly punitive costs on individuals or customer categories.

Marlborough Lines' current network prices will remain unchanged from 1 April 2017. Prior to implementation any move towards fully cost-reflective pricing will be carefully evaluated from all perspectives including economic, social and political before effecting significant change.

It is Marlborough Lines' intent to work with its consumers, the Government and its regulatory agencies to establish a way forward which will, to the maximum extent possible, satisfy the interests of all stakeholders.

Marlborough Lines has previously sought to engage with the Electricity Authority and the Government in respect of pricing and remains committed to doing so in the future.

# 6. Compliance with the Pricing Principles

The following section examines the Electricity Authority's Pricing Principles and considers the extent to which MLL's current Pricing Methodology is consistent with these principles. Our approach in this section is to outline our interpretation of each principle, discuss the practical and commercial constraints that may exist and illustrate how we have complied.

MLL certainly has had regard for these pricing principles in establishing their current network pricing methodology.

## 6.1 Pricing Principle (a)(i) - Subsidy Free Range

Pricing principle (a) (i) in the Pricing Principles and Disclosure Guidelines states that:

> ***"Prices are to signal the economic costs of service provision, by being subsidy free (equal to or greater than incremental costs, and less than or equal to standalone costs), except where subsidies arise from compliance with legislation and/or other regulation;"***

In previous methodology MLL has referred to the existence of 'subsidies' within the network pricing. However the issue and appropriate definition of subsidy was clarified in the report to the Electricity Authority - Review of Electricity Distribution Businesses' 2013 Pricing Methodology[15].

In the current document we have limited our use of the word 'subsidy' to the definition set out in the pricing principle (a)(i), i.e. a subsidy occurs only when the revenue received is not between the bounds of incremental costs and standalone costs, defined as follows:

> *"Where incremental cost is the cost of operating and maintaining network assets to provide an additional unit of electricity to each consumer group. We interpret this as generally being a short run incremental cost measure. Standalone cost is the lowest cost alternative of serving each customer or customer group (at an equivalent or a higher level of service). In most cases, we would expect standalone cost to be set by a non-network solution (for example, a diesel generator or solar home system). These options are a more practical way for customers to bypass the network, rather than grouping together and moving to an entirely new network."*[16]

### 6.1.1 MLL's Interpretation

Our interpretation is that prices we set for each designated consumer group must generate revenue from that consumer group that falls within the subsidy free band. The lower limits of this band is the cost of connecting that consumer group to the network (incremental costs) if the other groups were already serviced by the network, and the upper level of the band is the costs of serving that consumer group, as if they were the only consumer group (stand-alone costs).

The range provided by this definition is indeed quite wide as the nature of MLL's electricity network means that there are extensive shared costs.

[15] Castalia Strategic Advisors Report to the Electricity Authority, November 2013.

[16] Page 24 of the Castalia Strategic Advisors Report to the Electricity Authority – Review of Electricity Authority Distribution Businesses' 2013 Pricing Methodologies, November 2013.

In some instances the extent of the 33kV and 11kV network utilised for a group of customers in a specific area may vary depending upon the configuration of the network at the time.

Throughout the network consumer groups are inter-mingled e.g. an identifiable 33kV portion of the network generally supplies all consumer groups. Other costs incurred by the network business relate to functions, e.g. billing processes that are also provided for all customer groups, albeit in a slightly different form depending on the size of the consumer.

### 6.1.2 Compliance with Principle (a)(i)

Our network prices are considered and compared with the cost allocation model described above. The costs allocated reflect the economies of scale present in operating the network and as each consumer group is only allocated a portion of these costs, the revenue received is less than the standalone costs of servicing them.

Principle (a)(i) also explicitly excludes the subsidies that arise from compliance with legislation and/or regulation. MLL considers that the LFC Regulations have the potential to impose a very significant subsidy between consumers but not necessarily consumer groups on our particular network. Going forward as the incidence of photovoltaic panels increase the number of those eligible for LFC will be greater with further subsidy from consumers not on LFC. Accordingly it will be necessary to alter the price structure in the interests of fairness and equity.

The current government policy that requires the rate of price increase for rural and non-rural users to be equal also prevents MLL from adequately recovering costs from individual consumers.

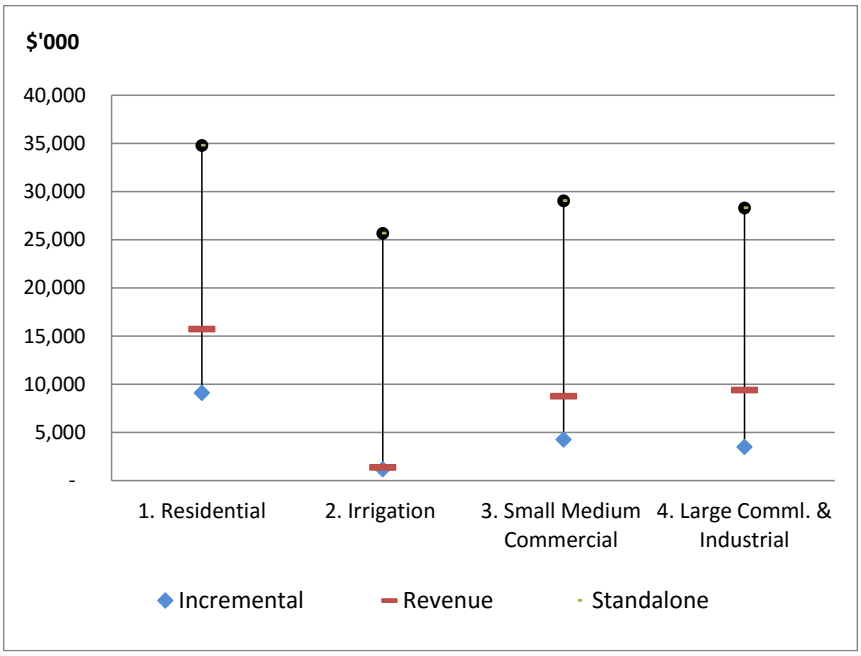
MLL has addressed the issue of LFC Regulations for the network to some extent by obtaining an exemption from offering low fixed charge plans to approximately 10% of our consumers who are in the most distant and less populated areas of the network. The consumers within these areas of the network are deemed to be "remote"[17]. This reduces the potential for greater subsidy from centrally located customers to other users who are already cost sharing. MLL further reduced the provision of low fixed charge plans by applying for an exemption which also excludes residential customers with >15kVA and/or three phase supply.

Analysis of profitability of all network customers on a geographic segment basis was undertaken to obtain this exemption. A detailed allocation of assets to each geographical segment, is also undertaken to complete the allocation of costs to consumers outlined in this disclosure. The results continue to show that the requirement to offer low fixed charge pricing plans leads to significant cross subsidisation among consumers in different geographic areas. The analysis supports the company's approach to address this through the exemptions obtained and the discount qualification policy.

The graph below includes an estimate of the standalone and incremental costs and revenue for each consumer group. In all cases revenue is within the subsidy free zone.

[17] Refer to Marlborough Lines website – exemption notices and map of remote zones. http://www.marlboroughlines.co.nz/About-us/Disclosures/Pricing.aspx

**Figure 21: Analysis of Revenue and Standalone and Incremental Costs**




## 6.2 Pricing Principle (a) ii - Level of Available Service Capacity

***"Prices are to signal the economic costs of service provision, having regard to the extent practicable, to the level of available service capacity."***

The current structure of the New Zealand electricity market means that MLL supplies end use consumers via energy retailers. The distributor's role in the supply chain provides an indirect relationship with the consumer which means any price signals provided by MLL can potentially be repackaged or rebundled differently by retailers.

The impacts of components of network pricing can be diminished especially when the total distribution component is a small component of the consumers' total electricity costs, in the order of 30% of the overall cost of delivered energy.

There are currently 12 retailers operating on the Marlborough network.

### 6.2.1 MLL's Interpretation of Principle (a)(ii)

MLL's interpretation of this principle is that prices must distinguish between where additional capacity is readily available and where it is not available. On a practical level this will be achieved if the price structure encourages use when assets are underutilised.

Notwithstanding the repackaging and dilution effects on price signals offered, MLL considers it meets the requirements of Principle (a)(ii) by

- having an element of capacity based charges across all customer segments
- differentiating between interruptible and non-interruptible load, and
- by having day/night rates available for most consumers.

MLL's pricing structures reflect the principle that as capacity requirements increase, the costs to provide network services increase and users rightly pay higher charges for network services.

MLL offers controlled load or limited availability prices to residential and commercial consumers, and irrigation installations. These prices reflect the network's ability to limit supply at a time when network demand is highest, or only supply at times when peak demands are very unlikely to occur, e.g. night rates are offered for supply between 11pm – 7am, and seasonal energy prices for irrigation are offered during the summer months.

For residential consumers controlled load is generally offered for hot water cylinders that are then remotely switched off by the network during times of peak demand. Night rates are used to a lesser extent for heating appliances which utilise electricity supply only available at night.

The network does not yet offer Time of Use rates to residential consumers. There has been a limited number of meters capable of providing this data installed within the MLL network and to date there has been little interest. The development of pricing to address evolving technologies will be a focus for the company in the coming year.

Consultation with retailers and customers will be included to ensure the benefits of new pricing options are maximised. However, overall the cost/benefits of new options will need to be considered. Ultimately MLL has to achieve sufficient revenue to meet its service and shareholder obligations regardless of how its pricing is packaged. With any pricing regime not all customers will derive the same benefits.

For small commercial consumers controlled rates are also offered, however used less frequently as commercial customers do not generally have a significant load which they are prepared to have interrupted.

Irrigation pricing is offered on the basis that irrigation loads are capable of being interrupted and have seasonal restrictions.

For larger commercial consumers a greater proportion of total line revenue is based on capacity charges consistent with the decreasing diversity of loads in this consumer group. A differential between the day/night unit tariffs is also provided to large consumers reflecting that network assets are utilised less at night. The signals provided by the network in this instance work in conjunction with the price signal provided by retailers where unit rates vary according to the time of day.

There may be benefits if pricing reflected the additional capacity available in a particular location, however this would create different prices across the region and increase the multiplicity of rates which is generally opposed by retailers. MLL's ability to introduce regional pricing within the network may also be constrained by the requirement that urban and rural prices change at the same rates.

## 6.3 Pricing Principle (a)( iii) – Additional Usage on Future Investment Costs

> ***"Prices are to signal the economic costs of service provision, by; signalling, to the extent practicable, the impact of additional usage on future investment costs."***

### 6.3.1 MLL's Interpretation of Principle (a)(iii)

This principle is very similar to Principle (a)(ii) with a focus on the growth of the network rather than utilisation of the existing capacity.

### 6.3.2 MLL's Compliance with Principle (a)(iii)

MLL utilises a number of tools to signal the cost of additional usage on future investment costs. One of these is the capital contribution system that requires consumers to contribute to the marginal costs of providing capacity for a new installation or additional capacity for an existing installation. These charges signal the impact of demand on the investment required by setting a price that is related to the end users future demand on the network.

The controlled and interruptible load pricing tariffs offered to residential, small/medium commercial, and irrigation consumers meet the requirement of signalling the impact of additional usage on future investment costs. Variable charges may also signal the impact in an easy to understand and dynamic way.

For all consumer groups (residential, commercial, and irrigation) charges are stepped up as capacity provided is increased. For non half-hourly metered commercial consumers this is done in relatively narrow bands, for half-hourly metered consumers this is done in 5kVA increments. Irrigation installations are also charged on a capacity required basis but can be restricted from operating during the peak periods.

For the larger commercial consumers with half hourly metering, the daily and unit charge is greatly reduced with the majority of cost associated with capacity charges. The winter peak demand charges that operated until March 2013 reflected a situation where the network was constrained during periods of peak demand in the winter months. In four of the last seven years the network peak has occurred during April, the month that wineries have their highest demands. The company considered that going forward the winter peak demand charge was not reflecting future investment costs. A different price signal to encourage consumers to manage peak loads was introduced with a revision to the capacity charge in April 2013. The winter peak charge was replaced with a regional peak charge, which reflects the impact that consumers' contribution to regional coincident peak demands have on transmission charges and therefore network costs more directly.

With network investment costs generally linked to consumer's capacity requirements, MLL's capacity based price structure ensures compliance with this principle.

## 6.4 Pricing Principle (b) – Recovering Allowed Revenues

Pricing principle (b) states:

> ***"Where prices on 'efficient' incremental costs would under-recover allowed revenues, the shortfall should be made up by setting prices in a manner that has regard to consumers' demand responsiveness, to the extent practicable."***

### 6.4.1 MLL's Interpretation of Principle (b)

This principle appears to encourage the network to have a pricing structure that provides consumers with a high elasticity of demand, a lower price relative to other consumers.

### 6.4.2 MLL's Compliance with Principle (b)

This is difficult for MLL to apply as price elasticity is not able to be observed or measured for individual end use consumers. However, MLL does consider that industrial customers will respond to prices more readily than residential consumers especially if they are in an energy intensive industry. Generally the industrial customers with a higher load utilisation face a lower unit cost on the Marlborough network consistent with their potentially higher price elasticity.

It is worth noting that it appears that residential consumers are targeting energy efficient initiatives to reduce their consumption consistent with the significant increase in delivered energy prices in recent years, hence demonstrating an elastic response to electricity pricing.

## 6.5 Pricing Principle (c)(i) – Discourage Uneconomic Bypass

Pricing Principle (c)(i) states:

> ***"Provided that prices satisfy (a) above, prices should be responsive to the requirements and circumstances of stakeholders in order to discourage uneconomic bypass."***

### 6.5.1 MLL's Interpretation of Principle (c)(i)

This principle deals with discouraging uneconomic bypass requiring the network not set prices so high that it encourages an alternative form of supply that would replicate the sunk assets of the original network supplier.

### 6.5.2 MLL's Compliance with Principle (c)(i)

The use of a cost allocation model, which ensures a price is set below a stand-alone price and the cost of alternative supply such as diesel generation, promotes consistency with this principle. However, MLL will consider whether the further use of non-standard pricing is appropriate in some instances, subject to consideration of all other factors. It is possible that uneconomic bypass could occur when price signals are set for overall network conditions that do not apply in a particular location where a consumer has unusual requirements. Typically the cost of an alternative supply of the same capacity and reliability of the grid supplied electricity is much greater than the cost of a delivered electricity supply.

It is also relevant the cost of photovoltaics is reducing and if coupled with low cost batteries has the potential to establish a new paradigm and possibly result in the stranding of some network assets. If such occurs this will be an expression of market forces.

## 6.6 Pricing Principle (c) ii – Price Quality Trade-offs

Pricing Principle (c)(ii) states:

> ***"Provided that prices satisfy (a) above, prices should be responsive to the requirements and circumstances of stakeholders in order to allow for negotiation to better reflect the economic value of services and enable stakeholders to make price/quality trade-offs or non-standard arrangement for services."***

In our view one way of ensuring pricing is responsive to the requirements and circumstances of particular stakeholders in the future is to continue to consider non-standard arrangements where appropriate.

MLL has in the past met specific consumer needs by introducing new pricing options. For example, seasonal irrigation tariffs. In the future, developing non-standard arrangements may be appropriate, subject to overall pricing criteria.

Standard pricing options for large consumers respond to particular needs by offering alternatives for consumers to own their own transformers, utilise generation and/or connect at differing points in the network. With respect to a price/quality trade-off, the price quality research suggests that the customers are generally satisfied with the current price quality trade-off.

This is especially so in remote rural areas where supply is already uneconomic and the costs of providing N-1 reliability are prohibitive. Equally it is not practical to provide a lesser quality of supply at lower cost to individual or small groups of customers when they are part of a network.

## 6.7 Pricing Principle (c) iii – Encouraging Investments in Alternatives

> ***"Provided that prices satisfy (a) above, prices should be responsive to the requirements and circumstances of stakeholders in order to, where network economics warrant, and to the extent practicable, encourage investment in transmission and distribution alternatives (e.g. distributed generation or demand response) and technology innovation."***

The distributed generation regulations provide that a distributor may only charge the incremental cost of connecting to their network. MLL pays Cost of Transmission charges (ACOT) to distributed generators on the network which encourages generators to be operating during the transmission peak periods.

MLL's charges 0.5c/kWh to distributed generation to feed into the network. This allows the SSDG to connect to and utilise the network to deliver their generation to other connections without incurring significant network charges.

With respect to transmission and distribution alternatives, a number of MLL's customers have back up generation capacity where they have a need for reliability beyond that which the network can reasonably provide, e.g. wineries that have a peak processing period of two to three weeks only, and during this time an outage greater than a few hours could severely impact their operations.

## 6.8 Pricing Principle (d) – Transparency, Stability and Certainty

> ***"Development of prices should be transparent, promote price stability and certainty for stakeholders, and changes to prices should have regard to the impact on stakeholders."***

MLL takes a number of steps to ensure our methodology is consistent with the above principle.

1. MLL consults with retailers on any planned changes to its pricing structure.
2. Simplification and rationalisation of the historical pricing structures has been undertaken.
3. MLL has progressively simplified its pricing structure where differentials are no longer justified or the cost associated with the price schedule complexity outweighs the benefits. An example of this has been the removal of the seasonality component in the variable charge for Group 4 customers.

4. The confirmation of a principles based approach by the Authority reduced regulatory uncertainty for a period. Some tariffs applicable to Group 4 customers were amended, effective 1 April 2013, to promote more responsiveness to transmission charges for this group.

5. MLL is committed to gradual transition of pricing changes to enable network users to respond accordingly. Any potential significant changes are carefully considered with a view to making adjustments over a period of time.

## 6.9 Pricing Principle (e) – Have Regard to the Impact on Transaction Costs and Economic Equivalence

> ***"Development of prices should have regard to the impact of transaction costs on retailers, consumers and other stakeholders and should be economically equivalent across retailers."***

As stated above, MLL has progressively moved to simplify its pricing structure over recent years whilst maintaining pricing signals and appropriate relativities between prices. The changes made have reduced transaction costs to retailers, some consumers and the company. We have consulted with retailers on these proposed changes each year. An example of such change was the removal of an area distinction between those properties within the Marlborough District Council area and those within the Kaikoura District Council area where the Kaikoura District council levied a rate relative to the value of all of MLL' network assets in its area. This simplification resulted in the removal of around 22 tariffs, reducing the number of tariffs in the schedule by 30%. (This has resulted in an increased level of cross sharing with consumers outside the Kaikoura area). A more recent example is that from 1 April 2014 "summation" of individual customer accounts was removed.

However it is relevant there is a trade-off between reducing the number of price categories or complexity of pricing and increasing cost sharing or not providing pricing to suit a specific category of customer.

We do not provide any discounts or special terms to end use customers based on their choice of retailer. All retailers are subject to the same prices from MLL. We therefore consider that prices are economically equivalent across all retailers. The principle of no special terms provided to any particular retailer is entrenched in our current Use of System Agreement.

# Appendix A

# 1. Regulatory Framework

## 1.1 Regulatory Requirements

The following section provides an overview of the main regulatory requirements that impact MLL's pricing decisions and disclosures.

MLL is subject to the following key regulatory requirements:

- Part 4 of the Commerce Act which makes it subject to Electricity Distribution Information Disclosure requirements.
- The Electricity Industry Act which provides that the Electricity Authority has particular responsibility for monitoring tariff structures and approaches.
- The LFC Regulations which require all EDB's to offer a low fixed charge option to domestic consumers (subject to limitations such as for principal place of residence only).
- Restrictions on differing rates of increasing charges between urban and rural consumers.
- A range of obligations set out in the Electricity Participation Code.

## 1.2 Information Disclosure Requirements

MLL is exempt from Price-Quality Regulation provided for under Part 4 of the Commerce Act. Companies that are subject to price control must follow the Default Price-Quality Path which limits the rate of price increase to CPI, plus or minus an x factor, plus any change in "pass through" and "recoverable" costs, after providing for changes in volumes.

MLL is still subject to the Information Disclosure (ID) regime. The ID requirements were significantly revised for the disclosure of information for the financial year 2013 with revisions in many areas including pricing. The ID requirements with respect to pricing outlined in the determination published 1 October 2012 are as follows:

*Disclosure of pricing methodologies*

*2.4.1 Every EDB must publicly disclose, before the start of each disclosure year, a pricing methodology which –*

*(1) Describes the methodology, in accordance with clause 2.4.3 below, used to calculate the prices payable or to be payable;*

*(2) Describes any changes in prices and target revenues;*

*(3) Explains whether, and if so how, the EDB has sought the views of consumers, including their expectations in terms of price and quality, and reflected those views in calculating the prices payable or to be payable. If the EDB has not sought the views of consumers, the reasons for not doing so must be disclosed.*

*2.4.2 Any change in the pricing methodology or adoption of a different pricing methodology, must be publicly disclosed at least 20 working days before prices determined in accordance with the change or the different pricing methodology take effect.*

*2.4.3 Every disclosure under clause 2.4.1 above must: -*

*(1) Include sufficient information and commentary to enable interested persons to understand how prices were set for each consumer group, including the assumptions and statistics used to determine prices for each consumer group;*

*(2) Demonstrate the extent to which the pricing methodology is consistent with the pricing principles and explain the reasons for any inconsistency between the pricing methodology and the pricing principles;*

*(3) State the target revenue expected to be collected for the disclosure year to which the pricing methodology applies;*

*(4) Where applicable, identify the key components of target revenue required to cover the costs and return on investment associated with the EDB's provision of electricity lines services. Disclosure must include the numerical value of each of the components.*

*(5) State the consumer groups for which prices have been set, and describe –*

*(a) the rationale for grouping consumers in this way;*

*(b) the method and the criteria used by the EDB to allocate consumers to each of the consumer groups;*

*(6) If prices have changed from prices disclosed for the immediately preceding disclosure year, explain the reasons for changes, and quantify the difference in respect of each of those reasons;*

*(7) Where applicable, describe the method used by the EDB to allocate the target revenue among consumer groups, including the numerical values of the target revenue allocated to each consumer group, and the rational for allocating it in this way;*

*(8) State the proportion of target revenue (if applicable) that is collected through each price component as publicly disclosed under clause 2.4.18.*

*2.4.4 Every disclosure under clause 2.4.1 above must, if the EDB has a pricing strategy –*

*(1) Explain the pricing strategy for the next 5 disclosure years (or as close to 5 years as the pricing strategy allows), including the current disclosure year for which prices are set;*

*(2) Explain how and why prices for each consumer group are expected to change as a result of the pricing strategy;*

*(3) If the pricing strategy has changed from the proceeding disclosure year, identify the changes and explain the reasons for the changes.*

*2.4.5 Every disclosure under clause 2.4.1 above must–*

*(1) Describe the approach to setting prices for non-standard contracts, including –*

*(a) the extent of non-standard contract use, including the number of ICPs represented by non-standard contracts and the value of target revenue expected to be collected from consumers subject to non-standard contracts;*

*(b) how the EDB determines whether to use a non-standard contract, including any criteria used;*

*(c) any specific criteria or methodology used to determine prices for consumers subject to non-standard contracts and the extent to which these criteria or that methodology are consistent with the pricing principles;*

*(2) Describe the EDB's obligations and responsibilities (if any) to consumers subject to non-standard contracts in the event that the supply of electricity line services to the consumer is interrupted. This description must explain -*

*(a) the extent of the differences in the relevant terms between standard contracts and non-standard contracts;*

*(b) any implications of this approach for determining prices for consumers subject to non-standard contracts;*

*(3) Describe the EDB's approach to developing prices for electricity distribution services provided to consumers that own distributed generation, including any payments made by the EDB to the owner of any distributed generation, and including the –*

*(a) prices; and*

*(b) value, structure and rationale for any payments to the owner of the distributed generation.*

## 1.3 Electricity Authority Pricing Principles and Information Disclosure Guidelines

In February 2010 the Electricity Commission released the Pricing Principles and Information Disclosure Guidelines with a view that these would be progressively incorporated into Pricing Methodologies from 31 March 2011 onwards. The Electricity Authority has adopted these Pricing Principles.

### 1.3.1 The Pricing Principles

*(a) Prices are to signal the economic costs of service provision, by:*

*(i) being subsidy free (equal to or greater than incremental costs, and less than or equal to standalone costs), except where subsidies arise from compliance with legislation and/or other regulation.*

*(ii) having regard, to the extent practicable, to the level of available service capacity; and*

*(iii) signalling, to the extent practicable, the impact of additional usage on future investment costs.*

*(b) Where prices based on 'efficient' incremental costs would under-recover allowed revenues, the shortfall should be made up by setting prices in a manner that has regard to consumers' demand responsiveness, to the extent practicable.*

*(c) Provided that prices satisfy (a) above, prices should be responsive to the requirements and circumstances of stakeholders in order to:*

*(i) discourage uneconomic bypass;*

*(ii) allow for negotiation to better reflect the economic value of services and enable stakeholders to make price/quality trade-offs or non standard arrangement for services; and*

*(iii) where network economics warrant, and to the extent practicable, encourage investment in transmission and distribution alternatives (e.g. distributed generation or demand response) and technology innovation.*

*(d) Development of prices should be transparent, promote price stability and certainty for stakeholders, and changes to prices should have regard to the impact on stakeholders.*

*(e) Development of prices should have regard to the impact of transaction costs on retailers, consumers and other stakeholders and should be economically equivalent across retailers.*

Section 6 of this document discussed each of the principles in detail and demonstrates MLL's compliance with these principles.

## 1.4 Electricity (Low Fixed Charge) Tariff Option for Domestic Consumers Regulations 2004 (LFC Regulations)

MLL is also required to comply with the LFC Regulations. Section 14 and 15 of the LFC Regulations require distributors and energy retailers to offer low fixed charge pricing plans - distributors must make available a price with a fixed line charge component of no more than 15 cents per day, excluding GST, to domestic consumers provided that it is a principal place of residence, not a holiday home.

The total charges for the low fixed charge pricing plan, made up of the fixed and variable charges, must be equivalent to a standard price option for a typical domestic consumer, defined as a user of 8,000kWh per annum in most areas of New Zealand.

A distributor's marginal cost to supply a residential connection is generally higher than 15 cents per day, so if the usage on the connections is minimal, LFC Regulations effectively require MLL to provide supply to a group of network users i.e. those residential consumers who use much less than the deemed typical consumer, funded in part from revenue collected from other consumers or collect less revenue than covers the full costs of operating the network.

It is the firm view of Marlborough Lines the purpose and merits of this Government policy need to be critically examined.

MLL has obtained a renewal of its exemption from offering Low Fixed charge pricing plans to connections that are difficult to service and in sparsely populated areas of the network. These areas are referred to as "remote". 10% of the total network connections are within the "remote" areas. Typically installations within the "remote" areas do not cover their full costs of service. This situation prevails because of earlier regulatory requirements that meant uneconomic lines were built. The exemption MLL has from the application of the Low Fixed Charge regime serves to limit the amount of the shortfall that is received from customers within these geographic areas.

The remote classification is also utilised in the administration of MLL's discount policy. The installations within the areas deemed "remote" do not qualify for network discounts on the basis that these connections are uneconomic to supply so there is no surplus revenue received.

MLL also has a second exemption under the LFC Regulations. This exemption provides that if a residential installation has greater than 15kVA capacity supplied and/or has three phase supply, then low fixed charge plans do not need to be offered.

Both of these exemptions are displayed on the company website
http://www.marlboroughlines.co.nz/About-us/Disclosures/Pricing.aspx

## 1.5 Rural and Non - Rural Pricing

Section 113 of the Electricity Industry Act 2010 provides for regulation to be introduced to limit prices increasing at a greater rate for rural consumers than for those in urban areas. At this time no such regulation has been put in place but it is understood that government policy is that there be equal rates of increases for urban and rural consumers.

Electricity distributors had previously been directed through a Government Policy Statement to limit the increase of rural prices to the rate of that for urban consumers.

The rural and remote rural areas are invariably supplied from a single source of supply via radial lines (longest 326km) and inherently the reliability of these lines is less than for meshed lines in other networks with alternative options for supply. Typically the costs of vegetation control, maintenance and restoration of supply are much greater in the rural, and particularly rural remote areas, than those in urban areas, especially on a per consumer basis.

As the cost of delivering the lines services to rural customers is higher than to an equivalent customer in an urban environment, this would suggest that networks may not be able to fully recover the cost of servicing these customers through their charges for network services.

This is particularly so in the company's more remote areas where the lines can only be reached by helicopter, boat, or specialist off-road vehicles or sometimes only foot.

## 1.6 Electricity Industry Participation Code

### 1.6.1 Part 6 Distribution Generation

Part 6 of the Code specifies pricing for distributed generation. These regulations specify that only incremental costs can be charged to distributed generators.

# Appendix B

**Figure 22: Proportion of Revenue from each Price Component**

| Price Code | % of Revenue | Price Code | % of Revenue |
|---|---|---|---|
| 10 | 15.08% | WM | 0.64% |
| AL | 11.04% | BF | 0.57% |
| DS | 8.48% | MDCFC | 0.41% |
| 11 | 8.04% | PFT | 0.41% |
| 23 | 6.77% | PM | 0.39% |
| DSNL | 5.12% | PFI | 0.36% |
| NT | 4.19% | 50 | 0.29% |
| WL | 4.00% | 22 | 0.22% |
| 51 | 3.80% | 97 | 0.21% |
| 40 | 3.09% | PH | 0.20% |
| 12 | 2.88% | Wai | 0.19% |
| 31 | 2.55% | 18 | 0.16% |
| 16 | 2.52% | 17 | 0.15% |
| RT | 2.25% | US | 0.10% |
| AM | 2.04% | 62 | 0.10% |
| NS | 1.50% | 80 | 0.05% |
| AH | 1.48% | 28 | 0.03% |
| PK | 1.48% | BHC | 0.03% |
| 61 | 1.36% | BHM | 0.02% |
| 96 | 1.30% | PMFC | 0.02% |
| DT | 1.23% | DG | 0.02% |
| RX | 1.20% | UL | 0.01% |
| RV | 1.20% | 20 | 0.01% |
| NH | 0.94% | RNZFC | 0.01% |
| DL | 0.93% | PSLT | 0.01% |
| WH | 0.89% | 30 | 0.00% |

## CERTIFICATION FOR YEAR-BEGINNING DISCLOSURES

### Pursuant to Schedule 17
### Clause 2.9.1

We, David William Richard Dew and Kenneth John Forrest, being directors of Marlborough Lines Limited, certify that, having made all reasonable enquiry, to the best of our knowledge:

a) The following attached information of Marlborough Lines Limited prepared for the purposes of clauses 2.4.1, 2.6.1, 2.6.3, 2.6.6 and 2.7.2 and sub-clauses 2.6.3(4) and 2.6.5(3) of the Electricity Distribution Information Disclosure Determination 2012 in all material respects complies with that determination.

b) The prospective financial or non-financial information included in the attached information has been measured on a basis consistent with regulatory requirements or recognised industry standards.

c) The forecasts in Schedules 11a, 11b, 12a, 12b, 12c and 12d are based on objective and reasonable assumptions which both align with Marlborough Lines Limited's corporate vision and strategy and are documented in retained records.

**Signed by:**

DWR Dew — Date: 7 April 2017

KJ Forrest — Date: 7/4/17