



PRICING METHODOLOGY

Pursuant to the Electricity Distribution Information Disclosure Determination 2012,
clause 2.4.1

and

Electricity Authority Distribution Pricing Principles and Information Disclosure Guidelines

For the Period: 1 April 2023 – 31 March 2024

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Certification for Year-Beginning Disclosures

Pursuant to Schedule 17

Clause 2.9.1 of section 2.9

Electricity Distribution Information Disclosure Determination 2012

We, Christopher J. Dennison and Anthony J. Wood, being directors of Network Waitaki Limited certify that, having made all reasonable enquiry, to the best of our knowledge:

- a) The following attached information of Network Waitaki Limited prepared for the purposes of clause 2.4.1, disclosure of pricing methodologies, 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.



Christopher J. Dennison

Date: 27 March 2023



Anthony J. Wood

Date: 27 March 2023

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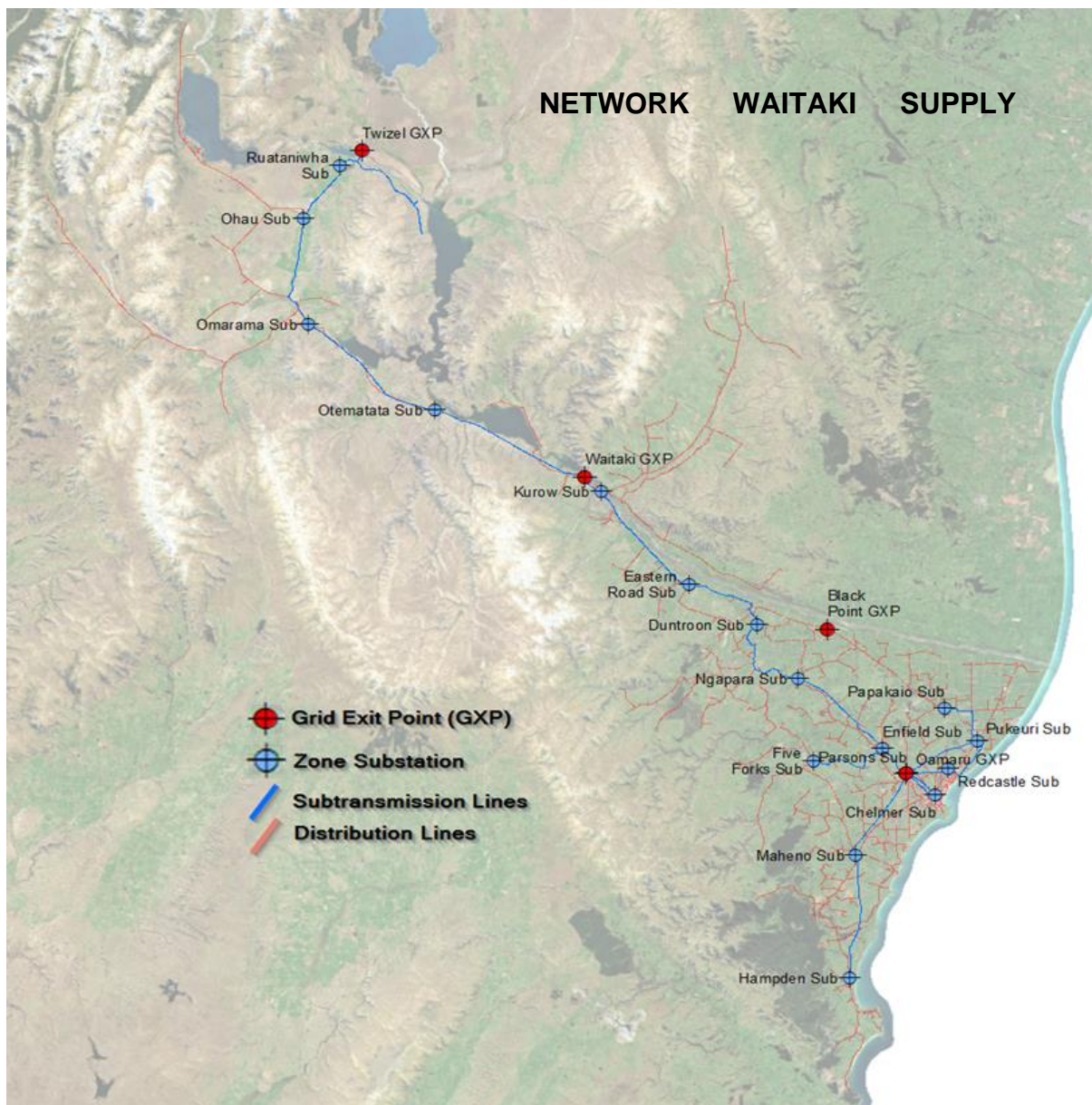
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1 INTRODUCTION

This document outlines Network Waitaki's pricing methodology for the period 1 April 2023 to 31 March 2024.

1.1 Overview of Network Waitaki

Network Waitaki owns, manages, and operates the electricity distribution network in the supply area covering North Otago and parts of South Canterbury, and is 100% owned by the Waitaki Power Trust. Due to its ownership structure the company is an exempt Electricity Distribution Business (EDB) under Part 4 of the Commerce Act and therefore is not subject to price-quality regulation, but is subject to Information Disclosure requirements.



1.1.1 Network features

The network has a footprint of approximately 8,400 square kilometres. The number of Installation Connection Points (ICPs) currently connected to and active on the network is approximately 13,370, the maximum coincident system demand is approximately 61 MW and the annual delivered energy after losses is about 238 GWh.

Within our network area, the distribution network includes 17 zone substations, approximately 1,900 km of lines and cables, and 2,949 distribution transformers of which 400 have a capacity of more than 100 kVA. Network Waitaki's distribution assets are dispersed over a large area and the company services a mix of towns, rural land and remote farmland.

The network has a strong rural character, with low load density measured in kVA per km of line: Network Waitaki records 124 kVA of network capacity per km of line, against a New Zealand average of 153 kVA/km. Although 80% of ICPs on our network are residential connections and only close to 10% of ICPs are agricultural connections, irrigation (as the major driver for agricultural use of electricity) consumes on average a third of annual energy, similar to residential consumption. Retail, hospitality, industrial, commercial and social services combined make up the balance of the ICP numbers.

1.1.2 Network demand

The size and capacity of the network is driven by the peak demand for electricity by our customers¹. Unlike most other electricity networks, peak demand on our network is not experienced in the winter when residential heating demands are at their highest. Rather, our network peaks in the summer when demand for irrigation is at its highest.

Over the last decade irrigation schemes have been the biggest driver of demand growth with Network Waitaki's maximum demand growing from 44MW to a high of 61MW in FY22. Irrigation contributed about 44% to the total network maximum demand in FY22. Some additional irrigation growth is still expected over the next decade including projects relating to conversion from border dyke to spray irrigation, but no further growth is expected after this as most viable land will then be irrigated. In terms of commercial and industrial load growth, we expect the main driver to be decarbonisation of process heat. These large industrial customers have not all finalised their plans, but the preference is for electricity as the energy source. The Asset Management Plan contains detailed analysis around other demand drivers including Electric Vehicles and Distributed Generation² the impact of which is expected to be small in the next year or so. At the time of writing, Electric Vehicles have a 0.4% penetration rate in the Network Waitaki supply area, which is approximately half the national penetration rate of Electric Vehicles.

¹ In this methodology we use the term "customer" to refer to electricity end consumers. We consider the terms to be interchangeable and recognise that "consumer" (rather than "customer") is the defined term as per clause 2.4.1(4) in the Commerce Commission, Decision NZCC 22: Electricity Distribution Information Disclosure Determination 2012.

² Updates in Network Waitaki Asset Management Plan. 2023.
(<https://www.networkwaitaki.co.nz/company/regulatory-disclosures/asset-management-plan/>)

Table 1 below illustrates the characteristics for each of the Network Waitaki Grid Exit Points (GXP) in FY2023.

GXP	Load type and forecast capacity adequacy	Pricing implications
<p>Oamaru:</p> <p>11,109 customers 10 Zone substations Capacity: 45 MVA Peak demand: 36.8 MW Energy: 190 GWh</p>	<p>Main supply area.</p> <p>Predominantly residential, commercial and farming connections. Variations occur between winter and summer demand mainly because of irrigation.</p> <p>Allowance has been made for conversion of process heat from coal to electricity (approximately 3 MW) in the short term.</p> <p>Forecasts for the medium term suggest irrigation, along with process heat decarbonisation loads will lead to capacity and security constraints on the Oamaru GXP, and lower Waitaki subtransmission network requiring major investment.</p>	<p>Consideration for significant investments in the transmission grid (including GXP) as well as subtransmission assets (for both capacity and security of supply) to enable regional decarbonisation initiatives, including electrification of industry and domestic process heat, along with transportation electrification.</p> <p>Capacity pricing strategy to continue as a proxy for demand pricing that best signals the cost of supply.</p>
<p>Waitaki:</p> <p>1,617 customers 4 Zone substations Capacity: 24 MVA Peak demand: 11.0 MW Energy: 31 GWh</p>	<p>Mostly residential customers with demand peaking in Otematata over the December holiday period.</p> <p>A project is planned for FY24 to increase reliability levels at Otematata.</p> <p>Demand also varies between summer and winter due to irrigation.</p>	<p>No material growth with adequate capacity – capacity pricing strategy to continue.</p> <p>Investment in backup security of supply required in FY24.</p>

GXP	Load type and forecast capacity adequacy	Pricing implications
Twizel: 647 customers 3 Zone substations Capacity: 27 MVA Peak demand: 3.1 MW Energy: 12.9 GWh	Mostly residential and irrigation customers as well as the Ohau lodge and snowfield. Demand varies between winter and summer due to irrigation load.	No material growth forecast, with adequate capacity. Capacity pricing strategy to continue.
Black Point 1 customer 0 Zone substations Capacity: 25 MVA Peak demand: 15.7 MW Energy: 15.9 GWh	Dedicated supply for the North Otago Irrigation Company (NOIC).	Separate pricing arrangement.

Table 1: Grid Exit Points characteristics

Figure 1 below shows the long-term trends in energy consumption growth from 2012 to 2022. The figure shows the volatility in summer volumes (due to irrigation) which supports the move to capacity-based pricing. Shifting away from volume-based pricing will reduce the impact of volatile annual volumes and the associated revenue risk. It will further remove a pricing signal that does not serve a purpose but is a remnant of historic pricing practices.

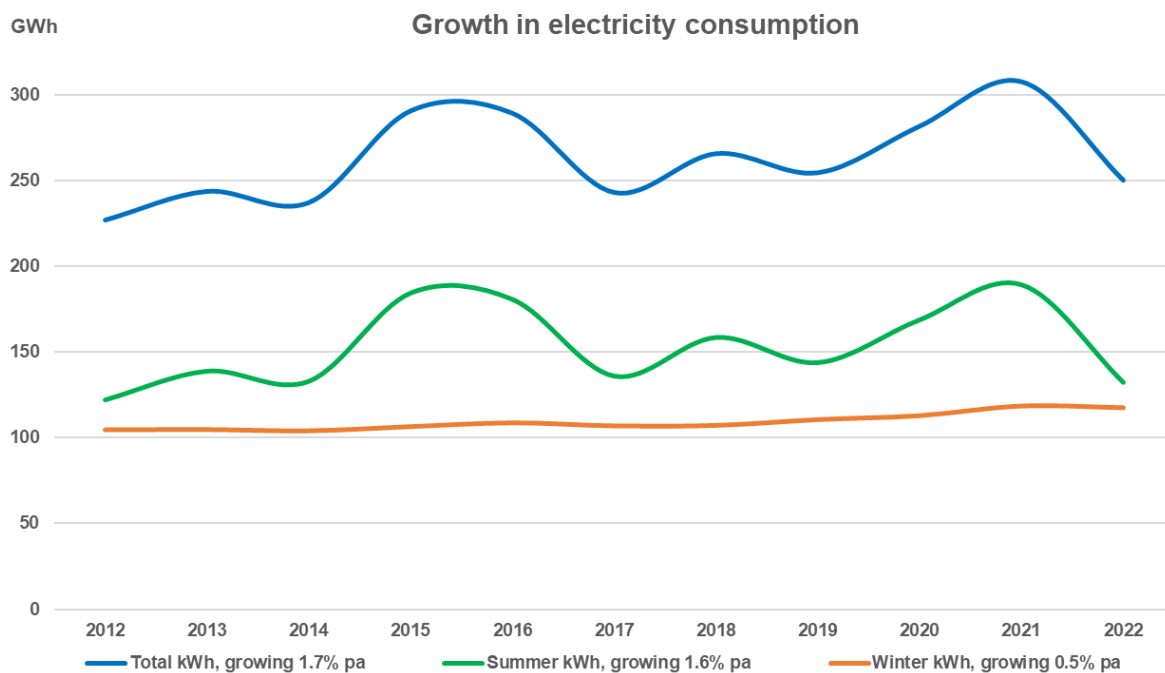


Figure 1: Electricity volume trend over the last 10 years

1.1.3 Customers on the network

Network Waitaki has about 13,370 connected customers, and its supply area is dominated by residential customers making up 80% of the customer base that contributes about 40% of revenue and 35% of energy used on the network.

Agriculture, commercial and industrial customers make up the balance of 20% of the customer base, with agriculture generating 25% of revenue and industry and commercial customers the other 35%. Agriculture varies from year to year due to irrigation's volatility associated with rainfall levels.

1.2 Legal requirements and compliance

Under section 2.4 (pricing and related information) of the *Electricity Distribution Information Disclosure Determination 2012 (consolidated in 2021)*, Network Waitaki must publicly disclose, before the start of each disclosure year, a pricing methodology which:

- Describes the methodology used to calculate prices payable or to be payable;
- Describes any changes in prices and target revenues;
- Explains the approach taken with respect to pricing in non-standard contracts and distributed generation; and
- Explains whether, and if so how, we have sought the views of customers, including their expectations in terms of price and quality, and reflected those views in calculating the prices payable or to be payable.

Network Waitaki's pricing methodology is consistent with the Electricity Authority's March 2010 Pricing Principles (EA Principles and Guidelines) as amended³ outlined in Appendix 2.

Network Waitaki complies with the *Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004* (LFC Regulations). Residential Low User (RL) customers at the 9,000 unit average domestic household consumption threshold level for the Lower South Island will pay no more than standard price plan customers.

A detailed summary of how Network Waitaki complies with the Information Disclosure Determination 2012 and which sections of this pricing methodology comply with each regulatory requirement can be found in Appendix B.

³ Electricity Authority (4 June 2019). More efficient distribution network pricing – principles and practice.

2 PRICING RESTRUCTURE

2.1 Overview

Network Waitaki, following direction set from the Electricity Authority, is committed to cost-reflective, service-based pricing to improve the use of its electricity network and to support efficient use of the network.

Appendix D contains Network Waitaki's pricing reform status against the five focus areas that the Electricity Authority circulated in an open letter during September 2022.

The aim of Network Waitaki's pricing strategy is to:

- Reflect the cost of service of the company more accurately through achieving an approximately 80% capacity-based fixed and 20% volume-based pricing structure by FY2025 (subject to impact of constraints such as LFC regulations) with the intention of then considering whether there is a need for further cost-reflective pricing;
- Ensure revenue adequacy and reliability through implementation of this cost-reflective price structure;
- Maintain pricing signals through discounts on controllable load to manage congestion where necessary;
- Limit negative impacts of price rebalancing on customers as far as is practicable;
- Minimise the impact of price rebalancing by communicating with and advising customers of mitigating actions; and
- Continuously monitor wider regulatory developments to ensure the direction of price structure development is aligned with industry and regulatory developments.

2.2 Economic signals of current pricing

Network Waitaki's current pricing effectively bills consumers on a combination of volume and fixed capacity-based prices.

This pricing is set by load group (without differentiation on what energy is used for) with only non-standard customers being charged for distribution and transmission on a relatively fixed basis, with 70% of charges being fixed based on contractual capacity and 30% based on demand in FY2023.

Network Waitaki electricity consumers are billed for electricity from retailers which includes charges for electricity consumed as well as charges for conveying electricity through transmission and distribution networks. Given that the charges for electricity consumed are 100% volume-based and distribution and transmission are currently (FY2023) 45% volume-based, the main price signal to consumers is based on consumption and the fixed pricing element related to capacity is diluted to the extent that the price signal for capacity (Network Waitaki's main cost driver) is still not adequate.

Therefore, except for non-standard customers, whose pricing has the closest relationship to the cost to supply, the current pricing (FY2023) is still not adequate as a pricing signal to customers.

Essentially, the previous largely volume-based pricing setup was a legacy from the time when local networks were integrated energy companies, performing the function of energy retailer.

2.3 Why fixed capacity-based pricing?

The cost to operate our network is predominantly driven by the size (capacity) of the network required to meet peak demand. The volume of electricity conveyed across our network has no material impact on the cost of operating the network.

Capacity-based pricing effectively charges customers for the size of their connection rather than the volume of electricity conveyed. This aligns the pricing for connecting to the network with the cost of providing the connection which provides an effective price signal to customers. This price signal incentivises customers to optimise their contracted capacity which in turn enables Network Waitaki to optimise the size of the network.

Optimising the size of the network ultimately results in an optimised cost to customers of connecting to the network. Consequently, capacity-based pricing is the most appropriate pricing mechanism because:

- It represents the long-term cost driver related to capital spending that is based on the customer's connected capacity.
- It provides for customer choice with a direct influence on cost and is a known quantity for each customer.
- Capacity is a known variable that we can use in pricing without any need for estimation or approximation.
- It is the only customer driven factor that the customer has direct control over due to customer's choice of capacity.
- A contractual capacity limit will be a stronger incentive to control maximum demand than an ex-post measurement of maximum demand, for all cases where the maximum demand is close to the contracted capacity plan limit.

In time, as smart meter functionality and data become more readily available, a capacity-based pricing approach could become more granular allowing a larger range of installed capacity options to customers. This will be important once the LFC regulations are removed to provide very low user customers the option of selecting a smaller than 15kVA connection.

Capacity-based pricing is favoured for reasons of simplicity, data availability and most importantly cost reflectiveness. The contracted capacity provides the bulk of the information that determines the cost of supply for each customer.

2.3.1 The long-term objective – delivery of peak demand

Network Waitaki must provide infrastructure that meets the need of customers' peak demand individually at their point of consumption and diversified across the network. Success is measured by being able to supply peak loads at the required security and reliability levels demanded by customers.

To be able to deliver peak demand Network Waitaki requires sufficient capacity from the Transmission Grid, sufficient capacity on the Sub-Transmission network and sufficient capacity on the distribution component of the network.

The Transmission Grid capacity used by Network Waitaki is the fully diversified demand requirements of our customers and this value is metered by Transpower and the bulk half-hour (HHR) values at GXP level are known, thus Network Waitaki plans for GXP capacity accordingly. As is shown in Table 1 and in the Asset Management Plan there is a Transmission constraint into Oamaru. We have selected a preferred solution to construct a new Grid Exit Point and are working with Transpower to finalise design and costs for inclusion into a final business case.

Demand on the sub-transmission network is based on locational After Diversity Maximum Demand (ADMD) values and these values are known on a zone substation level for planning purposes.

Measuring demand on parts of the distribution network (especially on low voltage networks) is challenging as real-time metering data at ICP level is owned by retailers and not readily available⁴. Demand on parts of the high voltage distribution network can be obtained from substation SCADA systems, however this is an aggregation of all downstream customer demand. As a result, catering for peak demand of customers is based on incomplete information. To provide a network capable of delivering the peak demand a proxy of customer demand must be used.

Our cost basis once infrastructure is in place is fixed and does not respond to volume – our cost is fundamentally driven by our estimate of peak demand which is calculated from contracted capacity.

2.3.2 Peak demand features of our network

The main peak demand features of our network are as follows:

- A moderate winter peak based on residential consumption.
- A high summer peak based on irrigation consumption which also determines Network Waitaki's annual maximum demand.
- Load control measures available through ripple controlled hot water to manage peaks by time shifting residential hot water load. This is also available for emergency load reduction.

2.3.3 Price signal for peak demand

While the peak demand and volume usage is mostly weather dependent each year, Network Waitaki up to now had to build infrastructure to cater for a dry year when demand and volume are at its highest. Going into the future, new technologies such as Electric Vehicles, decarbonisation initiatives and Distributed Generation are coming into the planning mix – the forecasted impact on the network has been shown in Table 1 and is also discussed in detail in Network Waitaki's Asset Management Plan.

⁴ Our largest retailer has in the past been helpful in providing past ICP level data in accordance with Appendix C requirements of the Default Distributor Agreement, however this is not real time and unable to be used for operations purposes.

In terms of pricing, variable weather and the resultant fluctuation in annual volumes transported is irrelevant for cost and thus for pricing.

To produce a long-term pricing signal related to the peak demand capacity and cost of the network requires a pricing variable that captures the long-term impact of each customer on the network peak demand. The pricing variable that best captures this long-term impact relates to the size of connection as chosen by the customer, within the available connection size options made available by Network Waitaki. This variable does not change from year to year through short term considerations that impacts on annual consumption of a customer.

The most appropriate pricing signal for Network Waitaki, within current constraints are related to capacity (volume agnostic) which defines the long-term stable maximum demand of a customer.

2.3.4 What is the optimal capacity / volume pricing ratio?

When providing price signals to customers, it is essential that the customer can respond to such signals. Electricity distribution charges represent around a quarter of the cost of electricity and a small portion of a household's expenditure. Splitting the signal between more than one pricing component, risks the signal being ignored by customers.

A pricing structure based on the core functionality of Network Waitaki's service is more effective. The biggest driver of cost is capital invested in the network, and this is based on the maximum demand of a customer (which is limited by the contracted capacity of the customer) at the time when the system is constrained. With maximum demand data not available in real-time to Network Waitaki, the contracted capacity is the best indicator of cost which is accurate and available for use in pricing.

To use a dynamic pricing signal which will convince customers to switch off load when a constraint occurs is challenging as experience has shown that customers easily ignore dynamic real time pricing signals from the distribution network. This is further exacerbated because retailers do not necessarily pass these price signals on to their customers.

Effective management of constraints is thus better managed through the ability of Network Waitaki to dynamically switch off controllable loads during high load periods and emergencies. Through differentiation of price plans, like the current Network Waitaki pricing regime, a customer can choose to allow the control of their load during pre-defined periods and conditions and the arrangement can be enhanced to include an agreed schedule and specific rules.

As indicated earlier, Network Waitaki currently does not have real-time access to smart meter data to allow information on individual ICPs, nor does it have access to the switching function of smart meters. These limitations reduce the ability of Network Waitaki to implement optimal control measures on the network. The current set-up with day and night rates and switching of certain loads with a single relay on-site at the ICP is the only measure available for use by Network Waitaki currently.

A predominantly fixed pricing structure is, currently, the best cost-reflective structure for the following reasons:

- A high-level cost of supply review has shown that Network Waitaki's cost to supply electricity is largely fixed, even though actual operational expenses may vary somewhat from year to year, e.g. vegetation, maintenance or even administration costs such as labour and IT, it is still a fixed component not affected by volume of electricity used.
- As network prices form a small part of the total electricity bill, even an 80/20 capacity-based/volume-based charge, though a big improvement from the historic state, dilute the pricing signal required to encourage customers to contract to the most appropriate price plan for their usage patterns.
- Provides mitigation of revenue risk due to volume and future technology innovations that is predicted to become more affordable sooner rather than later.
- It complements the Transmission Pricing Methodology guidelines of prices that are largely designed to be unavoidable.
- It reduces the likelihood of windfall profits during high electricity consumption years ensuring the company remain within regulatory limits, earning adequate but not excessive revenue.

A 20% volume-based component will contribute towards signalling and recovery of cost related to the 20% slightly less fixed cost components of operational expenditure, namely asset relocations, system growth, vegetation management and service interruptions and emergencies.

In addition, achieving an 80/20 (fixed capacity / volume) ratio will be a major step forward towards cost reflectivity considering the 10/90 (fixed capacity / volume) ratio of a few years back.

2.4 Implementation progress

Network Waitaki has been re-balancing fixed capacity-based and volume prices since 2017 to achieve a predominantly cost reflective pricing structure by FY2025 to:

- mitigate revenue uncertainty due to volume risk (weather and emerging technologies) as well as
- providing customers with the right information through pricing signals to invest in the appropriate connection that will satisfy their electricity demand requirements.

Except for non-standard customers, whose pricing has the closest relationship to the cost to supply already, our current pricing structure has been flawed with customers receiving a signal that encourages them to use less electricity and have larger connections than what they need, enabling a larger maximum demand and more peaky usage.

The approval by government in 2021 to phase out the Low Fixed Charge (LFC) regulations is a positive development in achieving cost-reflective prices. The regulations required Network Waitaki to offer residential consumers a price option at their primary place of residence, with a fixed price for FY2024 of no more than 45c per day (excluding GST), and where the sum of the annual fixed and volume charges on that price option equals any other price option available to those consumers when they

use 9,000kWh per annum. Network Waitaki has continued adjusting low-user prices since 1 April 2022 in accordance with this decision.

The price adjustment applicable to the pricing year 2023-2024 will result in a change in the capacity-based (55%) / volume (45%) make-up of prices to an overall 70/30 ratio putting Network Waitaki well on the way to achieving an 80/20 capacity-based/volume ratio in 2024-2025.

2.5 Impact on customers

Network Waitaki customers will individually be affected differently. Some customers will be favourably affected (typically those that have relatively high utilisation of their contracted capacity) and some negatively.

Figure 2 below provides an illustration of different impacts our customers may experience. It shows that the majority of 15C customers (mostly residential) will face an increase of less than \$200 per year.

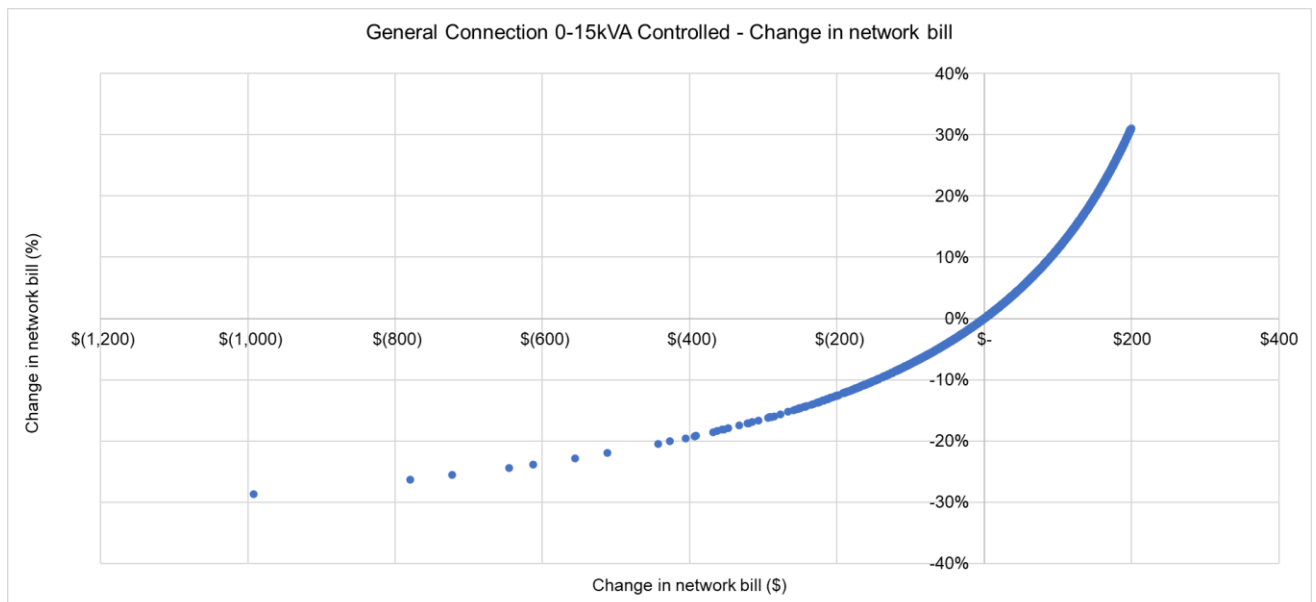


Figure 2: Impact of price adjustment on small customers

2.6 Going forward

Our strategy is to achieve an 80% fixed capacity-based / 20% volume-based price structure by 2024-2025. To achieve this outcome the focus will be on the following actions:

- a) Reduction in volume-based charges by 2024-25 to an approximately 80/20 ratio between capacity-based (fixed) / volume-based charges with the intent of then considering amongst others further movement in the ratio towards a capacity-based signal.

- b) Maintain load control pricing plans (lower fixed charge relative to uncontrolled for the same capacity).
- c) Consider making available a greater range of capacity options to customers when LFC regulations are removed, and the necessary technology is in place to better address 'low user' pricing.
- d) Consideration for significant investments in the transmission grid (including GXP) as well as subtransmission assets (for both capacity and security of supply) to enable regional decarbonisation initiatives, including electrification of industry and domestic process heat, along with transportation electrification.

This migration strategy will not impact total revenue being generated, except for volume variations, but rather reprice individual customers, irrespective of consumption.

We are assisting customers where required to ensure they are on the most appropriate pricing plans.

The largest benefits of this strategy are:

- a) Cost reflective and service-based pricing structure containing improved price signalling to better align customer behaviour with key cost to supply drivers;
- b) Discounts on controllable load to manage congestion where necessary;
- c) Reduction in revenue volatility;
- d) Adoption of a pricing strategy consistent with EA guidance; and
- e) Preparation for the anticipated removal of LFC regulations.

2.7 Consumer survey

In February 2023, Network Waitaki commenced with a comprehensive survey to understand consumers' experiences on a range of issues, including overall satisfaction with Network Waitaki's management of outages, price and reliability balance, awareness of company ownership, image and reputation, core service delivery, familiarity with and views on future energy activities such as electric vehicles, decarbonisation and other emerging technologies. This survey has not been completed at the time of writing this report but will be reported on in the next pricing methodology.

The previous survey of February 2021 was completed in two parts, as follows:

- Face-to-face interviews with sixteen of our large consumers; and
- Telephone interviews with a sample of 410 residential and commercial users.

In terms of consumer satisfaction regarding price and quality, consumers were asked whether they would prefer to either?

- 1) Pay more, and keep outages to a minimum?
- 2) Pay the same, with outages kept about the same?
- 3) Pay less, with slightly more outages?

There was an increase in the number of consumers who would be willing to pay more to have a more reliable power supply and fewer unplanned outages (particularly in the commercial customer group). However, the majority of consumers would prefer to “maintain current levels of service” i.e. pay the same, with outages kept about the same.”

2.8 Changes to Network Waitaki’s pricing methodology

Except for implementation of a new cost of supply model as described in section 5 there have been no material changes to Network Waitaki’s pricing methodology, approach and rationale since the last methodology was published in March 2022.

3 PRICING METHODOLOGY

The pricing methodology is aimed at setting prices that, as far as practicable, achieve Network Waitaki's identified pricing objectives, recover the full cost to operate the network efficiently and over time reflect the cost of serving different customer load groups better to encourage efficient use of the network.

3.1 Pricing objectives

This section outlines Network Waitaki's pricing objectives of revenue reliability, efficiency, fairness, simplicity, transparency, innovation, and support of regional economic growth through future price direction and the ability to provide an annual discount to customers.

3.1.1 Revenue reliability

Network Waitaki must generate sufficient revenue to:

- meet the costs associated with the use of the Transpower national grid, the cost of transmission alternatives, and other pass through costs;
- meet the costs associated with providing a safe, reliable and efficient network to meet customer service levels, and fulfil its contractual obligations for the delivery of energy over its distribution network;
- comply with statutory requirements on health and safety, environmental protection, and quality of supply;
- provide for new network investment; and
- provide a rate of return on assets that is acceptable to its owners.

To meet the revenue requirement, Network Waitaki uses the following principles in setting prices:

- Prices should be simple to understand and administer and must comply with regulations;
- Maintain the stability of historic pricing structures in order to lessen price shocks to customers;
- Prices should not differentiate between urban and rural customers;

3.1.2 Discount to consumers

Network Waitaki has a policy of paying discounts to qualifying consumers towards the end of each year. Except when noted otherwise, all revenues stated in this pricing methodology are before the payment of any discount. Network Waitaki's discount to consumers consists of a fixed component and sometimes a variable component. The discount is announced in November of every year and the discount allocation methodology is available on Network Waitaki's website.

3.1.3 Efficiency

For Standard Contracts this applies as follows:

From an economic efficiency perspective:

- A rebalancing of capacity-based fixed prices and volume prices to reflect the cost structure of the business;
- Off-peak usage is encouraged through differentiated day and night volume pricing by retailers.

From a technical and operational efficiency perspective:

- Monitoring of power factors;
- Maintaining loss factors;
- Load control to manage peak system demand within Transpower's supply constraints; and
- Emergency load shedding schemes to cope with transmission and generation constraints.

From an administrative efficiency perspective:

- Network Waitaki applies a 'GXP billing' approach where volume charges are based on electricity volumes measured at the three injection points (Transpower grid exit points) into the Network Waitaki network for each retailer in aggregate rather than per ICP. Chargeable quantities attributed to each retailer are determined by the wholesale electricity market reconciliation process.

For Non-standard contracts efficiency is promoted as follows:

- Efficient investment in the network by large customers through passing through the cost of different size connections using predominantly capacity and to a lesser extent demand prices.
- Ongoing efficient operation of the network by signalling mainly the capacity and demand costs of the delivery of electricity to each customer of this type.

3.1.4 Fairness

As a supplier of essential services Network Waitaki is continuously striving to set fair and reasonable prices for each customer load group. Fairness is a contentious subject and customers might disagree about what is fair and what is not.

Having prices with a dominant volume base makes achievement of fair prices complex as the resultant charge is in most cases not reflective of the cost to supply the customer. Network prices will continuously become fairer as the cost of supply is increasingly reflected in it over time as per our pricing strategy.

Non-standard prices are more reflective of customers' use of network assets together with the associated transmission costs.

3.1.5 Simplicity

Network Waitaki has a simplistic, “easy to understand” two-part pricing structure with a fixed component and a day/night volume component applicable to each customer load group.

Except for the RL customers, all customer load groups have the same day/night volume prices. Appendix A contains the delivery price schedule for Network Waitaki.

3.1.6 Transparency

Network Waitaki follows a philosophy of setting prices such that they increasingly reflect costs and allow customers to have choices and the ability to respond to price signals. This philosophy will be continued and is part of Network Waitaki’s future pricing directions, i.e. to reflect the fixed cost nature of the company accurately through re-balancing of the capacity-based fixed and volume components of electricity distribution prices (subject to constraints such as LFC regulations).

3.1.7 Innovation

Network Waitaki’s prices support innovation through retailers making decisions as part of a competitive market on how they present Network Waitaki’s pricing structures to customers. Non-standard customers similarly can decide how to respond to price structures especially going forward as prices become more capacity-based with less variation, promoting better price stability for customers.

3.1.8 Supporting regional growth

Network Waitaki supports regional growth by investing in infrastructure to meet expected load growth requirements. Network Waitaki’s capital contributions policy outlines how this investment is funded with growth investments partially funded upfront through capital contributions and connection levies and partially funded over time through distribution pricing.

3.2 Cost structure

Network Waitaki’s main cost components are outlined below and consist of operation and maintenance cost, depreciation, return on investment, administration cost and pass-through cost.

3.2.1 Operation and Maintenance

- Maintenance costs are based on the programmes and expenditure levels outlined in the 10-year Asset Management Plan (AMP).
- Operational costs include all other direct and indirect network expenses excluding administration costs.

3.2.2 Depreciation

Depreciation on network assets is based on the standard life for each asset category.

3.2.3 Return on Investment

Return on Investment provides for a return to the business and the shareholder, which is used to fund growth and development, fund renewals in excess of depreciation and provide a return to the shareholder or allow for a discount to customers.

3.2.4 Administration

A provision for a share of costs associated with the administration of the business, and the full cost of support services related to the management and operation of the network.

3.2.5 Recoverable and Pass-Through Cost

Recoverable and Pass-through cost consists of transmission prices charged by Transpower, avoided transmission cost and new investment contracts as well as local authority rates, Electricity Authority levy, Commerce Commission levy, Fire and Emergency levy (FENZ) and Utilities Disputes levy.

Transmission prices charged by Transpower consists of the following price components:

- **Connection Charge:** This charge represents the fixed costs associated with the dedicated assets at each GXP. Shared assets are allocated based on each Transpower off-take customer's share of the 12 highest half-hour demand peaks measured at the GXP.
- **Avoided transmission costs** are associated with transmission assets that have been provided by Network Waitaki rather than by Transpower.
- **New Investment Contracts** relate to improvements to the Grid undertaken by Transpower to meet Network Waitaki's supply requirements.
- **Benefit-based charge:** This charge represents the capital costs and applicable operating costs associated with all new and some historic interconnection investments. The charge is allocated to each Transpower customer based on the extent to which a customer is an expected beneficiary of those investments.
- **Residual charge:** This charge applies to each customer's gross load, whether it is supplied from the grid or from embedded generation, and regardless of season or its time-of-use.
- **Transitional cap charge:** A transitional cap of 3.5% (based on estimate of total electricity bills) applies to distributors and grid-connected consumers' benefit-based charges and residual charges. The cost of this transitional cap is spread

among distributors, generators and direct-connect customers in the form of a transitional cap charge.

4 CUSTOMER LOAD GROUPS AND PRICING STRUCTURES

Customer load groups fall into two main categories, namely:

- Standard customer load groups where network costs are recovered by means of a fixed annual price (based on connection capacity) applicable to the customer load group, and a day/night volume (kWh) price as shown in the schedule of delivery prices in Appendix 1. Most Network Waitaki customers are on standard price plans which mean that they have a supply contract with a retailer and not with Network Waitaki.
- Non-standard customers where network costs are recovered by means of a fixed annual price based on the individual customer's asset usage, capacity requirements, and to a lesser extent their contribution towards the system peak demand.

4.1 Standard customer load groups

Customer load groups are based on the standard distribution transformer capacities used on the network, with no distinction being made between a single-phase and three-phase connection.

The minimum connection capacity for a single-phase supply is 15kVA, while the minimum connection capacity for a three-phase supply is 30kVA.

Customers are allocated into the various load groups based on their contracted connection capacity, with no distinction being made between residential and non-residential connections except for the RL categories which is available only to low use primary domestic supplies.

Load groups are differentiated based on kVA as it is a measure of service capacity and load density and is reflective of the costs incurred to serve each group.

The current Network Waitaki customer load groups are:

Load Group	Description	Maximum Fuse Rating
RLC	Residential Low User 15C	1x 63A fuse
RLU	Residential Low User 15U	1x 63A fuse
15C	0 - 15kVA controlled	1 x 63A fuse
15U	0 - 15kVA Uncontrolled	1 x 63A fuse
30C	16 - 30kVA Controlled	1 x 100A fuse or 3 x 40A fuses
30U	16 - 30kVA Uncontrolled	1 x 100A fuse or 3 x 40A fuses
50C	31 - 50kVA Controlled	3 x 80A fuses
50U	31 - 50kVA Uncontrolled	3 x 80A fuses
100	51 - 100kVA	3 x 160A fuses

Load Group	Description	Maximum Fuse Rating
200	101 – 200kVA	3 x 315A fuses
300	201 – 300kVA	3 x 400A fuses
500	301 – 500kVA	NA
750	501 – 750kVA	NA
LC	750kVA +	NA
IND	Non-standard	NA

Table 2: Customer load groups

Street lighting is a specialist load group which utilises dedicated LV assets and is covered by a non-standard plan.

4.2 Distribution fixed prices: Standard customer Load Groups

4.2.1 0 – 50kVA Load Groups

Customers in the 15, 30, and 50kVA groupings are typically domestic or small commercial installations which may have water-heating or other loads that can be controlled.

Network Waitaki will continue to use the control options for those customers that foster economic use of the network assets and enable load to be moved to off-peak periods. In recognition of this, the fixed prices for installations that provide year-round access to controllable load are lower than for installations with no controlled load.

In addition, controlled installations can utilise two-rate, day/night metering, which enables customers to benefit from the cheaper night rate prices that apply between 11:00pm and 7:00am.

An RL option is also available in accordance with the *Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulation 2004*. This option is cost-neutral for a customer using 9,000 kWh per annum before and after a discount has been applied.

4.2.2 51 – 750kVA Load Groups

Installations in the 100 – 750kVA load groups are predominantly commercial, light industrial, or farming, and as generally high consumption customers they will most likely benefit from the future move to fixed capacity-based prices. These customers do not usually have loads that can be controlled externally and load control is therefore not generally available for these load groups. These installations are normally supplied from a dedicated transformer and therefore do not utilise the same range of network assets as small low-voltage connections.

With costs being allocated on a predominantly fixed basis rather than volume prices the fixed cost nature of Network Waitaki's business is reflected.

4.2.3 Large Commercial Load Group

This load group requires connections larger than 750kVA. Pricing for this group is similar to the pricing method applied for non-standard price plans. The costs associated with the network assets are recovered as a fixed price based on contracted capacity and contribution to network system demand. Like other load groups, the fixed capacity price component portion will progressively form a bigger component of the price structure to reflect costs appropriately.

4.3 Distribution prices for Individually Assessed load groups

Non-standard customer pricing is driven from the main cost drivers, namely contracted capacity and contribution to network system demand. The contracted capacity price component makes out 80% and the demand price component 20% for 2023-2024.

Network Waitaki currently has 21 customers on non-standard connections.

4.4 Volume prices: Standard customer Load Groups

Volume prices for standard customer load groups are based on GXP volumes and individual customer usage. Day volume prices apply to all units transported over the network between 7:00am and 11:00pm and night volume prices to all units transported over the network between 11:00pm and 7:00am.

Night volume prices are lower than day volume prices to encourage retailers to develop prices that reward customers for off-peak usage. Volume prices will reduce in the 2023-2024 pricing period in line with our move to fixed capacity-based pricing to change the ratio from 45/55 (volume-based/fixed capacity) to 30/70 (volumes-based/fixed capacity) over all price groups.

4.5 Transmission prices: Standard customer Load Groups

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

Transpower's charges are fixed asset-based costs and are allocated between customer load groups based on the group capacity requirements. These costs are recovered through mostly fixed prices.

A rebalancing of the fixed and volume-based components will continue from 1 April 2023 to recover costs in proportion to the capacity being made available to load groups.

4.6 Transmission prices for Non-standard load groups

Transpower's connection charges and new investment charges are recovered by means of a fixed price based on the capacity (kVA) requirements of each customer adjusted annually in accordance with the approved price adjustment.

Transpower's benefit-based, residual and transitional cap charges are recovered through a fixed price and allocated based on the adjusted lagged Anytime Maximum Demand (AMD) of each customer.

4.7 Settlement Residual Allocation

In accordance with clause 12A.3 of the Code Network Waitaki has prepared a Settlement residual Allocation methodology. The Electricity Authority market brief of 14 February 2022 included a notification of intent to provide guidance to distributors on the settlement residue pass-through. Once the Electricity Authority guidance has been received Network Waitaki will review the prepared methodology to ensure it is compliant after which it will be published.

5 CALCULATION OF COST TO SERVE

For the period 1 April 2023 to 31 March 2024 the overall impact of the price adjustment is a weighted average increase of 9.8% in network prices.

The price adjustment is allocated as follows:

Price adjustment	% Adjustment
Distribution fixed (Standard and Non-standard)	38%
Distribution volume	-22%
Recoverable and pass-through fixed (Standard and Non-standard)	53%
Recoverable and pass-through volume	-48%
Weighted average price increase	9.8%

Table 3: Price adjustment 2023-2024

This price adjustment is in accordance with the pricing strategy of rebalancing fixed/volume-based prices to move to cost-reflective prices and becoming less exposed to revenue variations due to changing weather conditions.

Calculation of the Required Revenue

The revenue required to cover the costs and return on investment of Network Waitaki's business activities for 2023-2024 amounts to \$25.169 million and is shown in Table 4 below.

Revenue Requirement	2023-2024
Operation and Maintenance	\$8,172,985
Depreciation	\$4,909,000
Administration	\$4,264,232
Return on Regulatory Assets	\$1,956,593
Transmission	\$5,649,477
Pass-through costs	\$217,000
Revenue Requirement	\$25,169,286
Fixed Discount	(1,000,000)
Net Revenue Requirement	\$24,169,286

Table 4: Revenue Requirement

For FY2024, a Cost of Supply model (CoSM) and pricing design model was developed. These models follow a bottom-up approach and provide a platform for setting more cost-reflective and efficient prices.

5.1 Recovery of Required Revenue from consumer groups

Based on the outcome of the CoSM the required revenue to ideally be recovered from each load group is shown in Table 5 below.

Breakdown of revenue requirement for 2023 – 2024				
	Distribution	Pass-through	TOTAL	Proportion
Small: RLU, RLC, 15U, 15C	\$9,215,376	\$2,157,331	\$11,372,707	45%
Medium: 30U, 30C, 50U, 50C	\$2,640,390	\$742,399	\$3,382,789	13%
Large: 100, 200, 300, 500, 750	\$4,900,453	\$1,345,749	\$6,246,203	25%
IND: Non-standard	\$2,546,591	\$1,620,997	\$4,167,587	17%
Total Revenue Requirement	\$19,302,810	\$5,866,477	\$25,169,286	100%

Table 5: Allocation of revenue requirement by consumer group

6 PRICE SETTING APPROACH

In setting prices, two high-level steps are followed:

Step 1: The CoSM allocates the revenue requirement as follows:

- Firstly, the revenue requirement is allocated to the four GXPs that Network Waitaki's network connects to, namely Oamaru, Waitaki, Twizel and Black Point.
- Secondly, the revenue requirement for each GXP is allocated to the eleven consumer groups.

Step 2: The pricing design model sets the required revenue by:

- Setting distribution and pass-through prices, by GXP, within each consumer group based on a designated split between fixed / volume-based charges.
- Rolling the distribution and pass-through prices up to set uniform delivery charges, i.e. not split by GXP.

6.1 Overview of approach to allocating the revenue requirement

6.1.1 Allocation of revenue requirement to GXPs

The CoSM firstly allocates the revenue requirement across the four GXPs that Network Waitaki's network connects to namely, Oamaru, Waitaki, Twizel and Black Point, based on the principal drivers of the cost components of the required revenue. There are eight drivers of cost that could be used at each GXP:

- Number of ICPs
- Consumption
- Line length
- Installed Capacity
- Peak Demand
- Anytime Maximum Demand
- Regulatory Asset Base
- Regulatory Asset Base - depreciation

Cost drivers are allocated to each GXP as shown in Table 6

Cost driver	Oamaru	Waitaki	Twizel	Black Point
No. of ICPs	83%	12%	5%	0%
Consumption	76%	12%	5%	6%
Installed Capacity	74%	15%	5%	7%
Peak Demand	59%	17%	4%	20%
Anytime Maximum Demand	77%	12%	5%	7%
Line Length	72%	23%	6%	0%
RAB	71%	21%	8%	0%
RAB - Depreciation	74%	7%	19%	0%

Table 6: Allocation to GXP by cost driver

The 1 April 2023 pricing approach changes how costs were allocated in previous years. Previously, costs were allocated to consumer groups essentially based on installed capacity and distance to GXP.

For this pricing year a more granular approach is followed in apportioning costs to improve our approach to more cost-reflective pricing. We expect that the input into the model will continuously evolve and improve over time. The eight cost drivers have been selected as it is information that is available, although in some instances assumptions are made, e.g. peak demand values are not available at load group level.

The allocation of the revenue requirement to each GXP by cost component and cost driver is shown in Appendix E.

6.1.2 Allocation of revenue requirement to consumer groups

Using the allocated required revenue by GXP, the CoSM next allocates the revenue requirement by GXP to the consumer groups based on the driver of cost to serve each consumer group. The allocation is done in three steps, namely:

Step 1: High-level allocation of cost to standard and non-standard consumer groups (Table 10) using the following cost drivers:

- Installed Capacity
- Peak Demand
- Anytime Maximum Demand

Step 2: Allocation of cost to the different standard consumer groups using the following cost drivers:

- Number of ICPs
- Consumption
- Line length
- Installed Capacity
- Peak Demand
- Anytime Maximum Demand

Step 3: Allocation of cost to the non-standard consumer and Large Commercial groups using the following cost drivers

- Installed Capacity
- Peak Demand
- Anytime Maximum Demand

The cost drivers consist of historical quantities (information from billing, EIEP files and information disclosures) that are allocated to each consumer group.

Tables 11 to 14 in Appendix F show the % allocation of each cost driver per consumer group per GXP. Tables 15 to 18 shows the actual cost driver values used for each load group at each GXP.

6.1.3 Approach to setting target revenue

Through a smoothing approach the pricing design model sets the prices from which the target revenue for each consumer group will be recovered over the pricing year. The pricing design model, based on the revenue requirement, first sets distribution and transmission prices for each consumer group by GXP as well as a uniform distribution and transmission price for each consumer group across all GXPs.

6.1.3.1 Uniform delivery charges

Network Waitaki continues to apply a uniform delivery charge that is indifferent to location and includes both distribution and pass-through charges. Approximately 90% of Network Waitaki customers are supplied through the Oamaru GXP showing that the market is relatively concentrated. As illustrated in Figure 3, 9% of connections are more than 11km way from their point of supply.

At this point the complexity and possible ambiguity of applying locational prices to 9% of remote rural customers do not justify this pricing, and the inherent security-of-supply/cost trade-off between urban and rural customers tend to equalise the situation.

Urban customers supplied from Chelmer Street and Redcastle substations enjoy a higher level of security due to the N-1 status of these substations. Also, the higher level of interconnectivity in the urban areas provides alternative supply routes in the event of a fault or planned outage.

The Authority recognised the importance of weighing the cost vs. benefits of adopting greater granularity in its Practice Note—

*“Granularity matters. The prices and regulated charges for electricity services vary significantly at different times and in different locations in electricity networks. Progressively improving the temporal and locational granularity of prices and charges can deliver increased social welfare; **however, these benefits must be balanced against the costs, complexity, and potential equity concerns of implementation.**”⁵ [Emphasis added]*

⁵ Electricity Authority. Distribution Pricing: Practice Note Second Edition v2.2 (2022). Paragraph 81, at page 15

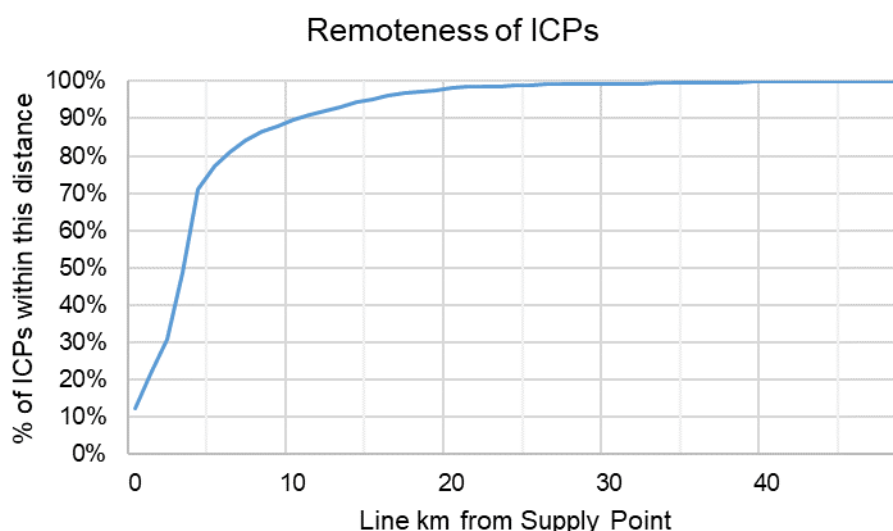


Figure 3: Illustration of remoteness of ICPs

6.1.3.2 Setting a fixed / volume-based split

In accordance with Network Waitaki’s pricing strategy an overall fixed / volume-based split of 70/30 is the aim for the pricing year. It is expected that this pricing year is the last rebalancing of fixed and volume-based charges as the phase-out of the LFC regulations will almost certainly be sufficient to achieve the aim of an overall 80/20 fixed / volume-based split in 2024-2025.

6.1.3.3 Setting fixed and volume-based prices

The fixed and volume-based prices to achieve the required revenue shown in Table 5 above within each consumer group is set using the following formula –

$$(CoSM \text{ allocated required revenue per consumer group} \times \text{fixed/volume split}) / \text{quantity}$$

Each standard consumer group has one fixed price and uniform day/night volume-based charges apply across all standard consumers.

6.1.3.4 Smoothing prices for compliance

Prices per consumer group are then smoothed to meet the obligations of the LFC regulations and to avoid bill shocks as prices become more cost reflective.

A three-step process is followed:

- Initial fixed/volume-based allocations based on future pricing strategy of 80/20.
- Adjustment to prices to comply with LFC regulations.
- Spreading the under-recovered revenue across consumer load groups in a fair manner and to achieve the LFC regulation cross-over obligations.

6.1.3.5 Forecast quantities to set prices

A forecast of quantities per consumer group is used to set prices. Volumes are forecasted using an average of the previous three years’ average volume throughput and a growth factor is applied to the number of ICPs per consumer groups based on the average year-on-year growth over the previous 5 years.

6.1.3.6 Calculation of target revenue

Target revenue per consumer group is calculated using the following formula –

$$\text{Smoothed Price} \times \text{forecast quantity} = \text{Target revenue}$$

Table 7 provides a breakdown of the target revenue by consumer group and the proportion of each consumer group's target revenue to the total target revenue.

Consumer Group	Target revenue	Proportion
RLU (Residential Low User 15U)	\$706,141	2.8%
RLC (Residential Low User 15C)	\$3,055,932	12.1%
15U (0-15kVA Uncontrolled)	\$2,192,799	8.7%
15C (0-15kVA Controlled)	\$4,388,907	17.4%
30U (16-30kVA Uncontrolled)	\$906,137	3.6%
30C (16-30kVA Controlled)	\$329,481	1.3%
50U (31-50kVA Uncontrolled)	\$1,923,277	7.6%
50C (31-50kVA Controlled)	\$448,893	1.8%
100 (51-100kVA)	\$2,551,628	10.1%
200 (101-200kVA)	\$1,819,340	7.2%
300 (201-300kVA)	\$1,051,477	4.2%
500 (301-500kVA)	\$964,276	3.8%
750 (501-750kVA)	\$641,797	2.5%
LC (750kVA+)	\$114,210	0.5%
IND (Individual Assessed)	\$4,074,992	16.2%
Total Target revenue	\$25,169,286	

Table 7: Target revenue

6.1.3.7 Variance between required revenue and target revenue within consumer groups

Smoothing of prices (explained in par. 6.1.3.4 above) cause a variance between the required revenue and target revenue within consumer groups.

Table 8 below compares the revenue requirement and target revenue by consumer group.

Consumer Group	Required revenue	Target revenue	Variance	
RLU (Residential Low User 15U)	\$839,396	\$706,141	-\$133,255	-16%
RLC (Residential Low User 15C)	\$4,180,742	\$3,055,932	-\$1,124,810	-27%
15U (0-15kVA Uncontrolled)	\$1,924,354	\$2,192,799	\$268,445	14%
15C (0-15kVA Controlled)	\$4,428,215	\$4,388,907	-\$39,308	-1%
30U (16-30kVA Uncontrolled)	\$818,107	\$906,137	\$88,031	11%
30C (16-30kVA Controlled)	\$350,248	\$329,481	-\$20,767	-6%
50U (31-50kVA Uncontrolled)	\$1,777,502	\$1,923,277	\$145,776	8%
50C (31-50kVA Controlled)	\$436,933	\$448,893	\$11,960	3%
100 (51-100kVA)	\$2,315,724	\$2,551,628	\$235,904	10%
200 (101-200kVA)	\$1,607,640	\$1,819,340	\$211,700	13%
300 (201-300kVA)	\$840,940	\$1,051,477	\$210,537	25%
500 (301-500kVA)	\$834,175	\$964,276	\$130,101	16%
750 (501-750kVA)	\$530,856	\$641,797	\$110,941	21%
LC (750kVA+)	\$116,868	\$114,210	-\$2,657	-2%
IND (Individual Assessed)	\$4,167,587	\$4,074,992	-\$92,595	-2%
Total	\$25,169,286	\$25,169,286	\$0	0%

Table 8: Comparison of Required Revenue and Target Revenue by Consumer Group

The intent is to address cross-subsidisation over future pricing years as the LFC regulations are phased out and prices become more cost reflective.

7 LOSSES

7.1 General

Losses represent the percentage of electricity entering the network that is either consumed or lost in the delivery process between the Grid Exit Points and the customer installation metering points and can be categorised as either technical losses or non-technical losses.

Technical losses comprise:

- standing losses arising from zone and distribution transformers; and
- variable losses arising from resistive losses in conductors. Resistive losses are proportional to the square of the current passing through the conductor.

Non-technical losses comprise:

- losses arising from metering faults or errors; and
- losses arising from electricity theft etc.

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

7.2 Low Voltage and High Voltage connection

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

7.3 Loss factor allocation

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

8 DISTRIBUTED GENERATION

Network Waitaki is always keen to work with customers and to advise them of distribution alternatives such as Distributed Generation (DG) from wind or solar. Any customer interested in DG is encouraged to get in touch to discuss the opportunity further.

DG in our region is predominantly small-scale photovoltaic panels and this continues to grow. There are 179 DG connections approved on the network, comprising 1.4% of all connections. The average domestic photovoltaic DG installation size is 5 kW. DG connections make up about 0.1% of total energy consumption on the network.

Network Waitaki offers connection to DG by the standard terms defined by the Electricity Authority. The standard terms are easy to understand and are consistent with most distributors across the country. These terms can be found on the “*Solar and other distributed generation*” page on Network Waitaki’s website: www.networkwaitaki.co.nz.

DG customers are not charged for injecting into the grid at this time. In future, there may be a need to charge for this, but it will be set at a level that does not discourage DG and relevant stakeholders will be consulted at the time.

For sufficiently large, distributed generation customers located in an area of strategic importance where a contribution to peak demand reduction could be deemed useful, Network Waitaki has up to now considered making payments to a DG customer for the amount it reduces Network Waitaki’s Regional Co-Incident Peak Demand (RCPD). Network Waitaki will consider this matter going forward as in accordance with the new Transmission Pricing Methodology Transpower does no longer consider RCPD in its pricing from 1 April 2023.

In any event, any connections and payments must be done in accordance with Part 6 of the Electricity Industry Participation Code 2010 administered by the Electricity Authority.

9 GLOSSARY

ADMD	After Diversity Maximum Demand
AMP	Asset Management Plan
EA	Electricity Authority
EDB	Electricity Distribution Business
GXP	Grid Exit Point
ICP	Interconnected Control Point
IND	Individually Assessed (non-standard)
kVA	kilo Volt Ampere
kW	kilo Watt
kWh	kilo Watt hour
LV	Low Voltage
ODV	Optimised Deprival Value
ORC	Optimised Replacement Cost
RCPD	Regional Coincident Peak Demand
RL	Residential Low User
LFC Regulations	Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004
RLC	Residential Low User Controlled
RLU	Residential Low User Uncontrolled
WPT	Waitaki Power Trust

10 APPENDIX A – DELIVERY PRICE SCHEDULE

DELIVERY PRICE SCHEDULE FOR NETWORK WAITAKI									
EFFECTIVE FROM		1 April 2023							
The prices in this schedule are used to charge electricity retailers for the delivery of electricity in the Waitaki region serviced by Network Waitaki. Electricity retailers determine how to allocate this cost together with energy, metering and other retail costs when setting the retail prices that appear on an end consumer's power account.									
				Effective 1 April 2022			Effective 1 April 2023		
Code	Description	Units	Distribution	Pass-through	Delivery price	Distribution	Pass-through	Delivery price	No. of Consumers
RESIDENTIAL LOW FIXED CHARGE CONNECTIONS / Price category code: RL (0 - 15 kVA)									
RLU	0 - 15kVA - Uncontrolled	\$/connection/day	0.2174	0.0826	0.3000	0.3399	0.1101	0.4500	876
RLC	0 - 15kVA - Controlled	\$/connection/day	0.2174	0.0826	0.3000	0.3399	0.1101	0.4500	4,422
RLUD	Daily Volume - Uncontrolled	\$/kWh	0.09800	0.03913	0.13713	0.10899	0.03352	0.14251	
RLCD	Daily Volume - Controlled	\$/kWh	0.09753	0.02524	0.12277	0.09912	0.02159	0.12071	
RLUN	Night Volume - Uncontrolled	\$/kWh	0.00989	0.01405	0.02394	0.01100	0.01204	0.02304	
RLCN	Night Volume - Controlled	\$/kWh	0.00984	0.00260	0.01244	0.01000	0.00222	0.01222	
GENERAL CONNECTIONS / Price category code: GC									
15U	0 - 15kVA - Uncontrolled	\$/connection/day	1.6380	0.4830	2.1210	2.0766	0.7204	2.7970	1,912
15C	0 - 15kVA - Controlled	\$/connection/day	1.4704	0.2944	1.7648	1.8628	0.4391	2.3019	4,120
30U	16 - 30kVA - Uncontrolled	\$/connection/day	2.5142	0.8429	3.3571	3.2803	1.2692	4.5495	478
30C	16 - 30 kVA - Controlled	\$/connection/day	2.2327	0.5876	2.8203	2.9741	0.8848	3.8589	191
50U	31 - 50 kVA - Uncontrolled	\$/connection/day	3.9707	1.0071	4.9778	5.2893	1.5403	6.8296	598
50C	31 - 50 kVA - Controlled	\$/connection/day	3.6644	0.7081	4.3725	4.8813	1.0830	5.9643	151
100	51 - 100kVA	\$/connection/day	7.7907	1.3799	9.1706	11.6397	2.1460	13.7857	359
200	101 - 200kVA	\$/connection/day	15.5761	2.7418	18.3179	23.2714	4.2639	27.5353	139
300	201 - 300kVA	\$/connection/day	23.3273	4.1772	27.5045	34.8521	6.4962	41.3483	54
500	301 - 500kVA	\$/connection/day	39.0899	7.5271	46.6170	58.4021	11.7058	70.1079	27
750	501 - 750kVA	\$/connection/day	59.6297	11.2275	70.8572	89.0895	17.4605	106.5500	13
WATAD	Daily Volume	\$/kWh	0.03572	0.01461	0.05033	0.02322	0.00584	0.02906	
WATAN	Night Volume	\$/kWh	0.00398	0.00159	0.00557	0.00259	0.00064	0.00323	
LARGE COMMERCIAL / Price category code: LC (750 kVA +)									
LC	Daily Fixed	\$/connection/day	2.631000	0.0000	2.631	2.6238	0.0000	2.6238	1
LCCAP	Daily Capacity	\$/kVA/day	0.086100	0.0641	0.1502	0.1257	0.0997	0.2254	
LCDEM	Daily Demand	\$/kW/day	0.134700	0.2219	0.3566	0.0820	0.1129	0.1949	
INDIVIDUALLY ASSESSED / Price category code: IND									
IND									31
<i>Note: All prices are exclusive of GST.</i>									
NOTES:									
1. All Charges are GST exclusive. GST is payable in addition to the charges.				Different rates are applied for "day volume" (07:00 a.m. until 11:00 p.m.) and for "night volume" (11:00 p.m. until 07:00 a.m. the next morning).					
2. The price movement amounts to an average overall 9.8% increase mainly as a result of increased operational and capital expenditure. This increase is necessary to allow Network Waitaki to operate efficiently and target a secure and reliable supply of electricity through appropriate levels of investment. Consumers will be impacted differently based on their usage patterns as the adjustment has been applied as an increase to the fixed (\$/connection) component and volume (\$/kWh) component of Low Fixed Charge price plans and a reduction to the volume component (\$/kWh) of standard price plans. More information on how prices are determined is published in our pricing methodology which is available on the Network Waitaki website (www.networkwaitaki.co.nz).				5. Large Commercial (LC) load group with connections higher than 750kVA: Daily capacity prices are based on contracted capacity. Daily demand prices are applied to an assessed demand level that is available on request. Capacity and demand prices accrue on a daily basis at the rate of 1/365th of the annual amount due, or 1/366th during a financial year that includes a leap day.					
3. Eligibility for the "Residential Low Fixed Charge" price category requires that the premises must be the consumer's principal place of residence as defined by the Electricity Industry Act 2010.				6. Distribution and Pass-through prices are charges in respect of each site and electricity retailers are invoiced monthly in arrears. Fixed prices accrue on a daily basis at the rate of 1/365th of the annual amount due, or 1/366th during a financial year that includes a leap day. The charge accrues daily at the rate of 1/365th of the annual amount.					
4. Volume (kWh) prices are based on volumes metered at the Grid Exit Points supplying the network. All metered loads should be grossed up using the appropriate loss factor to arrive at the chargeable GXP volume.				7. Pass-through prices consist of transmission prices, rates and regulatory levies.					
				8. Where an ICP is disconnected for seasonality reasons and reconnected in the same 12 month period, Network Waitaki reserves the right to charge the fixed charges that would have been due over the period of disconnection had the consumer not seasonally disconnected.					
				9. Network Waitaki pays an annual discount to consumers. Discounts will be payable based on the number of days the installation has been connected within a specific load group. The discount methodology is available on the Network Waitaki website.					

11 APPENDIX B – COMPLIANCE TO EA PRINCIPLES

This section demonstrates the extent to which Network Waitaki’s pricing methodology is consistent with the Electricity Authority’s pricing principles⁶.

Pricing Principles	Network Waitaki alignment to EA principles
(a) Prices are to signal the economic costs of service provision, by:	
(i) being subsidy free (equal to or greater than avoidable costs, and less than or equal to standalone costs);	<p>Customers are allocated to load groups in line with their capacity requirements.</p> <p>The current pricing structure and specifically the volume/capacity price balance has resulted in an inefficient allocation of cost and recovery of revenue from load groups which does not appropriately signal the economic cost of service provision and network use.</p> <p>Customers that use the network efficiently with high load factors are generally subsidising those customers using very little electricity for the capacity they are connected to. This is mainly due to the volume component in the network price. As per the pricing strategy we are transitioning towards a mostly capacity-based charging regime, with substantially less revenue generated by volume prices.</p> <p>Achieving a subsidy free pricing situation is compromised given LFC regulation which effectively requires the low use residential customer group to be subsidised by others. Phasing out of the LFC regulations that commenced on 1 April 2022 over a period of 5 years will contribute significantly to removing inefficient subsidisation.</p>
(ii) reflecting the impacts of network use on economic costs;	<p>In moving away from the current volume dominated pricing regime and correcting the imbalance between capacity-based fixed and volume pricing, customers are presented with a ‘price signal’ that more accurately conveys the cost of electricity transportation.</p> <p>A fixed price based on contracted capacity allows the customer to contract for a properly sized connection, and similarly allows Network Waitaki to provide suitable assets to honour the contract. Capacity-based prices signal the impact of network use on economic cost.</p> <p>Our current controlled load price plans encourage customers to make load available for control and to move</p>

⁶ Electricity Authority (4 June 2019). More efficient distribution network pricing – principles and practice.

Pricing Principles	Network Waitaki alignment to EA principles
	<p>load to night-time where possible. This benefits the network as it provides an ability to move load whenever the need arise to ensure supply stability and reliability, and to manage maximum demand.</p>
<p>(iii) reflecting differences in network service provided to (or by) customers; and</p>	<p>Price reflects differences in network services. Network Waitaki offers discounted prices for customer load groups (up to 50kVA price plans) who opt for controlled prices. Both distribution and transmission fixed prices are lower for controlled prices compared to the equivalent uncontrolled prices to signal the benefits of load control.</p> <p>Load control systems are effective in reducing demand at peak times by deferring non-critical electricity usage. The benefits of controlled load include greater predictability of the magnitude of peak demands and potential to defer transmission and distribution capacity upgrades.</p>
<p>(iv) encouraging efficient network alternatives</p>	<p>Our current price structure (up to FY2023) with a large volume-based component does not sufficiently encourage efficient network alternative investment. It provides customers with an incentive to invest in alternative sources without being aware of the full cost of the network service.</p> <p>In moving to a cost-reflective pricing structure, that reflects the underlying cost structure through a mainly capacity-based fixed price component, customers will be encouraged to consider efficient network alternatives where it makes economic sense.</p> <p>For example, the current high impact of volume prices could encourage customers to invest in solar panels and battery banks before the prices of such equipment is optimally competitive with actual savings for the suppliers of grid electricity.</p> <p>Capacity pricing for delivery would assist with the decision-making process through price signals that indicate the true economic cost of the remaining grid connection.</p> <p>Electricity distribution is a small component of the electricity bill of a customer and diluting signals with other components (e.g. Time of Use) results in customers not being incentivised to optimise their contractual capacity size and so limit the cost of connection. For example, customers connected to capacity sizes larger than their</p>

Pricing Principles	Network Waitaki alignment to EA principles
	demand requirements as well as investment in distributed generation.
(b) Where prices that signal economic costs would under-recover target revenues, the shortfall should be made up by prices that least distort network use.	
<p>Current price structures partly signal economic cost through the capacity-based fixed price component. The volume-based component applicable to standard customers dilute an efficient signal and subjects Network Waitaki to revenue risk and potential under-recovery of target revenue, mainly due to weather volatility.</p> <p>Network Waitaki has not experienced any shortfalls on target revenue, but any potential shortfall will be recovered through price increases to the capacity component that least distort network use. Mitigating this risk of the inefficiency of current price structures form the basis for moving to a mostly capacity-based pricing structure, which will reflect the impact of network use on economic cost and will be least distortionary as those customers requiring larger capacities with less elasticity will be allocated higher cost.</p> <p>Marginal pricing signals on the short term is not part of our long-term pricing approach, as the main impact on our business is providing for long-term capacity to ensure we supply customers' peak demand when required. This will be achieved through a mostly single pricing signal, aligned with the major cost driver of the business, to influence customer behaviour. Marginal pricing signals will in most cases not have an impact as distribution prices make up about 30% of the total electricity bill and the impact of marginal pricing signals on customer behaviour is negligible.</p> <p>Capacity-based pricing will enhance the ability to obtain customer reaction and to reduce network cost, while reducing the customer's price.</p> <p>Pricing for non-standard customers is already mostly fixed (and thus least distortionary), although a small part is variable due to slight changes in demand required. Prices are calculated as an annually recalculated fixed price with the contracted capacity component forming 70% and the contribution the customer's installation makes to system demand making out 30% in FY2023.</p> <p>In time, through reflecting the business cost structure and timeframes in pricing and by not being subject to uncontrollable variables, such as rainfall, under-recovery of target revenues should not be a major issue.</p>	
(c) Prices should be responsive to the requirements and circumstances of end users by allowing negotiation to:	
(i) reflect the economic value of services; and	Network Waitaki does have non-standard customers, that were historically considered and negotiated on a case-by-case basis according to the specific needs of the customer. Pricing was tailored to reflect the cost to supply the unique needs of the customer. However, no fixed discount policy is applied, and care is taken to ensure

Pricing Principles	Network Waitaki alignment to EA principles
	<p>prices are above avoidable cost and below stand-alone cost.</p> <p>Network Waitaki has 21 customers on non-standard price plans. This is high compared to most networks. For historic reasons, some customers are on these plans when other very similar customers are on standard price plans. Network Waitaki are continuing its review of non-standard plans as part of its overall price structure realignment process.</p> <p>For standard load groups Network Waitaki’s current pricing structure has been inefficient. Our pricing strategy as described in section 2 explains the process of achieving a pricing structure that will result in prices faced by customers reflecting the true economic cost of their service provision.</p> <p>The future pricing structure with a dominant fixed capacity-based component will provide customers with options and an appropriate signal to ensure they are on appropriate connection sizes for the electricity usage they have.</p>
(ii) enable price/quality trade-offs	<p>Network Waitaki is 100% owned by the Waitaki Power Trust (WPT). Trustees of the WPT represent the interests of customers and engage with Network Waitaki to ensure the company makes appropriate price/quality trade-offs.</p> <p>In addition, for non-standard customers, through a process of one-to-one consultation, Network Waitaki has in the past negotiated a service tailored to the requirements of the individual customer, making a price-quality trade-off appropriate for that customer. As part of its price structure realignment Network Waitaki will converge non-standard customers with standard load group categories as far as possible to ensure equitable treatment of similar customers.</p> <p>Non-standard price plans with quality aspects will continue to be available in future but only for those customers that do not fit into any of the standard load groups and have special and unique requirements.</p>
<p>(d) Development of prices should be transparent and have regard to transaction costs, customer impacts, and uptake incentives.</p>	
<p>The pricing methodology of Network Waitaki is transparent, with a focus on limiting negative impacts on customers and incentivising efficient usage through development</p>	

Pricing Principles	Network Waitaki alignment to EA principles
	<p>of cost reflective pricing. Price structure realignment has occurred at a slow and steady pace over the past few years with no change to current price structures itself, i.e. capacity-based fixed prices and day/night volume-based prices are still in place. Only the magnitude of the components has changed over time and will continue as described in section 2. The intent is to keep prices structures simplistic and understandable while offering choices to customers to encourage the most efficient use of the network.</p> <p>Price structure rebalancing has been such that most customers have not experienced major impacts. Network Waitaki has developed a pricing information sheet to explain price changes and have engaged with customers to discuss their options with a view of limiting transaction cost. Furthermore, through its ownership by WPT, and the regular engagement with Trustees of the WPT (who represent the interests of customers), Network Waitaki ensures that network prices are transparent to WPT and have full regard to the impact network prices have on customers. Any rebalancing of current and future price design is and will be accompanied by careful analysis of bill impacts on all customers.</p> <p>Network Waitaki's prices do not favour one retailer over another. The pricing methodology and applicable prices are identical across all retailers, with no discrimination in regard to available price plan options, applicable prices, calculation methodology, or discounts.</p> <p>As Network Waitaki is not considering structural changes to its current price structures assignment policies such as opt-in, opt-out and event-based will not be that relevant but will be considered throughout the price structure realignment process. Currently, the view is to transition to more cost-reflective prices through Network Waitaki's current price structures by following a phased approach to FY2025.</p>

12 APPENDIX C – INFORMATION DISCLOSURE COMPLIANCE CHECKLIST

The table below contains a check list that summarises compliance to all the pricing and related information requirements as per section 2.4. of the Information Disclosure Guidelines.

Clause in Determination	Reference in Pricing Methodology
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;	Appendix A for changes to prices. Paragraph 6.1.3.6 for changes to target revenues.
(3) Explains, in accordance with clause 2.4.5 below, the approach taken with respect to pricing in non-standard contracts and distributed generation (if any);	Paragraphs 4.3 and 4.6 Paragraph 8 for a discussion on Distributed Generation.
(4) Explains whether, and if so how, the EDB has sought the views of customers, 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 customers, the reasons for not doing so must be disclosed.	Paragraph 2.7 for an explanation of Network Waitaki’s customer Engagement.
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.	Paragraph 2.8. There have been no material changes to the pricing methodology since publication of the last methodology in 2022.
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 customer group, including the assumptions and	Section 4 explain how prices were set for each customer group, for both

Clause in Determination	Reference in Pricing Methodology
<p>statistics used to determine prices for each customer group;</p>	<p>standard and non-standard plans.</p> <p>Paragraphs 6.1 provide more detail on allocation of revenue requirement.</p>
<p>(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;</p>	<p>Appendix B details the consistency of Network Waitaki's pricing methodology with the Electricity Authority Pricing Principles and Information Disclosure Guidelines.</p>
<p>(3) State the target revenue expected to be collected for the disclosure year to which the pricing methodology applies;</p>	<p>Paragraph 6.1.3.6 shows the target revenue to be collected in the disclosure year 2023-2024</p>
<p>(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;</p>	<p>Paragraph 6.1.3.6 shows the target revenue to be collected in the disclosure year 2023-2024.</p>
<p>(5) State the customer groups for whom prices have been set, and describe</p> <p>(a) the rationale for grouping customers in this way;</p> <p>(b) the method and the criteria used by the EDB to allocate customers to each of the customer groups;</p>	<p>Section 4 details customer groups and the rationale for grouping customers this way and the method and criteria that Network Waitaki has used to allocate customers to each group.</p>
<p>(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;</p>	<p>Note 2 in Appendix A provides the details.</p>
<p>(7) Where applicable, describe the method used by the EDB to allocate the target revenue among customer groups, including the numerical values of the target revenue allocated to each customer group, and the rationale for allocating it in this way;</p>	<p>Section 6.</p>

Clause in Determination	Reference in Pricing Methodology
(8) State the proportion of target revenue (if applicable) that is collected through each price component as publicly disclosed under clause 2.4.18.	Network Waitaki's revenue is targeted across customer groups as stipulated in paragraph 6.1.3.6
2.4.4 Every disclosure under clause 2.4.1 above must, if the EDB has a pricing strategy-	Section 2 outlines Network Waitaki's thinking on price reform.
(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;	Section 2 outlines Network Waitaki's thinking on price reform.
(2) Explain how and why prices for each customer group are expected to change as a result of the pricing strategy;	Section 2 outlines Network Waitaki's thinking on price reform.
(3) If the pricing strategy has changed from the preceding disclosure year, identify the changes and explain the reasons for the changes.	Not applicable.
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 customers subject to non-standard contracts;	There are 21 customers on non-standard contracts. The value of target revenue from non-standard contracts is depicted in Table 6.1.3.6, paragraphs 4.3 and 4.6.
(b) how the EDB determines whether to use a non-standard contract, including any criteria used;	Network Waitaki has several historic non-standard contracts. However, it will only consider non-standard contracts to new customers when there are particular and compelling reasons for doing so.

Clause in Determination	Reference in Pricing Methodology
(c) any specific criteria or methodology used for determining prices for customers subject to non-standard contracts and the extent to which these criteria or that methodology are consistent with the pricing principles;	The methodology for determining prices for non-standard contracts is detailed in paragraphs 4.3 and 4.6.
(2) Describe the EDB's obligations and responsibilities (if any) to customers subject to non-standard contracts in the event that the supply of electricity lines services to the customer is interrupted. This description must explain-	This is not applicable as Network Waitaki does not treat interruptions to non-standard contract customers any differently to those on standard contracts.
(a) the extent of the differences in the relevant terms between standard contracts and non-standard contracts;	Not applicable as above.
(b) any implications of this approach for determining prices for customers subject to non-standard contracts;	Not applicable as above.
(3) Describe the EDB's approach to developing prices for electricity distribution services provided to customers that own distributed generation, including any payments made by the EDB to the owner of any distributed generation, and including the-	Section 8.
(a) prices; and	Section 8.
(b) value, structure and rationale for any payments to the owner of the distributed generation	Section 8.

13 APPENDIX D – COMPLIANCE TO THE ELECTRICITY AUTHORITY’S FIVE AREAS OF FOCUS

In an open letter to Distributors the Electricity Authority set out their expectations for faster distribution pricing reform through five areas of focus. Network Waitaki has considered these areas of focus and found it to be similar to the high-level themes of its own pricing strategy.

The five focus areas are addressed as follows in the pricing strategy:

- Distributors’ roadmaps responding to future network congestion

Network Waitaki’s strategy in par. 2.6 has as its main aim signalling to customers the cost of providing a distribution service and maintaining load control pricing plans to incentivise customers to make load available for control when required. The intent is to achieve an appropriate fixed capacity-based / volume-based ratio by FY2025. Our customers will through this approach obtain the greatest value from their use of electricity with investments being made at the right time and place.

To produce a long-term pricing signal related to the peak demand capacity and cost of the network requires a pricing variable that captures the long-term impact of each customer on the network peak demand. The pricing variable that best captures this long-term impact relates to the size of connection as chosen by the customer, within the available connection size options made available by Network Waitaki. This variable does not change from year to year through short term considerations that impacts on annual consumption of a customer.

- Distributors’ response to any significant first mover disadvantage (FMD) issues facing customers seeking to connect to their networks (new and expanded connections).

Network Waitaki’s capital contribution policy, clause 5.2 on “*Reapportionments*” provides for this type of situation where reapportionment of direct network extension costs may apply in the instance of a customer connecting to assets which other customers have paid for within the previous five years.

“Deep” connection network infrastructure investment such as a new GXP or zone substation are funded by Network Waitaki and the cost socialised across all customers, except where a single user (or small group of users) is the main beneficiary of such an investment.

- The extent to which distributors are following the Authority’s guidance on pass-through of new transmission charges.

Network Waitaki has followed the Authority guidance on pass-through of transmission charges, i.e. that it should be fixed-like and not incentivise behaviour that influence usage.

In the case of non-standard customers where historical anytime maximum data is available transmission charges are determined as follows:

- Connection charges are allocated to these customers based on their contracted capacity.
- Residual and benefit-based charges are allocated among these customers in a way that reflects their size (as a proxy for ability to pay). The baseline gross Anytime Maximum Demand (AMD) of each connection is the basis for allocation of the charge to each connection which is then updated using the % change in lagged average total gross energy (LATGE) of each connection

In the case of Standard price plans Transmission charges are calculated as part of the fixed capacity-based pricing component of each price plan, i.e. fixed like and not providing incentives to users to alter day-to-day use of the network.

- Whether distributors are increasing their use of fixed charges to match the phase-out path of the low fixed charge tariff regulations

Network Waitaki have increased fixed charges to match the phase-out path of the LFC regulations.

- Distributors avoiding, or transitioning away from, recovery of costs that are fixed in nature through use-based charges, such as charges based on a customer's Anytime Maximum Demand (AMD).

Network Waitaki continues to transition away from recovery of costs that are fixed in nature through volume-based charges.

14 APPENDIX E – BREAKDOWN OF REQUIRED REVENUE BY GXP

Table 9 shows the allocation of the revenue requirement by cost component and cost driver to the four Network Waitaki GXPs.

Cost description	Price recovery category	Cost Driver	Required revenue				
			Oamaru	Waitaki	Twizel	Black Point	Total
Service Interruptions and Emergencies	Distribution	Line Length	\$1,328,734	\$419,457	\$107,076	\$0	\$1,855,268
Vegetation Management	Distribution	Line Length	\$1,317,027	\$415,761	\$106,133	\$0	\$1,838,922
Routine and Corrective Maintenance	Distribution	Line Length	\$2,072,123	\$654,131	\$166,983	\$0	\$2,893,237
Asset Replacement and Renewal	Distribution	RAB	\$1,119,621	\$336,940	\$128,998	\$0	\$1,585,559
System Operations and Network Support	Distribution	No. of ICPs	\$1,417,261	\$206,152	\$81,701	\$129	\$1,705,243
Business Support	Distribution	No. of ICPs	\$2,126,826	\$309,363	\$122,606	\$194	\$2,558,989
Depreciation - Network Assets	Distribution	RAB - Depreciation	\$3,493,097	\$339,271	\$902,652	\$0	\$4,735,020
Depreciation - Non-network Assets	Distribution	RAB - Depreciation	\$128,347	\$12,466	\$33,166	\$0	\$173,980
Cost of Capital	Distribution	Installed Capacity	\$1,441,024	\$291,215	\$95,284	\$129,070	\$1,956,593
Rates	Pass-through	No. of ICPs	\$99,742	\$14,508	\$5,750	\$0	\$120,000
Commerce Act Levies	Pass-through	No. of ICPs	\$33,247	\$4,836	\$1,917	\$0	\$40,000
Electricity Authority Levies	Pass-through	No. of ICPs	\$38,234	\$5,561	\$2,204	\$0	\$46,000
FENZ Levies	Pass-through	No. of ICPs	\$2,494	\$363	\$144	\$0	\$3,000
Utilities Disputes Levies	Pass-through	No. of ICPs	\$6,649	\$967	\$383	\$0	\$8,000
New investment charges	Pass-through	Attributable	\$0	\$50,930	\$0	\$157,433	\$208,363
Avoided cost of Transpower charges	Pass-through	Attributable	\$0	\$311,085	\$0	\$0	\$311,085
Connection Charge	Pass-through	Attributable	\$547,065	\$162,050	\$203,244	\$14,294	\$926,653
Benefit-based charges (BBC)	Pass-through	Attributable	\$575,606	\$80,484	\$33,332	\$91,005	\$780,428
Residual Charge	Pass-through	Attributable	\$2,597,676	\$376,109	\$155,690	\$277,313	\$3,406,788
Transitional Cap	Pass-through	Attributable	\$11,724	\$3,128	\$1,308	\$0	\$16,161
Total Revenue Requirement			\$18,356,498	\$3,994,779	\$2,148,572	\$669,437	\$25,169,286

Table 9: Required revenue allocated to GXP by cost component and cost driver for the pricing year

15 APPENDIX F – ALLOCATION OF COST DRIVERS TO CONSUMER GROUPS

Table 10 shows the high-level allocation of cost drivers to standard consumer groups and non-standard consumer groups for the four GXPs.

ALLOCATION OF COST DRIVERS TO STANDARD AND NON-STANDARD CONSUMER GROUPS FOR OAMARU GXP

Consumer group	Installed capacity	Peak demand	Anytime Maximum Demand
Standard consumer group	91%	75%	74%
Non-standard consumer group	9%	25%	26%

ALLOCATION OF COST DRIVERS TO STANDARD AND NON-STANDARD CONSUMER GROUPS FOR WAITAKI GXP

Consumer group	Installed capacity	Peak demand	Anytime Maximum Demand
Standard consumer group	96%	98%	99%
Non-standard consumer group	4%	2%	1%

ALLOCATION OF COST DRIVERS TO STANDARD AND NON-STANDARD CONSUMER GROUPS FOR TWIZEL GXP

Consumer group	Installed capacity	Peak demand	Anytime Maximum Demand
Standard consumer group	96%	92%	92%
Non-standard consumer group	4%	8%	8%

ALLOCATION OF COST DRIVERS TO STANDARD AND NON-STANDARD CONSUMER GROUPS FOR BLACK POINT GXP

Consumer group	Installed capacity	Peak demand	Anytime Maximum Demand
Standard consumer group	0%	0%	0%
Non-standard consumer group	100%	100%	100%

Table 10: Allocation of cost drivers to standard and non-standard consumer groups

From this high-level allocation each consumer group are allocated cost drivers in proportion to each consumer group's share of the cost driver. This allocation is shown in the tables below. No allocation of cost drivers to standard consumer groups are applicable for Black Point GXP, as this GXP only has NOIC as a customer.

ALLOCATION OF COST DRIVERS TO STANDARD CONSUMER GROUPS FOR OAMARU GXP

Consumer group	No. of ICPs	Consumption	Line Length	Installed Capacity	Peak Demand	Anytime Maximum Demand
RLU	6%	2%	8%	4%	2%	2%
RLC	37%	18%	27%	24%	13%	18%
15U	11%	5%	18%	7%	3%	5%
15C	31%	24%	29%	20%	17%	23%
30U	3%	2%	4%	4%	2%	2%
30C	1%	1%	1%	2%	1%	1%
50U	5%	10%	6%	10%	11%	10%
50C	1%	3%	1%	3%	2%	3%
100	2%	15%	4%	11%	17%	15%
200	1%	6%	1%	6%	9%	6%
300	0.3%	5%	0.4%	4%	5%	5%
500	0.1%	6%	0.1%	3%	16%	5%
750	0.1%	3%	0.1%	2%	4%	2%

Table 11: Allocation of cost drivers to standard consumer groups for Oamaru GXP

ALLOCATION OF COST DRIVERS TO STANDARD CONSUMER GROUPS FOR WAITAKI GXP

Consumer group	No. of ICPs	Consumption	Line Length	Installed Capacity	Peak Demand	Anytime Maximum Demand
RLU	9%	2%	9%	4%	1%	2%
RLC	17%	5%	14%	7%	3%	5%
15U	23%	5%	26%	10%	4%	5%
15C	29%	12%	31%	13%	8%	12%
30U	6%	3%	6%	5%	2%	3%
30C	2%	1%	1%	2%	1%	1%
50U	5%	7%	4%	7%	6%	7%

ALLOCATION OF COST DRIVERS TO STANDARD CONSUMER GROUPS FOR WAITAKI GXP

Consumer group	No. of ICPs	Consumption	Line Length	Installed Capacity	Peak Demand	Anytime Maximum Demand
50C	1%	2%	1%	1%	1%	2%
100	5%	23%	5%	15%	18%	24%
200	2%	17%	3%	14%	17%	18%
300	0.9%	7%	1.0%	8%	5%	7%
500	0.4%	7%	0.5%	6%	13%	7%
750	0.4%	10%	0.0%	8%	22%	8%

Table 12: Allocation of cost drivers to standard consumer groups for Waitaki GXP

ALLOCATION OF COST DRIVERS TO STANDARD CONSUMER GROUPS FOR TWIZEL GXP

Consumer group	No. of ICPs	Consumption	Line Length	Installed Capacity	Peak Demand	Anytime Maximum Demand
RLU	7%	1%	7%	4%	2%	1%
RLC	14%	4%	12%	8%	4%	4%
15U	30%	9%	33%	15%	6%	9%
15C	28%	13%	27%	15%	12%	12%
30U	7%	6%	7%	7%	3%	7%
30C	2%	1%	2%	2%	1%	1%
50U	6%	10%	5%	10%	10%	10%
50C	0.2%	0.4%	0.1%	0.8%	0.5%	0.4%
100	3%	15%	2%	10%	15%	15%
200	2%	23%	3%	16%	24%	24%
300	0.5%	3%	0.4%	3%	5%	3%
500	0.6%	13%	0.9%	8%	16%	13%
750	0%	0%	0%	0%	0%	0%

Table 13: Allocation of cost drivers to standard consumer groups for Twizel GXP

ALLOCATION OF COST DRIVERS TO NON-STANDARD AND LC CONSUMER GROUPS FOR OAMARU GXP

Consumer group	Installed Capacity	Peak Demand	Anytime Maximum Demand
LC (750+)	5%	1%	1%
Non-standard	95%	99%	99%

ALLOCATION OF COST DRIVERS TO NON-STANDARD AND LC CONSUMER GROUPS FOR WAITAKI GXP

Consumer group	Installed Capacity	Peak Demand	Anytime Maximum Demand
LC (750+)	0%	0%	0%
Non-standard	100%	100%	100%

ALLOCATION OF COST DRIVERS TO NON-STANDARD AND LC CONSUMER GROUPS FOR TWIZEL GXP

Consumer group	Installed Capacity	Peak Demand	Anytime Maximum Demand
LC (750+)	0%	0%	0%
Non-standard	100%	100%	100%

ALLOCATION OF COST DRIVERS TO NON-STANDARD AND LC CONSUMER GROUPS FOR BLACK POINT GXP

Consumer group	Installed Capacity	Peak Demand	Anytime Maximum Demand
LC (750+)	0%	0%	0%
Non-standard	100%	100%	100%

Table 14: Allocation of cost drivers to non-standard and LC consumer groups

16 APPENDIX G – HISTORICAL QUANTITIES USED FOR COST DRIVERS

Table 15 shows the quantities used for each load group of each cost driver to allocate required revenue to the Oamaru GXP.

Note: Line length cost driver for each price plan is the sum of the distance (km) of each ICP in that price plan to its respective GXP.

Consumer group	No. of ICPs	Consumption	Line Length	Installed Capacity	Peak Demand	Anytime Maximum Demand	RAB	RAB depreciation
		kWh	km	MVA	kW	kW	\$'000	\$'000
RLU (Residential Low User 15U)	641	3,205	6,912	10	1	3		
RLC (Residential Low User 15C)	4,085	25,198	23,860	61	4	18		
15U (0-15kVA Uncontrolled)	1,218	6,914	15,560	18	1	5		
15C (0-15kVA Controlled)	3,433	34,190	25,824	52	5	24		
30U (16-30kVA Uncontrolled)	329	2,869	3,386	10	1	2		
30C (16-30kVA Controlled)	159	2,004	1,178	5	0	1		
50U (31-50kVA Uncontrolled)	513	13,860	5,046	26	4	10		
50C (31-50kVA Controlled)	137	4,245	900	7	1	3		
100 (51-100kVA)	268	21,610	3,456	27	6	16		
200 (101-200kVA)	80	9,244	1,002	16	3	7		
300 (201-300kVA)	36	7,128	343	11	2	5		
500 (301-500kVA)	14	8,736	129	7	5	6		
750 (501-750kVA)	7	3,580	110	5	1	2		
LC (750kVA+)	1	454	1	1	0	0		
IND (Individual Assessed)	53	47,223	585	25	11	37		
Total	10,973	190,459	88,292	279	44	141		
Network (Distribution and LV Cables)							\$6,245	\$270
Network (Distribution and LV Lines)							\$24,353	\$928
Network (Distribution Substations and Transformers)							\$14,213	\$502
Network (Distribution Switchgear)							\$8,465	\$320
Network (Subtransmission Cables)							\$1,568	\$28
Network (Subtransmission Lines)							\$6,008	\$138

Consumer group	No. of ICPs	Consumption	Line Length	Installed Capacity	Peak Demand	Anytime Maximum Demand	RAB	RAB depreciation
Network (Zone Substations)							\$11,946	\$368
Network (Other)							\$1,769	\$70
Non-network (Non-network)							\$3,762	\$614
Total							\$78,330	\$3,239

Table 15: Quantities used to allocate required revenue to the Oamaru GXP for the pricing year

Table 16 shows the quantities used for each load group of each cost driver to allocate required revenue to the Waitaki GXP.

Consumer group	No. of ICPs	Consumption	Line Length	Installed Capacity	Peak Demand	Anytime Maximum Demand	RAB	RAB depreciation
		kWh	km	MVA	kW	kW	\$'000	\$'000
RLU (Residential Low User 15U)	138	546	2,368	2	0.2	0.4		
RLC (Residential Low User 15C)	267	1,409	3,856	4	0.4	1.0		
15U (0-15kVA Uncontrolled)	364	1,469	7,073	5	0.4	1.1		
15C (0-15kVA Controlled)	460	3,551	8,472	7	1.0	2.4		
30U (16-30kVA Uncontrolled)	90	824	1,667	3	0.2	0.6		
30C (16-30kVA Controlled)	27	388	362	1	0.1	0.3		
50U (31-50kVA Uncontrolled)	73	2,012	1,114	4	0.7	1.5		
50C (31-50kVA Controlled)	16	507	150	1	0.1	0.4		
100 (51-100kVA)	79	6,922	1,407	8	2.2	5.1		
200 (101-200kVA)	37	5,202	743	7	2.1	3.8		
300 (201-300kVA)	14	1,969	275	4	0.6	1.4		
500 (301-500kVA)	7	2,127	132	4	1.6	1.4		
750 (501-750kVA)	6	3,065	10	5	2.7	1.7		
LC (750kVA+)	0	0	0	0	0.0	0.0		
IND (Individual Assessed)	17	267	243	2	0.2	0.2		
Total	1,596	30,259	27,872	56	12	21		

Consumer group	No. of ICPs	Consumption	Line Length	Installed Capacity	Peak Demand	Anytime Maximum Demand	RAB	RAB depreciation
Network (Distribution and LV Cables)							\$1,995	\$48
Network (Distribution and LV Lines)							\$6,215	\$80
Network (Distribution Substations and Transformers)							\$2,427	\$51
Network (Distribution Switchgear)							\$2,103	\$45
Network (Subtransmission Cables)							\$0	\$0
Network (Subtransmission Lines)							\$5,073	\$47
Network (Zone Substations)							\$5,171	\$31
Network (Other)							\$189	\$1
Non-network (Non-network)							\$401	\$10
Total							\$23,573	\$315

Table 16: Quantities used to allocate required revenue to the Waitaki GXP for the pricing year

Table 17 shows the quantities used for each load group of each cost driver to allocate required revenue to the Twizel GXP.

Consumer group	No. of ICPs	Consumption	Line Length	Installed Capacity	Peak Demand	Anytime Maximum Demand	RAB	RAB depreciation
		kWh	km	MVA	kW	kW	\$'000	\$'000
RLU (Residential Low User 15U)	44	151	503	1	0.1	0.1		
RLC (Residential Low User 15C)	88	452	840	1	0.1	0.3		
15U (0-15kVA Uncontrolled)	182	1,080	2,234	3	0.2	0.8		
15C (0-15kVA Controlled)	175	1,529	1,844	3	0.4	1.1		
30U (16-30kVA Uncontrolled)	42	744	486	1	0.1	0.6		
30C (16-30kVA Controlled)	12	124	148	0	0.0	0.1		
50U (31-50kVA Uncontrolled)	37	1,159	316	2	0.3	0.9		
50C (31-50kVA Controlled)	1	52	6	0	0.0	0.0		
100 (51-100kVA)	17	1,770	137	2	0.5	1.3		
200 (101-200kVA)	13	2,758	192	3	0.7	2.0		

Consumer group	No. of ICPs	Consumption	Line Length	Installed Capacity	Peak Demand	Anytime Maximum Demand	RAB	RAB depreciation
		kWh	km	MVA	kW	kW	\$'000	\$'000
300 (201-300kVA)	3	388	24	1	0.2	0.3		
500 (301-500kVA)	4	1,557	63	2	0.5	1.1		
750 (501-750kVA)	0	0	0	0	0.0	0.0		
LC (750kVA+)	0	0	0	0	0.0	0.0		
IND (Individual Assessed)	15	962	322	1	0.3	0.8		
Total	633	12,726	7,115	18	3	9		
Network (Distribution and LV Cables)							\$1,110	\$86
Network (Distribution and LV Lines)							\$2,097	\$237
Network (Distribution Substations and Transformers)							\$1,456	\$86
Network (Distribution Switchgear)							\$1,194	\$80
Network (Subtransmission Cables)							\$0	\$0
Network (Subtransmission Lines)							\$2,060	\$116
Network (Zone Substations)							\$1,013	\$159
Network (Other)							\$30	\$7
Non-network (Non-network)							\$64	\$65
Total							\$9,025	\$837

Table 17: Quantities used to allocate required revenue to the Waitaki GXP for the pricing year

Table 18 shows the quantities used for each load group of each cost driver to allocate required revenue to the Black Point GXP.

Consumer group	No. of ICPs	Consumption	Line Length	Installed Capacity	Peak Demand	Anytime Maximum Demand	RAB	RAB depreciation
		kWh	km	MVA	kW	kW	\$'000	\$'000
RLU (Residential Low User 15U)	0	0	0	0	0.0	0.0		
RLC (Residential Low User 15C)	0	0	0	0	0.0	0.0		
15U (0-15kVA Uncontrolled)	0	0	0	0	0.0	0.0		

Consumer group	No. of ICPs	Consumption	Line Length	Installed Capacity	Peak Demand	Anytime Maximum Demand	RAB	RAB depreciation
15C (0-15kVA Controlled)	0	0	0	0	0.0	0.0		
30U (16-30kVA Uncontrolled)	0	0	0	0	0.0	0.0		
30C (16-30kVA Controlled)	0	0	0	0	0.0	0.0		
50U (31-50kVA Uncontrolled)	0	0	0	0	0.0	0.0		
50C (31-50kVA Controlled)	0	0	0	0	0.0	0.0		
100 (51-100kVA)	0	0	0	0	0.0	0.0		
200 (101-200kVA)	0	0	0	0	0.0	0.0		
300 (201-300kVA)	0	0	0	0	0.0	0.0		
500 (301-500kVA)	0	0	0	0	0.0	0.0		
750 (501-750kVA)	0	0	0	0	0.0	0.0		
LC (750kVA+)	0	0	0	0	0.0	0.0		
IND (Individual Assessed)	1	15,914	0	25	15.0	12.1		
Total	1	15,914	0	25	15	12		
Network (Distribution and LV Cables)							\$0	\$0
Network (Distribution and LV Lines)							\$0	\$0
Network (Distribution Substations and Transformers)							\$0	\$0
Network (Distribution Switchgear)							\$0	\$0
Network (Subtransmission Cables)							\$0	\$0
Network (Subtransmission Lines)							\$0	\$0
Network (Zone Substations)							\$0	\$0
Network (Other)							\$0	\$0
Non-network (Non-network)							\$0	\$0
Total							\$0	\$0

Table 18: Quantities used to allocate required revenue to the Waitaki GXP for the pricing year