

ELECTRICITY DISTRIBUTION BUSINESS PRICING METHODOLOGY

MAINPOWER NEW ZEALAND LIMITED
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mainpower

Contents

1	Introduction and Overview.....	3
1.1	MainPower.....	3
1.2	Regulatory Drivers.....	3
1.3	Consumer Consultation and Expectations	4
1.4	Commercial Outcomes.....	5
1.5	Asset Management Plan (AMP)	6
1.6	MainPower’s Pricing Objectives.....	6
1.7	Cost to Serve	6
1.8	Pricing Structure.....	6
2	Cost Determination	7
2.1	Target Revenue	7
2.2	Consumer Groups & Regions	9
2.3	Allocation Methodologies	10
3	Strategic Pricing Implementation	11
3.1	Background	11
3.2	Roadmap	12
3.3	Consumer Group Revenues	12
3.4	Pricing Structure.....	13
3.5	Pricing Levels.....	14
3.6	Future Considerations.....	17
4	Appendix A: Electricity Authority Pricing Principles Checklist	18
5	Appendix B: Directors Certification	21
6	Appendix C: Glossary	22
7	Appendix D: Pricing Levels.....	23
8	Appendix E: Revenue Summary.....	24

1 Introduction and Overview

This section provides a description of the context for MainPower’s pricing for the 2021-22 financial year. It describes the overall process followed, regulatory drivers, outcomes of consumer consultation, MainPower’s commercial outcomes, pricing objectives and the pricing structures considered.

MainPower’s methodology follows on from the review conducted in 2019 to develop and implement more cost reflective pricing. A key part of the review was to develop a better understanding of its cost to serve at an installation connection point (ICP) level.

Figure 1 below illustrates the overall process that MainPower followed in developing its pricing structure and pricing levels for the 2021-22 year.

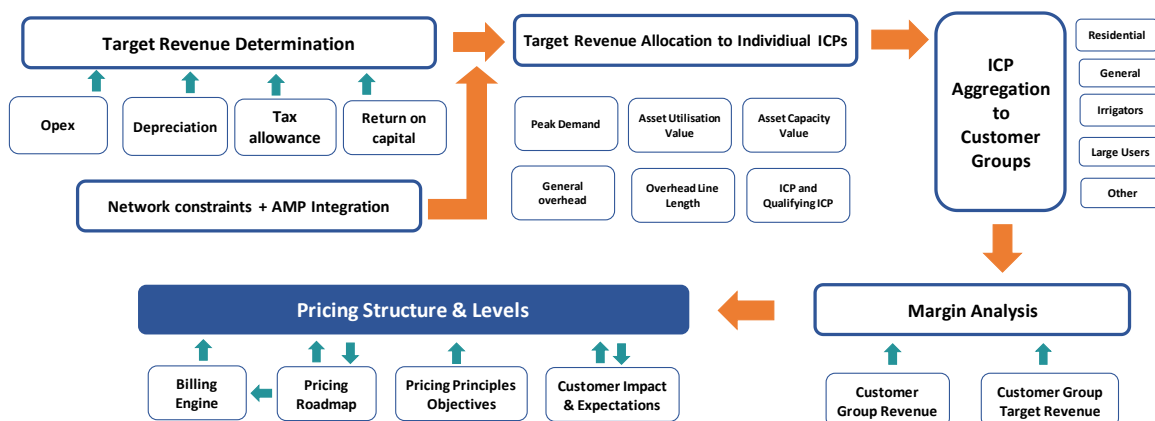


Figure 1 - Price Setting Methodology

1.1 MainPower

MainPower provides distribution lines services to approximately 42,000 consumers throughout the North Canterbury region. A number of rural towns, including Rangiora, Kaiapoi, Oxford, Amberley and Kaikoura service these rural communities. Approximately 83% of the consumer base is residential, with the majority of the remaining being small commercial, farming or irrigation consumers. One large connection is offered non-standard pricing in recognition of its unique cost profile.

MainPower is one of a number of consumer-owned electricity distribution businesses (“EDBs”) in New Zealand. Customers in the communities of North Canterbury own MainPower through the MainPower Trust and elect its trustees. MainPower also serves consumers connected to the former Kaiapoi Electricity network who are Non-Qualifying Customers of the Company.

1.2 Regulatory Drivers

MainPower’s distribution business is subject to the following regulatory controls:

- Part 4 of the Commerce Act 1986, as administered by the Commerce Commission. Consumer ownership means the company is exempt from direct price control under Part 4. Consumer ownership and oversight provides the necessary incentives to set prices consistent with the purpose of regulation under Part 4, in the long-term interests of consumers;
- oversight in the form of information disclosures under the Electricity Distribution Information Disclosure Determination 2012 (“IDD”), including the requirement to publish annual pricing methodologies (being this document);
- Part 6 of the Electricity Industry Participation Code 2010 (the Code), relating to the pricing of distributed generation; and
- the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004 (the low fixed charge regulations).

Further, the Electricity Authority (EA) published a revised set of pricing principles in June 2019. These are outlined below and MainPower’s consistency with these principles is described in detail in Appendix A.

EA Pricing Principles

1. Prices are to signal the economic costs of service provision, by:
 - Being subsidy free (equal to or greater than avoidable costs, and less than or equal to standalone costs);
 - Reflecting the differences in network service provided to (or by) consumers;
 - Reflecting the impacts of network use on economic costs; and
 - Encouraging efficient network alternatives.
2. Where prices that signal economic costs would under-recover target revenues, the shortfall should be made up by prices that least distort network use.
3. Prices should be responsive to the requirements and circumstances of consumers by allowing negotiation to:
 - reflect to economic value of service; and
 - enable price-quality trade-offs.
4. Development of prices should be transparent and have regard to transaction costs, consumer impacts and uptake incentives.

Consistency with these pricing principles are assessed annually by the EA through its Scorecard. In the 2020 review, MainPower scored a 3/5 which places it in the top 30% of all EDB’s.



1.3 Consumer Consultation and Expectations

MainPower seeks input from consumers as to price and quality. This helps inform pricing decisions, as well as objectives for the management of the electricity distribution network.

Key Outcomes

Recently held consumer research and consultation have identified that:

- Generally, consumers were supportive of a higher fixed charge and lower variable charge once they understood the largely fixed nature of MainPower’s costs;
- There was concern that low user ICPs would be unfairly impacted by a change in pricing structure to a higher fixed base;
- Generally, all consumer groups are comfortable with some cross-subsidisation regarding pricing structures. ‘Social good’ consideration, indicating a degree of cross-subsidisation between and within consumer was acceptable. Anecdotal evidence suggests around \$50 per year being a tolerable subsidy level of subsidy;
- Most consumers find the pricing/tariff structure confusing, even after it is explained to them; and
- Most consumers want more clarity from their retailers around what they are paying for e.g. how their bill is split between generation, transmission, distribution etc.

General feed-back from previous consultation had common themes where consumers had a strong, consistent preference for the status quo but yet an inconsistent preference for the preferred alternative pricing options. Further this preference varied by consumer type:

- Residential consumers – wanted simple, easy to understand pricing structures; and
- Large Users – wanted more flexibility and a combinations of pricing methods or structures.

The critical outcome is a bias against complexity, novelty and risk and with a consequent preference for simplicity, familiarity and certainty

“Not interested, only interested in the actual cost of the bill and if this can be reduced it will be.”

Therefore, improved consumer understanding of the various pricing options needs to be addressed with a suite of supporting strategies and mechanisms to improve consumer awareness.

Summary insights from periodic consumer research indicate that respondents across all consumer groups in the MainPower network view electricity reliability and the cost of electricity, as key performance deliverables are shown below: Measure of Performance	Importance Rating ¹	Satisfaction Rating ²
Continuity - keeping the power on	96%	95%
Price - keeping costs down	97%	55%
Restoration - reducing the length of time when power is off	88%	86%
Quality - keeping flickering or dimming lights to a minimum	90%	90%
Accessibility - easy to contact my provider, if the need arises	92%	83%
Communication - keeping you informed of the electricity network	86%	79%

¹Measure: Percentage of respondents rating the aspect 'important' and 'very important'.

²Measure: Percentage of respondents rating MainPower's performance as 'satisfied' and 'very satisfied'.

This suggests that MainPower needs to be mindful of cost and balancing decisions around network investment and the expectation of consumers regarding the price of electricity. There is a cost involved in investment in network maintenance and upgrades that is ultimately reflected in the price consumers pay.

1.4 Commercial Outcomes

Both the structure and pricing levels for the 2021-22 FY need to reflect several key commercial outcomes for MainPower, namely:

1. Revenue Stability

A portion of MainPower's network load is impacted by seasonal climatic conditions, primarily affecting the irrigation as well as the residential segments. This creates volatility in revenue that can be minimised by having a higher proportion of revenue derived from the fixed price component.

2. Fixed and Variable Revenues aligned with Cost Structure

A significant portion of MainPower's operating costs are fixed, reflecting the sunk costs of its network infrastructure along with the costs of replacing and maintaining those assets. Therefore, MainPower has aligned its revenue streams with its cost structure.

3. Being Cost Reflective

Considering the EA's directive for network pricing to be more cost reflective, MainPower has sought to align the pricing for each consumer group to the cost to serve of each consumer group.

4. Reduce Cross Subsidisation

Due to the historical, uniformly applied variable charge based pricing structure, legacy imbalances in the revenue versus cost to serve within and between customer groups still exists. Historically, higher volume consumers would have paid disproportionately more than lower volume users.

Whilst focus groups have indicated a degree of acceptance of this, MainPower has committed to reduce these imbalances over time and cross subsidisation has been minimised by rebalancing prices so that a higher proportion of revenue is derived from the fixed price component. A proportion of this imbalance remains in the residential segment however, due to the low-user fixed charge.

1.5 Asset Management Plan (AMP)

MainPower’s pricing methodology is designed to support and help deliver on its asset management plan (AMP). The AMP supports Mainpower’s strategic intent of *Creating a smarter future to deliver local value* and specifically *Leading the transition to smarter networks of the future*. This is underpinned by a focus on strategic asset management and operational excellence which requires sufficient funding to implement effectively. The pricing strategy, as outlined in this document, will generate sufficient revenue to ensure that the development, maintenance and replacement of the electricity distribution network, will meet MainPower’s risk and performance standards which reflect consumer expectations

Further, the pricing strategy also gives consideration to particular network constraints being either locational or temporal. Such constraints, created by customer demand can be managed through efficient pricing signals to move demand to periods where constrains do not exist or by reducing peak demand through the uptake of distributed energy resources such as photovoltaics.

1.6 MainPower’s Pricing Objectives

Given these regulatory and commercial drivers as well as consumer expectations, MainPower has tailored a set of six pricing objectives which will underpin the development and introduction of future pricing structures as well as pricing levels:

- Objective 1* - Alignment between cost structure and tariff structure (sunk-future costs vs fixed-variable revenue)
- Objective 2* - Minimise cross subsidisation between consumer groups
- Objective 3* - Minimise cross subsidisation within consumer groups
- Objective 4* - Consistency with regulatory environment
- Objective 5* - Is consistent with the values of the ownership structure (consumer owned)
- Objective 6* - Does not erode Mainpower’s brand / relationship with its consumers

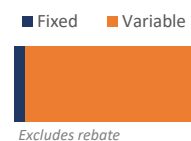
1.7 Cost to Serve

Fundamental to achieving its pricing objectives (particularly objectives 1-3), Mainpower developed a new method of allocating costs to each ICP on its network. This information provided MainPower a basis to align its cost and pricing structures as well as to address cross subsidisation amongst consumer groups. Details of this new method are described in section 2.3

1.8 Pricing Structure

Pre-2020 Pricing Structure

MainPower had applied a uniform variable charge to all pricing options within a particular pricing region, irrespective of consumer density, location, network configuration, or other load characteristics. Variable prices, after the disbursement of rebates, were generally the same for consumers in both MainPower and Kaiapoi pricing regions. Further, a significant portion of MainPower’s revenue was generated from the variable component as illustrated in the chart showing the revenue portions for a residential consumer (8,000kWh pa).



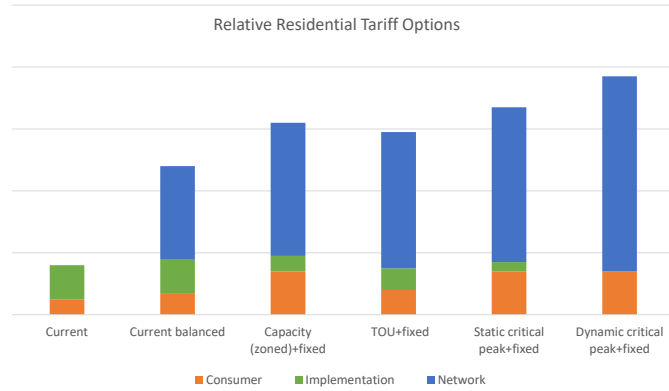
Post-2020 Pricing Structure

MainPower’s current pricing structure of *Current Balanced*, ¹as established in 2020 was chosen from a number of different options (shown below) on the basis of:

1. Significant improvements on delivery of network orientated benefits could be achieved by making the relatively simple adjustment of rebalancing the fixed and variable component;
2. Difficulty of implementation is a significant barrier to the introduction of individually tailored cost reflective pricing. For example, those options that included dynamic elements; and

¹ Describes the broad, existing pricing structure but with progressive balancing of revenue between and within customer groups.

3. The lack of data availability is considered a barrier to the introduction of individually tailored cost reflective pricing, particularly ½ hourly consumption data; and
4. Consumer impact is an important consideration in determining the rate of change to pricing structures but conversely the impact may be less clear given the final price delivery passes through current retailer billing structures.



Over the current regulatory control period MainPower intends to transition from the *Current Balanced* structure to alternate options, dependant on a range of criteria, particularly the availability of ½ hrly data as illustrated in Figure 2 below:

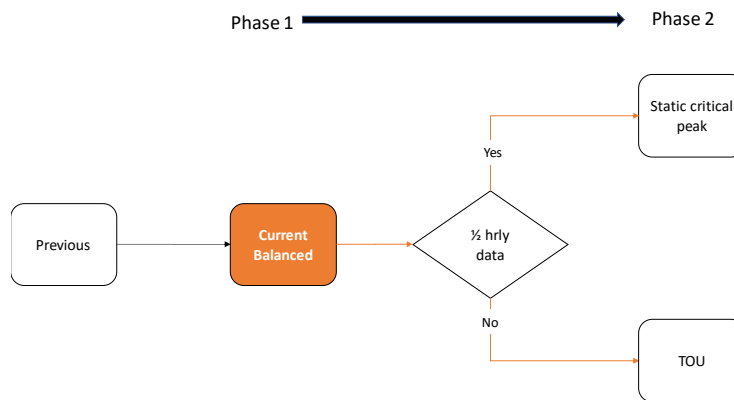
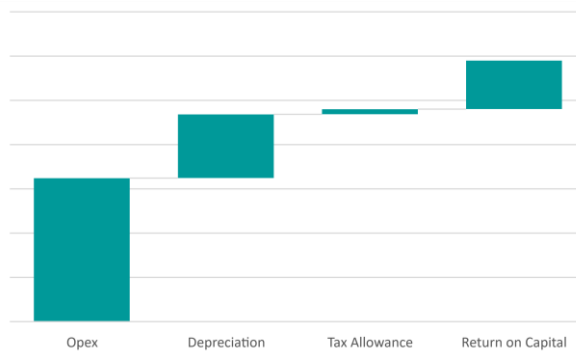


Figure 2 – Price Structure Development

2 Cost Determination

2.1 Target Revenue

MainPower’s target revenue is determined by the following building blocks:



	2021-22 (\$m)	2020-21 (\$m)	Change (%)
Operating Expenditure	32.4	30.5	6%
Depreciation	14.4	13.6	6%
Tax Allowance	1.2	2.0	-40%
Return on Capital Allowance	11.0	10.8	2%
Total of building blocks (Target Revenue)	59.0	56.9	4%

Table 1 - Movement of Target Revenue

For the 2021-22 FY MainPower has set its target revenue to equate to a 100% of the building block total. This includes a target WACC return of 4.27% which reflects the cost of capital applied by the Commerce Commission to EDBs regulated under the Default Price-Quality Path.

The following sections provide detail on how the building blocks were calculated:

Operating Expenditure

	2021-22 (\$m)	2020-21 (\$m)	Change (%)
Administration & Support Costs	12.5	12.7	-2%
Operations and Maintenance	7.50	5.8	29%
Transmission Cost	12.5	11.9	5%
Total	32.4	30.5	6%

Administration and Support Costs

Includes costs associated with managing the day to day business activities of the distribution business, such as management, accounting, regulatory, strategy and administration costs. This also includes local body rates and Electricity Act and Commerce Act levies. These costs are largely unchanged from last year. For a number of cost items, adjustments are made to account for non-network costs by reducing directors, staff, office and consultant costs.

Operations and Maintenance

Captures costs associated with operating and maintaining the network, such as switching, planned and reactive maintenance and responding to faults. These costs are consistent with planned maintenance expenditure identified in the Asset Management Plan (AMP) with the increase due in part to the aerial surveying of the network and enhanced maintenance programmes.

Transmission Costs

These are Transpower charges associated with:

1. connection of MainPower's distribution network to the national grid (including interconnection, connection and new investment contract charges)
2. the grid system operator function (a service which Transpower provides).

Transpower's overall transmission charge has increased by 4.5%. The increase is due to an increase in Transpower's revenue requirement and the MainPower regions increased contribution to RCPD (Regional Coincident Peak Demand.)

MainPower passes the transmission costs through to consumers and therefore the transmission component of MainPower's prices will increase in the 2021-22 year.

Since the 2020-21 year MainPower has a fixed transmission charge as well as a variable charge component. This reflects the significant fixed proportion of transmission pricing. Both transmission fixed and variable charges are determined for each consumer group in proportion to the total transmission cost apportioned to it.

Consumer Group	2021-22 Transmission cost (\$m)	2020-21 Transmission cost (\$m)
Residential	6.41	5.45
Irrigators	1.85	1.84
Large Users	1.90	2.36
General (commercial)	2.07	2.00
Other	0.24	0.26

Depreciation

Represents the return of capital investment and is calculated by a straight-line basis using a standard life for the asset in accordance with IDD. The increase in depreciation in 2021-22 year is due to an increase in the value of the Regulatory Asset Base (RAB) including fast depreciation assets being added in the last two years.

Return on Capital Allowance

This is calculated on a WACC return on the forecast RAB value as at 31 March 2021. MainPower has used a post-tax (67% percentile) WACC estimate of 4.27% which reflects the cost of capital applied by the Commerce Commission to EDBs regulated under the Default Price-Quality Path

Tax Allowance

The regulatory tax allowance is calculated as the tax payable on the calculated return on capital adjusted for the rebate paid to qualifying consumers.

2.2 Consumer Groups & Regions

MainPower operates its network through two regions:

Region	Description	Pricing
MainPower Region (MP):	Includes all consumers connected to the distribution network that are not included in the Kaiapoi pricing region. These are Qualifying Customers consistent with the MainPower Trust Deed.	Subject to the stated rebate
Kaiapoi Region (KE):	All consumers connected to the electricity distribution network previously owned by Kaiapoi Electricity Limited, which was acquired by MainPower on 1 July 2004. These consumers are non-Qualifying Customers.	Subject to a discount equivalent to the rebate paid to Qualifying Customers

These two regions were combined in the 2020-21 year into a single pricing structure.

MainPower's standard prices are structured across 7 standard consumer groups. It also has 1 non-standard consumer which is direct billed.

Group	Description
Residential	A residential consumer group has been adopted to show compliance with the low fixed charge regulations, which apply only to residential consumers.
Non-residential and large users	Non-residential and large users are treated as a separate consumer group in order to: <ul style="list-style-type: none"> ○ recognise the different connection load usage profiles of these consumers (e.g. lower weighted average load factor), relative to residential consumers and ○ facilitate our approach to complying with the low fixed charge regulations (i.e. by separating residential and non-residential consumers)
Irrigation	This group recognises the unique summer demand peaking load profile of these consumers and incentivises efficient utilisation of available capacity in the network.

Lighting	This group recognises the distinct night-time only usage profile and dedicated assets attributable to lighting connections.
Council Pumping	Council pumping is a separate consumer group that recognises their high peak load but less frequent use.
Temporary supply	This consumer group recognises the need for temporary supply connections (e.g. related to construction) as well as the additional costs associated with servicing this group.

2.3 Allocation Methodologies

To identifying the cost to serve its consumer groups, MainPower relies upon methods to distribute or spread the costs making up its target revenue costs out to each individual ICP according to its individual characteristics / profile. The following section describes these key methods.

MainPower has identified nine cost allocation methodologies to allow different category of costs to be distributed to particular groups of ICPs. This allows an ICP with higher requirements for either assets or other network resources to receive a higher portion of the total cost.

Peak Demand, Asset Utilisation Value and General methodologies determine how over 96% of MainPower costs are allocated.

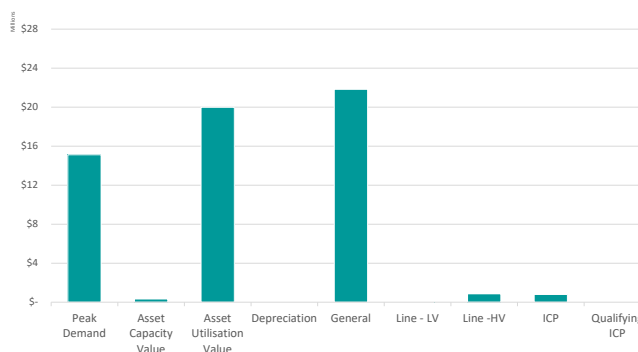


Figure 3- Costs via Allocation Method

Peak Demand

The source data used was a set of half hourly anonymised data of about 8,000 consumers on the MainPower network. From this a peak demand ‘metric’ was constructed (an average of the 20 highest day, 2 hr average peaks) to represent peak consumption behaviour at each ICP.

The *peak demand* methodology is used to allocate Transpower costs (Transpower uses a 100 highest RCPD day peak calculation for the Upper South Island region to allocate its interconnection charges).

The *peak demand* metric for each ICP is also used to estimate its share of asset related costs such as depreciation, return on capital and the tax allowance (see next section).

Asset Value

Asset value is a key metric that underpins MainPower’s cost to serve analysis. MainPower conducts a GXP-ICP asset trace to identify all the assets that supported service delivery to each ICP.

Following this, the asset value is apportioned to each ICP via its relative contribution to the overall peak contribution of the group of ICPs sharing that particular asset. Figure 4, by way of example, illustrates the number (141) and types of assets supporting a particular ICP. Of the total value of these asset of \$5.4m, around \$0.94 is attributed to this ICP.

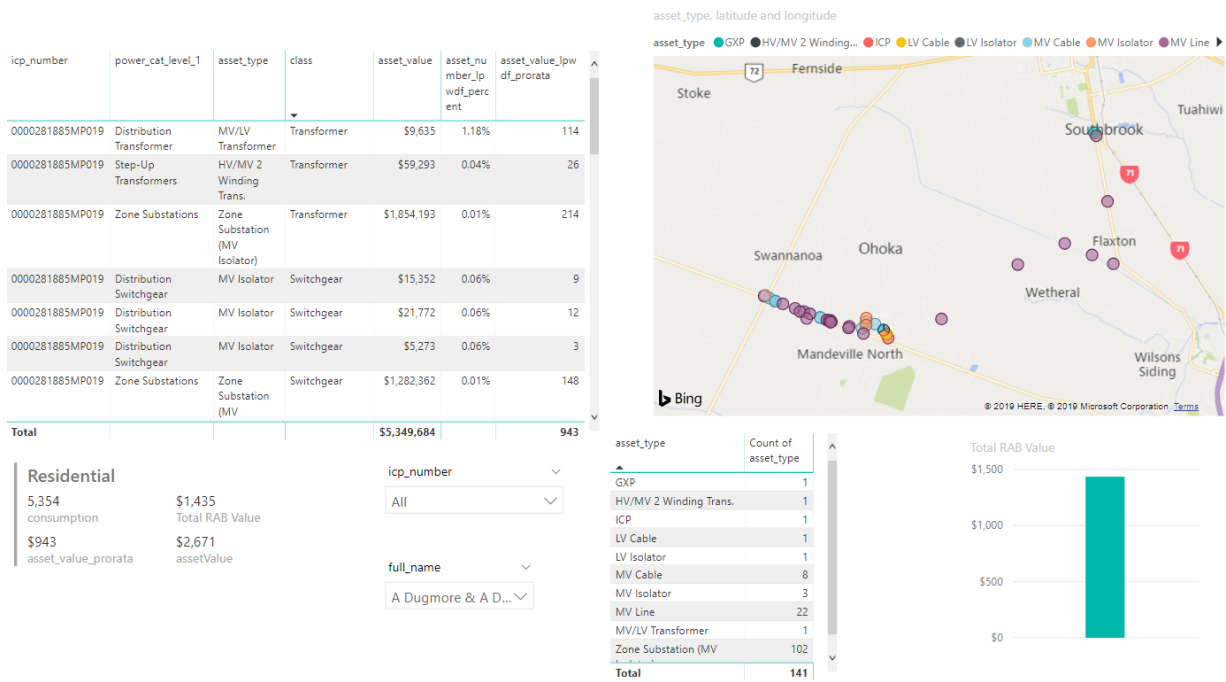


Figure 4 – Asset-ICP Relationship

The calculation of the peak metric for each ICP as well as conducting the ICP-asset trace and asset value allocation required a significant amount of data processing governed by a series of integration procedures. These processed in excess of 100 million data points for a single iteration.

General

A number of administration, network operation and maintenance costs are allocated to each ICP via the *General* allocator. This approach is based on the assumption that these costs are best distributed in proportion to the time spent by MainPower on the main consumer groups. The relative amount of staff time spent on each consumer groups is used as a proxy for the cost of serving each group.

The Network and Operations departments are used as the determinants for the time allocation of MainPower staff, with the other enabling functions (e.g. HR, Finance and I.T) following in the same proportions. Consequently, the consumer groups receive the following allocation of general costs:

Segment	Residential	General		Irrigator	Large Users	Non-standard
		Commercial	Other			
% Allocation	31.1%	47.2%		7%	10.3%	4.4%

3 Strategic Pricing Implementation

3.1 Background

In order for MainPower to deliver on its pricing objectives, it developed a phased development and implementation plan or Roadmap. The purpose of the roadmap is to manage the transition of the pricing structures and pricing levels cognisant of industry and regulatory developments, consumer impact and the resource required to implement. The key themes of this pricing strategy are:

1. Alignment of revenue to cost structure
2. Rebalancing between consumer groups
3. Preparing for emerging technologies

Each of these themes have a number of outcomes that will be achieved during each regulatory control period (RCP). The Pricing Road map illustrates this in more detail.

During the first year of the RCP 2020-21 (P1), MainPower delivered:

Outcome	Description
Revenue stability	Fixed and variable revenue components align with fixed and variable cost structure of the network business.
Reduce cross-subsidisation	First phase of the rebalancing of the revenue between consumer groups (to reduce cross-subsidisation) over a 4-year period.
Simplify and consolidate	MainPower’s pricing structure has been simplified by removing the Kaiapoi pricing region (reducing the number of pricing codes by 50%).

During the second year of the RCP 2021-22 (P2), MainPower will deliver:

Outcome	Description
Reduce cross-subsidisation	Second phase of the rebalancing of the revenue between consumer groups (to reduce cross-subsidisation) over a 4-year period.
Evolve to reflect emerging technologies	Continuously monitor and review the uptake rates of distributed generations and other emerging technologies such as electric vehicle charging across the network and across customer groups.

3.2 Roadmap

Figure 5 below is a summary of MainPower’s pricing strategy (Roadmap).

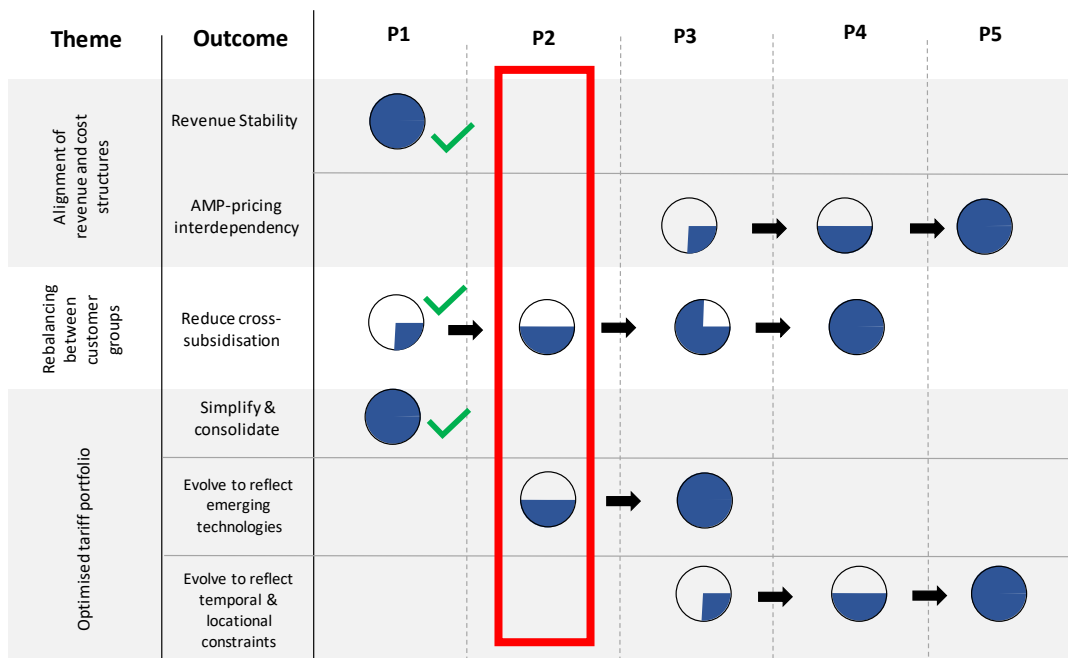


Figure 5: Pricing Roadmap

3.3 Consumer Group Revenues

Forecast Consumption

For the 2021-22 year, the forecast consumption across MainPower’s network is 624 GWh. This represents an average consumption year and is underpinned by the following assumptions:

1. Climatic conditions - average summer temperature and average winter temperature
2. New connections - forecast new connections at 780
3. Irrigation - total irrigation consumption of 79 GWh

Rebate/ Discount

Rebates are paid to Redeemable Preference Shareholders (Qualifying Customers) of MainPower. Rebates are paid as a credit to Qualifying Customers' via the electricity retailers on a monthly basis (although retailers may choose not to show the rebate separately on customers electricity bills).

The rebate scheme for 2021-22 year will continue as a percentage discount off the fixed charge. A discount is applied to consumers connected to the former Kaiapoi Electricity network to maintain parity as required by the sale and purchase agreement at the time MainPower acquired the Kaiapoi Electricity network. For residential customers the rebate rate is 36.7% and for non-residential customers the rebate rate is 15.4%.

Customer Group	Rebate (\$m)
Residential	5.94
Irrigators	0.14
Large Users	0.06
General (commercial)	0.81
Other	0.06
Total	\$7.0m

Consumer Group Revenue

The following revenue targets for each of the main consumer groups were set based on the target revenue and the allocation methodology described earlier. A further adjustment was made to each consumer group's revenue target consistent with MainPower's phased implementation of its pricing strategy.

Consumer Group	2021-22 (\$m)	2020-21 (\$m)
Residential	32.9	31.0
Irrigators	7.7	7.0
Large Users	3.6	3.9
General (commercial)	12.3	12.6
Direct Supply	1.5	1.4
Other	1.0	1.0
Total	59.0	56.9

Note: Does not include rebate/discount

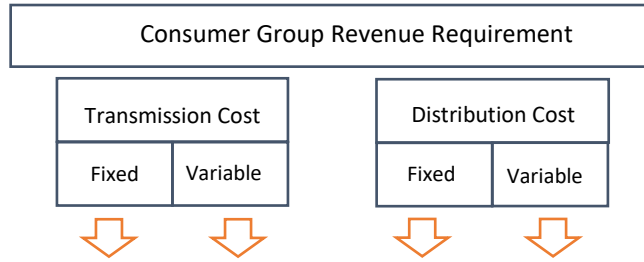
3.4 Pricing Structure

The table below outlines the pricing options that MainPower offers its consumers. In 2021-22 year, these options are common and available to consumers in both the Kaiapoi and MainPower areas of the network.

Pricing Option	Consumer Group	Description and rationale
Residential All Inclusive Supply	Residential	A price option offered to residential consumers that allows a portion of their load (i.e. hot water heating) to be interrupted for part of the day as required for network operations. This option is priced lower than the uncontrolled price to incentivise consumers to offer controllable load. This lower price recognises the benefits to all consumers relating to timely management of faults and in reducing peak demand related costs. This is offered as a low user and standard user option with both resulting in an equivalent annual cost to consumers using 8,000kWh p a (thus complying with the low fixed charge regulations).
Residential Uncontrolled Supply	Residential	A pricing option targeted to residential consumers that do not offer controllable load (i.e. water heating). The pricing of this option recognises the additional network costs created by not being able to interrupt supply to manage faults and peak demand. This price is offered as a low user and standard user option. The variable component is approximately double the <i>Residential All Inclusive Supply</i> variable price. The fixed rates for both transmission and distribution components are largely equivalent to the <i>Residential All Inclusive</i> supply.
Residential Night Only	Residential	A special discounted pricing option which applies to consumption during the off-peak night period between 9.30pm to 7.30am. This incentivises consumers to shift load to the off-peak night period, recognising the associated benefits in reducing peak demand. This is offered as a low user and standard user option at 54% of the <i>Residential All Inclusive</i> supply variable price.
Low User fixed charge		The fixed charge component is set at 15c/day for all low user options This approach complies with the low fixed charge regulations.
Large User Group	Large Users	This pricing option reflects the costs associated with the significant asset capacity made available for consumers who use more than 500,000kWh/pa. Each Large User has a specific variable charge applied to it. The variable rate reflects the usage with higher users paying a lower rate. A uniform fixed daily rate is applied to all Large Users.
Non-Residential General Supply	Non-residential	General consumers pricing option reflect the uncontrolled nature of load which cannot be interrupted.
Irrigation	Irrigation	These consumers are charged a fixed daily charge per kW of installed motor capacity connected. This recognises the relationship between network capacity costs and the varied size of irrigation motors connected to the network.
Lighting	Lighting	A fixed daily charge per fitting applies to <i>Street Lighting</i> pricing options. This reflects the fixed nature of the costs associated with street lighting infrastructure. A fixed component was added to the streetlight price in 2018 and in 2021-2022 lighting is moved to a 100% fixed structure. Right of way lighting and under verandah lighting are now included as optional components for other price categories. The price has been set to reflect the lower maintenance requirements associated with both under verandah and right of way lighting. These charges remain variable reflecting their optional component nature.
Council Pumping	Council Pumping	A price offered for connection of Council pumping facilities reflects the fixed nature of costs for this consumer group.
Temporary supply	Temporary Supply	A pricing option applying to temporary connections to the network. Priced higher than standard supply, this option recognises the additional costs in managing temporary connections. It also appropriately incentivises consumers to shift to a standard pricing option as soon as is practical. The fixed component is 70% higher than the <i>Residential All Inclusive</i> supply fixed price. The variable distribution price applicable to Temporary Supply consumers is maintained at approximately the same rate as the <i>Residential Uncontrolled supply - Low User Option</i> variable price.

3.5 Pricing Levels

The transmission and distribution costs for each of the consumer groups are used as determinants for the fixed and variable charges (prices). These are calculated based on MainPower's forecast consumption and number of connections in each of the consumer groups.



Transmission

Transmission revenue is collected via both the fixed and variable charges in proportion to the category of transmission cost. Connection charges are fixed whilst interconnection is driven by consumption and is largely variable from year to year.

Consumer Group	Transmission Fixed (\$m)	Transmission Variable (\$m)
Residential	4.75	1.51
Irrigators	0.99	0.66
Large Users	1.28	0.90
General (commercial)	1.53	0.72
Other	0.13	0.03

Appendix E provides the transmission pricing for all price categories.

Distribution

Both the fixed and variable distribution charges are determined for each consumer group in proportion to the distribution cost apportioned to it.

Consumer Group	Distribution Fixed (\$m)	Distribution Variable (\$m)
Residential	16.4	10.2
Irrigators	3.3	2.7
Large Users (excl direct supply)	0.5	2.2
General (commercial)	5.4	4.7
Other	0.5	0.3

Note: Does not include rebate/discount

Appendix E provides the distribution pricing for all price categories

Standard pricing

The cost impact (post rebate) on the average consumer in the residential consumer group is:

2021-22 (\$/yr)	2020-21 (\$/yr) ²	Change
772	733	+5.3%

² 2020-21 pricing levels

Non-Standard Pricing

One non-standard consumer is connected to MainPower’s distribution network. The consumer is situated close to a Transpower GXP and takes direct supply from the grid through MainPower’s connection assets and equipment.

Prices are set for this consumer to recover the actual costs MainPower incur as follows:

Cost type	Recovery	Comment
Transmission	Direct pass-through	Based on a separately metered feed from the GXP to a non-standard consumer connected to the GXP based on assets and contribution to Regional Coincident Peak
Distribution	Fixed distribution charge	Distribution asset and equipment costs deployed at the connection (which have not already been recovered through capital contributions) are recovered fully through prices. This includes depreciation and a return on investment as well as line losses
Operations & Maintenance	Fixed distribution charge	Costs are directly recovered through pricing
Administration	Fixed distribution charge	Costs are directly recovered through pricing

Prices have been determined on this basis to discourage uneconomic bypass to the transmission grid. The fixed price seeks to minimise price volatility for both parties. Target revenues expected to be recovered from non-standard consumers are detailed in Appendix F.

MainPower’s obligations and responsibilities in the event of an interruption to this consumer are no different to that of other large standard consumers connected to our network. The consumer does have a higher level of circuit redundancy built into their connection that could result in quicker restoration times but the obligations and responsibilities to restore supply are no different. This level of redundancy is reflected in prices through the higher associated cost of the connection assets and equipment.

MainPower will consider all requests for non-standard contracts on application based on the commercial merits of the proposal. Criteria by which we typically might decide to enter into a non-standard contract include:

- the consumer is at risk of bypassing the network to an alternative network or energy source
- the consumer has requested a non-standard connection or specialist equipment which cannot be accommodated into our standard pricing structures or capital contributions policy
- the consumer requests non-standard pricing structures to mitigate risk which might otherwise impair their decision to connect to the network.

Distributed Generation Pricing

The Pricing Roadmap requires MainPower to ensure its pricing *evolves to reflect emerging technologies*. During the 2020-21, MainPower analysed the uptake of these emerging technologies on its network. The results in Figure 6 show there are a limited number of small scale distributed generators (DG) connected to the network at around 2% of ICPs. These generation units are less than 10kW, generally under 2kW, and are typically associated with an existing ICP (i.e. photovoltaic solar panels supplementing distributed electricity supply).

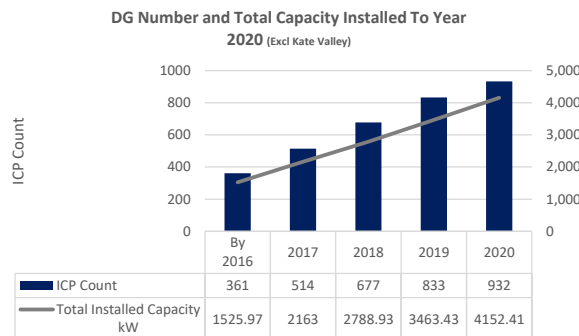


Figure 6: Distributed Generation on the MainPower network

To date MainPower has not charged for small scale distributed generation connected to the network or made payments to owners/operators of small-scale distributed generation in regard to avoided costs.

Considering the current and forecast uptake rates of DG, MainPower will not introduce a specific tariff for emerging technologies in 2021-22. However, the transition to a higher proportion of fixed charges and associated reduction in variable charges has gone some way towards better reflecting the cost to serve consumers with PV.

MainPower will continue to closely monitor uptake rates of PV during P2 in combination with the load profile impact on the residential and general customer groups.

Electric Vehicle Charging

MainPower is also considering ways to manage the impact of EV charging on the network. The uptake and impact of EV charging on the network is difficult to monitor due to lack of visibility. Unlike new connections or installation of PV a consumer is not required to make an application to MainPower if they wish to charge an EV at home, unless a capacity upgrade is required. In combination with pricing options, consideration is being given to updating network connection standards and customer contracts so that MainPower has visibility of EV charging in the network, particularly fast chargers.

3.6 Future Considerations

The Pricing Roadmap (Figure 5) requires consideration in P3, of a broader set of outcomes across MainPower's strategic pricing themes. The table below describes these in more detail:

Outcome	Description
Reduce cross-subsidisation	Continuation of the rebalancing of the revenue between consumer groups (to reduce cross-subsidisation) over a 4 year period.
Evolve to reflect emerging technologies	Emerging technologies such as photovoltaics, electric vehicle charging and battery storage will require specific tariffs to support their use on the network.
AMP-price inter-dependency	Closer integration with the AMP, particularly around total spend and terminal RAB value for each regulatory period.
Evolve to reflect temporal and location constraints	Closely linked to the above but targeting specific locational and time constraints across the network and developing pricing to address these issues.

4 Appendix A: Electricity Authority Pricing Principles Checklist

This appendix describes the extent to which our pricing methodology is consistent with the EA’s pricing principles, pursuant to section 2.4.3(2) of the IDD.

Mainpower has reviewed its pricing methodology against the pricing principles and are of the view that our pricing methodology is broadly consistent with the principles.

Pricing Principle	Extent of consistency
(a) Prices are to signal the economic costs of service provision, including by:	
(i) being subsidy free (equal to or greater than avoidable costs, and less than or equal to standalone costs);	<p>Avoidable costs are those that can be avoided by not serving a consumer or group of consumers. They include the costs of billing and consumer service costs, connection costs specific to the consumer or consumer group and additional maintenance costs.</p> <p><i>For capital costs:</i> MainPower’s ‘Network Extensions and Upgrades and Capital Contributions Policy’ is the primary mechanism by which the company ensures that prices recover avoidable costs. It seeks capital contributions for new connections and asset upgrades when the expected distribution revenue from a connection is less than the incremental costs (including a share of any upfront or future network augmentation costs). Distribution prices will therefore be in equal or in excess of avoidable capital costs.</p> <p><i>For operational costs:</i> The remaining incremental operational expenditure is recovered through distribution prices. The fixed charge will recover a proportion of these costs regardless of the level of consumption. The rates have been set to recover those fixed costs associated with each consumer group. Revenue received from variable charges, will in most cases recover the remaining incremental costs. The potential exceptions include residential consumers on low user fixed charges where cross-subsidisation may exist.</p> <p>Prices are also likely to be less than standalone cost. MainPower understands standalone cost to mean the cost to the consumer of bypassing or replicating the network with alternative supply arrangements (e.g. connection to the grid through its own distribution assets, or alternative fuel or generation sources). For most mass market consumers, the costs of moving “off-grid” to a standalone energy solution (e.g. rooftop PV) is currently priced at a premium to distributed electricity supply. This is because the large economies of scale associated with network investments mean distribution networks currently remain competitive on price and reliability.</p> <p>Large consumers are likely to be better placed to bypass the network at a lower overall standalone cost. As an example, MainPower’s largest connection is on a non-standard contract to discourage bypass of the network to the transmission grid. The non-standard arrangements ensure it is economic for this consumer to remain connected to the network by pricing below the standalone cost of connecting directly to the grid.</p>
(ii) Reflecting the impacts of network use on economic costs	<p>This principle asserts that behaviour which creates additional investment costs for distributors should be recognised in pricing, and that costs should accordingly be recouped from those consumers that create them. The key drivers of future network investment costs relate to new connections and system capacity growth.</p> <p>MainPower ensures it recoups avoidable connection and upstream reinforcement costs through its capital contributions policy, as discussed above.</p> <p>Further, MainPower has rebalanced its revenue to have a higher portion delivered through fixed charges. This is because a significant amount of its costs are fixed and vary little through energy demand.</p> <p>MainPower has retained an element of a variable charge. The use of a consumption based variable charge is a pricing approach which recognises additional usage of capacity. While prices based on kWh consumption provide a crude proxy for capacity utilisation, they send a signal that additional usage of the network creates additional costs over time.</p> <p>The <i>Residential Night Only</i> price provides incentives for consumers who take up this option to shift their demand to the off-peak night period. Further, the <i>Residential Uncontrolled</i> price signals that if consumers do not provide control to the network to</p>

Pricing Principle	Extent of consistency
	<p>manage faults and reduce peak demand that this may require additional investment in the network, these options appropriately signal the impact of additional usage on investment costs.</p> <p>As discussed above, the <i>Irrigation</i> price signals capacity constraints on the network attributable to this significant consumer group by levying a higher fixed daily charge on relatively larger irrigation motors.</p> <p>MainPower currently does not have any explicit network areas which are capacity constrained and therefore do not include any locational based pricing.</p>
(iii) Reflecting the differences in network service provided to (or by) consumers; and	<p>The primary service that MainPower provides is access to network capacity. This principle sets out that distributors should recognise this primary driver in setting prices and pricing structures. Signalling available service capacity in prices is therefore significant. MainPower currently does not explicitly define consumer groups by the level of available service capacity. However, the distinction made between low users, residential, non-residential, and large users does proxy different consumer capacity profiles.</p> <p>Similarly, <i>Residential All Inclusive</i> and <i>Night Special</i> pricing options are designed to incentivise behaviours that reduce demand at the peak or during fault events. This reduces the pressure on available service capacity as well as defers investments in new capacity.</p> <p>The <i>Irrigation</i> price is based on the currently known installed kW capacity of irrigation pump motors and is designed to signal limited capacity in the high voltage distribution system. This price option, as well as capital contributions sought from irrigators, signals that upstream capacity is limited.</p> <p>Further, the <i>Residential All Inclusive</i> pricing option deliver a different (lower) service level to consumers (via interruptible load) and comes with lower associated pricing.</p>
(iv) Encouraging efficient network alternatives	<p>This principle seeks to encourage the development of distributed generation, load control other demand side solutions.</p> <p>MainPower does not levy lines charges on the connection of small-scale distributed generation to the network. This provides appropriate incentives for consumers to invest in distributed generation as they do not face any additional distribution costs beyond that related to their standard ICP connection. Furthermore, distributed generation will usually lower a consumer's variable distribution costs resulting in lower annual costs. This further provides incentives to invest in these technologies.</p> <p>Where there are upfront costs in relation to connecting distributed generation, which is unlikely, this will be dealt with as part of MainPower's capital contributions policy.</p> <p>Demand response measures are encouraged through the use of our <i>Residential All Inclusive</i> and <i>Residential Night Only</i> pricing options, which are priced attractively to incentivise consumers to offer up interruptible load or reduce their demand at the daytime peak, respectively.</p>
(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>Residual costs are largely reflective of the fixed cost nature of MainPower's business. The revenue streams are aligned to reflect the portion of these fixed costs and as such provide a clear mechanism of recovery without providing any incentive to distort network use. The quantum of residual costs to recover are allocated in proportion to each consumer group via analysis of their contribution to these costs.</p>
(c) Prices should be responsive to the requirements and circumstances of consumers by allowing negotiation to:	<p><i>Residential Uncontrolled</i> pricing option is higher recognising that consumers who do not want their hot water load interrupted are willing to pay more for that supply. Similarly, the <i>Residential Night Only</i> price is targeted at consumers who are willing to limit their demand at the peak in preference for a lower off-peak charge during the night.</p> <p><i>Non-Residential Large Users</i> on the MainPower network have pricing applied that reflects the level of forecast consumption. This recognises the balance between high consumption placing demand on the network, contributing to future constraints but also <i>Non-Residential Large Users</i> having a lower weighted average variable rate to reflect consumption over 500,000 kWh pa.</p>

Pricing Principle	Extent of consistency
	<p>MainPower's non-standard pricing also partially recognises willingness to pay considerations by a consumer that is readily able to bypass the network. This approach will be considered for any consumer in similar circumstances.</p>
(i) reflect to economic value of service; and	<p>This allows for a discount on price or other incentives being offered to consumers at risk of bypassing MainPower's network. Bypass options are likely to be more available to larger consumers that have options over where they locate their business, or which have access to alternative energy supply (e.g. gas, generation, the transmission grid).</p> <p>MainPower has one consumer that is directly supplied from Transpower's national grid, using MainPower's equipment. This consumer could readily bypass the distribution network in favour of a direct connection to the grid. To recognise this risk, MainPower has entered into a non-standard contract with this consumer and prices are set with reference to the actual (or avoidable cost) of offering these services. This discourages uneconomic bypass of the distribution network.</p>
(ii) enable price-quality trade-offs.	<p>This principle allows for negotiation over price in recognition of different levels of service (e.g. redundancy) or non-standard arrangements (higher fixed charge component to reduce risk).</p> <p>As discussed above, MainPower has one non-standard contract and is willing to negotiate on price and quality outcomes and non-standard arrangements with other consumers where necessary. In addition to incremental cost pricing, a higher fixed charge is applied which reduces price variability for this consumer.</p> <p>Price and quality trade-offs are also addressed as part of MainPower's capital contributions policy. For instance, if a consumer requires specialist equipment or connection redundancy then a contribution is typically sought from the consumer to recover costs associated with this investment.</p> <p>Residential users pay have the choice between an <i>All Inclusive</i> and <i>Uncontrolled</i> pricing option. The <i>Uncontrolled</i> being more expensive, reflecting the lower quality of service of having interruptible demand.</p>
(d) Development of prices should be transparent and have regard to transaction costs, consumer impacts and uptake incentives.	<p>MainPower considers the information in this Pricing Methodology provides appropriate explanations of how it has set prices and the rationale for doing so.</p> <p>The revised pricing structure (with a single pricing region simplifies the information provided to retailers and reduces the complexity of processing and subsequent transaction costs.</p> <p>As part of MainPower's pricing strategy (Roadmap), it is phasing in the proposed changes for each consumer group. This will reduce the price impact and allow time for consumers to understand the rationale behind the changes and provide feedback.</p>

CERTIFICATE FOR YEAR-BEGINNING 1 APRIL 2021 DISCLOSURE

Pursuant to Clause 2.9.1 of Section 2.9 of the Electricity Distribution Disclosure Determination 2012 (consolidated April 2018)

We, ANTHONY CHARLES KING and STEPHEN PAUL LEWIS, being Directors of MainPower New Zealand Limited, certify that, having made all reasonable enquiry, to the best of our knowledge:

- a) The following attached information of MainPower New Zealand Limited prepared for the purposes of clause 2.4.1 of the Electricity Distribution Information Disclosure Determination 2012 in all material respects complies with that determination; and
- 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.



Anthony Charles King



Stephen Paul Lewis

17.12.2020
Date

17.12.2020
Date

6 Appendix C: Glossary

Code	Electricity Industry Participation Code 2010
Commerce Commission	Responsible for the regulation of EDBs as provided for under Part 4 of the Commerce Act 1986
EDB	Electricity Distribution Business
Electricity Authority (EA)	Electricity Authority
EV	Electric vehicle
ICP	Installation Control Point: A point of connection on a local network which the distributor nominates as the point at which a retailer will be deemed to supply electricity to consumers
IDD	Electricity Distribution Information Disclosure Determination 2012, issued 1 October 2012 (Decision No. NZCC22)
kVA	Kilo Volt-Amp: Measure of apparent electrical power usage at a point in time
kW	Kilowatt: Measure of instantaneous real electrical power usage
kWh	Kilowatt hours: Measure of real electrical power usage per hour
Low fixed charge regulations	Electricity (Low Fixed Tariff Option for Domestic Consumers) Regulations 2004
Part 4	Part 4 of the Commerce Act 1986 governing the regulation of EDBs as administered by the Commerce Commission
Qualifying Consumers	Redeemable Preference Shareholders in the MainPower Trust
PV	Photovoltaic
ROI	Return on Investment
Transpower	Owner and operator of the national transmission grid
WACC	Weighted Average Cost of Capital

7 Appendix D: Pricing Levels

Customer price categories	Code	Fixed Charge						Variable Charge					
		Gross	Rebate / Discount	Net	Transmission	Total	% Change	Gross	Rebate / Discount	Net	Transmission	Total	% Change
		Dollars/day	Dollars/day	Dollars/day	Dollars/day	Dollars/day		Dollars/kWh	Dollars/kWh	Dollars/kWh	Dollars/kWh	Dollars/kWh	
Residential - Options													
All Inclusive Standard User	mpaistd	1.9160	-0.6947	1.2213	0.5792	1.8005	10%	0.0165	0.0000	0.0165	0.0037	0.0202	-9%
All Inclusive Low User	mpailu	0.1500	-0.0565	0.0935	0.0000	0.0935	9%	0.0878	0.0000	0.0878	0.0102	0.0980	6%
Uncontrolled Standard User	mpucstd	1.9060	-0.6947	1.2113	0.5792	1.7905	10%	0.0395	0.0000	0.0395	0.0037	0.0432	0%
Uncontrolled Low User	mpuclu	0.1500	-0.0565	0.0935	0.0000	0.0935	9%	0.1103	0.0000	0.1103	0.0102	0.1205	6%
All Inclusive with Night Only Standard User	mpnistd	1.9160	-0.6947	1.2213	0.5792	1.8005		0.0165	0.0000	0.0165	0.0037	0.0202	
All Inclusive Standard User		1.9160	-0.6947	1.2213	0.5792	1.8005	10%	0.0165	0.0000	0.0165	0.00372	0.0202	-9%
Night Only Standard User		1.9160	-0.6947	1.2213	0.5792	1.8005		0.0072	0.0000	0.0072	0.0037	0.0109	-16%
All Inclusive with Night Only Low User	mpnilu	0.1500	-0.0565	0.0935	0.0000	0.0935		0.0878	0.0000	0.0878	0.0102	0.0980	
All Inclusive Low User		0.1500	-0.0565	0.0935	0.0000	0.0935	9%	0.0878	0.0000	0.0878	0.0102	0.0980	6%
Night Only Low User		0.1500	-0.0565	0.0935	0.0000	0.0935		0.0465	0.0000	0.0465	0.0102	0.0568	10%
Other Supply													
Non-Residential	mpnonres	2.6550	-0.4100	2.2451	0.7514	2.9964	8%	0.0370	0.0000	0.0370	0.0057	0.0427	-9%
Temporary Supply	mptemp	2.4800	0.0000	2.4800	0.5792	3.0592	3%	0.1019	0.0000	0.1019	0.0037	0.1057	0%
Irrigation per kW connected	mpirr	0.1474	-0.0062	0.1412	0.0445	0.1857	34%	0.0341	0.0000	0.0341	0.0084	0.0424	-25%
Council Pumping	mpcounpump	4.0500	-0.5502	3.4998	1.0634	4.5633	0%	0.0228	0.0000	0.0228	0.0026	0.0255	0%
Streetlighting per fitting connected	mpstlgt	0.0910	-0.0060	0.0850	0.0180	0.1030	255%	0.0000	0.0000	0.0000	0.0000	0.0000	-100%
Non-Residential Large Users	mpgeuser	29.0000	-4.0095	24.9905	50.1985	75.1890	2%	0.0386	0.0000	0.0386	0.0027	0.0413	-1%
Distributed Generation	mpdistgen	0.0000	0.0000	0.0000	0.0000	0.0000	0%	0.0000	0.0000	0.0000	0.0000	0.0000	0%
Optional Additions													
Right of Way Lighting								0.0437	0.0000	0.0437	0.0249	0.0686	0%
Under Verandah Lighting								0.0437	0.0000	0.0437	0.0249	0.0686	0%
Distributed Generation		0.0000	0.0000	0.0000	0.0000	0.0000	0%	0.0000	0.0000	0.0000	0.0000	0.0000	0%

8 Appendix E: Revenue Summary

	# of ICPS	Consumption MWh	Distribution		Transmission		Total
			Fixed	Variable	Fixed	Variable	
			\$ 0,000	\$ 0,000	\$ 0,000	\$ 0,000	\$ 0,000
Non-standard	1	64,418	282	-	491	736	1,508
General	5,625	125,781	5,433	4,666	1,527	715	12,342
Irrigation	1,373	79,288	3,297	2,700	995	662	7,654
Large User	44	58,706	456	2,223	789	159	3,627
Pump	208	12,352	307	282	81	33	702
Residential	34,830	280,046	16,407	10,166	4,753	1,509	32,834
Streetlight	111	2,997	240	0	47	-	287
Total	42,192	623,587	26,421	20,037	8,682	3,814	58,954

*Forecast active ICPS at 31/03/2022