



THE POWER COMPANY LTD

POWERNET LIMITED LINE PRICING METHODOLOGY

**FOR THE POWER COMPANY LIMITED NETWORK
AS AT 1 APRIL 2021**

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GLOSSARY

After Diversity Maximum Demand (ADMD) is the customer's Maximum Demand after it has been adjusted by the Diversity Factor.

Anytime Maximum Demand (AMD) is the Maximum Demand of the customer measured at the customer's installation during any half hour period during the year.

Coincident Grid Maximum Demand is the average of the 100 demand measurements of the customer, which are coincident with the 100 highest demands, which occur on the Transpower grid in the lower South Island region during the assessment period 1 September to 31 August, which the Transpower Interconnection charges are based.

Contract Capacity is the capacity of a customer used for billing purposes. It is formalised by way of agreement and control can be by way of the ICP fusing or the Anytime Maximum Demand.

Customer refers to the person or body that is responsible for an electrical installation that is connected to The Power Company Limited's electricity network.

Distributed Generation or embedded generation is electricity generation that is connected directly to a distribution network.

Diversity Factor is the factor applied to a load or customer demand to allow for the use of electricity at different times. In theory, the sum of the customer Maximum Demands after the Diversity Factors have been applied should equal the Maximum Demand measured at the GXP.

ENA is the Electricity Networks Association

Grid Exit Point (GXP) means the Grid Exit Point and is the connection point between the Transpower grid and The Power Company Limited's network

Group Customers include most customers with a Contract Capacity up to 100 kVA.

Half Hour Metering (HHM) describes the metering equipment that is capable of measuring electricity consumption on a half hour basis and when the half hour readings are used for billing purposes.

Individual Customers are in most cases commercial or industrial customers that have a Contract Capacity equal to or in excess of 150kVA.

Installation Control Point (ICP) is the point of connection between The Power Company network and the Retailer's customer.

Maximum Demand (MD) of a customer is the maximum demand of the customer that occurs throughout the specified Peak Period Energy time periods for each GXP or if that measurement is not available, it is based on the Contract Capacity.

Optimised Depreciated Replacement Cost (ODRC) relates to the network assets and is the current depreciated value of all the network assets based on an efficient network design using modern equivalent assets.

Retailers are the companies that generate and/or buy electricity and then sell this service to end use customers utilising the local electricity network.

Time of Use (TOU) refers to meters that are capable of providing Anytime and Maximum Demand readings and Peak, Shoulder and Low Period Energy readings for billing purposes.

Transpower is the State-Owned Enterprise that owns the transmission network and delivers electricity to Electricity Distribution Businesses (EDBs).

EXECUTIVE SUMMARY

This pricing methodology document describes the approach used by The Power Company Limited (TPCL) to set prices for the 12 months commencing 1 April 2021. It has been prepared to meet the requirements of the Commerce Commission's NZCC 22/2012 Electricity Distribution Information Disclosure Determination 1 October 2012. It also assesses TPCL's methodology against the recently revised Distribution Pricing Principles that were issued by the Electricity Authority in 2019.

This 2021 pricing methodology does not vary significantly from the previous year, either in terms of the methodology used to determine the target revenue for customer groups and individual customers, or in terms of pricing structures used. The determination of target revenue for each customer group and individual larger customers is carried out using a detailed cost of supply model that links charges to cost drivers and allocates costs to customers based on network usage and capacity requirements.

For the period 1 April 2021 to 31 March 2022, TPCL's target revenue is \$66.7 million, which is an increase of approximately \$2.5 million from the previous year. For an average residential customer, lines charges will increase by 1.05%, or around \$1.13 per month. Changes in charges for individual customers will vary according to their usage profiles. The target revenue of \$66.7 million includes costs for the Gore District Council penny per unit agreement and the Electricity Invercargill revenue for Bluff.

The component of TPCL's revenue that relates to transmission has increased because of increases in Transpower's connection charges and increased co-incident peak demands with Transpower's highest 100 peaks for the lower south island. The component of revenue that relates to TPCL's distribution network has increased to reflect the level of planned investment in TPCL's network, as described in our 2021 Asset Management Plan.

At 31 March 2020, the value of TPCL's regulatory asset base was \$407 million. Over the next 3 years, TPCL plans capital expenditure of approximately \$60.6 million. Over half of that (\$37 million) relates to asset replacement and renewal. Investment decisions are reviewed according to how load develops over time.

The way in which prices are structured is a tool that distributors can use to signal times of day when networks are closest to capacity, allowing customers to choose whether to respond. Where customers are able to shift load and opt to do so (or allow the network to control a portion of load), those customers are rewarded with lower lines charges.

TPCL already has a form of time-of-day pricing, and only charges for network use during the hours of 7am-11pm. It is looking to refine these pricing signals so that peak prices are targeted at a much narrower set of busy network periods (eg, during the morning and evening peak periods). Having pricing structures in place that signal peak periods may help defer distribution network investment, particularly in the context of possible future growth in electric vehicles. As noted in our AMP, two of the four Transmission Grid Exit Points that supply TPCL's network are approaching load constraints. While load control is currently used to manage GXP loads, price signals can also aid with deferring the point at which upgrades are triggered. Looking forward, potential growth from electric vehicles means that it is even more important to have peak price structures in place to effectively manage network loadings.

The prices that TPCL sets are charged to electricity retailers. Electricity retailers determine how to package these charges together with the energy, metering and other retail costs when setting the retail prices that appear in consumers' power accounts. This means that TPCL's pricing structures are not necessarily reflected in retail prices. However, collaborative industry engagement has seen progress in the implementation of time-of-use pricing by retailers.

1. INTRODUCTION

As a consumer Trust owned company, TPCL is not subject to Commerce Commission revenue cap regulation. However, it does face regulatory disclosure regulations. This document discloses information required under section 2.4 of the Information Disclosure Determination relating to how TPCL determines its target revenue and sets prices. It also assesses how our pricing compares with the Electricity Authority's Distribution Pricing Principles.

We first provide contextual information about the TPCL network (section 2), then present an overview of our prices and how they are set (section 3). We then assess our pricing against the Authority's Distribution Pricing Principles (section 4). This is followed by a more detailed discussion of how overall target revenue is determined, how that revenue is allocated to customer groups, and the methodology used to convert the revenue requirement into prices (sections 5 to 9). Charges for generators connected to TPCL's network are described (section 10). Finally, we discuss our forward pricing strategy (section 11).

2. CONTEXTUAL INFORMATION ABOUT TPCL

2.1 The TPCL Network

The Power Company Limited (TPCL) is an electricity network asset company formed in 1991. It owns the electricity network assets in the Southland area, excluding parts of Invercargill City and the Bluff township area. TPCL is owned by the consumers connected to the network and the Southland Electric Power Supply Consumer Trust exercises the ownership rights on behalf of those consumers.



TPCL supplies around 36,700 residential, commercial, and industrial customer connections. Key industries within TPCL's network area include sheep, beef and dairy farming, meat processing, black and brown coal mining, forestry, timber processing, and tourism. At 4.1 ICPs per km of line, TPCL has the second lowest line density of NZ's 29 electricity distribution networks.

Energy transmitted on TPCL's network is supplied by four Transmission Grid Exit Points (GXPs) at Invercargill, North Makarewa, Gore, and Edendale. In addition, up to 72MW of generation is injected from Meridian's White Hill wind farm, Pioneer Generation's Monowai hydro station and Southern Generation Limited Partnership's Flat Hill wind farm.

From those points of supply, TPCL's subtransmission network, including 505km of 66kV lines and 400km of 33kV lines and underground cables, connects to its 37 zone substations which transform High Voltage (HV) to Medium Voltage (MV). TPCL's distribution network consists of approximately 6,714 km of 11kV lines and 153km of 11kV underground cables. Around 10,500 distribution transformers connect the Low Voltage (230V) network, which has 846 km of lines and 213km of underground cable.

2.2 Upcoming investment in network capacity

As at end March 2020, the value of TPCL's network assets in its Regulatory Asset Base was \$407 million. Over the next 3 years TPCL intends to invest \$60.6m in its network, including \$37.3 million in asset replacement and \$7.5 million specifically relating to addressing system growth.

Of relevance to pricing decisions is the extent of network capacity constraints, and the potential for these to be signalled to customers. As is detailed in TPCL's Asset Management Plan (AMP):

- 7 of the TPCL's 37 zone substations [Glenham, Tokanui, North Gore, South Gore, Riversdale, Winton, & North Makarewa 66kV portion] are at or approaching maximum capacity. Upgrades (and in some cases load transfers) are planned for a number of these, with load being reviewed annually.
- Two GXPs, Gore and North Makarewa, are approaching capacity with load control currently in use to keep loads under capacity limits. These would need to be upsized when load control is no longer sufficient to keep demand within capacity limits.
- MV line upgrades may be required to support subdivision developments in Athol and Kingston, depending on growth in those areas.
- The extent of dairy conversions and growth could also contribute to whether new substations and line upgrades are required in some locations.
- A number of MV transformers are near full capacity and will be monitored to determine where upgrades or relocations are needed.

2.3 Uptake of evolving technologies

A number of technologies have the potential to change the way electricity is used and generated. Pricing has a role to play in providing efficient signals about the economic costs of using electricity networks. In that context, we provide a brief summary of existing and expected uptake of a number of these technologies: solar, electric vehicles and battery storage.

Solar (Photovoltaic) connections

As February 2021, TPCL had 399 solar connections to its network, equivalent to 1.1% of all TPCL ICPS. This rate is slightly below the national average of 1.7%, and significantly below the rate of 3.2%, which is the average of the top 10 highest uptake EDB areas. There is no apparent acceleration in uptake on TPCL's network: the average number of new solar connections per month over the 12 months to February 2021 was 3.6, as compared with 3.3 and 3.75 for the prior two preceding 12 month periods April – March.

The potential for growth in solar uptake and impact on the network is explored in the AMP, which finds that while reducing costs are likely to increase the number of households for which a solar installation is cost-neutral, solar uptake is not expected to be widespread on the TPCL network within the planning period for a number of reasons, including that: (1) it appears that the majority of customers either cannot afford a solar installation, are unable to install solar (e.g. rental), or prefer to dispose of their income elsewhere; and (2) energy cost reduction options such as home insulation and electric vehicles now also receiving increased attention and generally offering a superior return.

Total energy consumption is likely to be reduced to some extent by solar installations within the AMP planning period. While energy consumption levels do not tend to affect network planning, which focuses on providing capacity for peak demand periods, it does affect price levels, to the extent that some component of price is set based on energy consumption (kWh). This is relevant to the development of our forward pricing strategy.

Electric vehicles

There are approximately 150 electric vehicles registered in the TPCL area – an uptake rate per connection of 0.4%. As is explained in our AMP, EVs have the potential to have large impact on network demand with sufficient adoption. Prices are an important means for signalling peak periods, and enabling customers to choose whether to charge off-peak, or pay a premium and charge during peak periods.

If consumers choose not to charge off-peak in response to price signals, electric vehicle charging may exacerbate peak demand, triggering greater investment. This effect will be greatest on the suburban LV network in built up urban and semi-urban areas as the upstream MV network generally has sufficient capacity to allow for the forecast increases in load from electric vehicles.

Having pricing structures in place before EV uptake reaches widespread levels will enable a degree customer education before load shifting is required from a network capacity perspective. It will also allow networks to understand the effectiveness of price signals in managing EV loads before load capacity is reached.

Energy storage

As is explained in our AMP, energy storage could have a large impact on network demand especially if used in combination with distributed generation installations. However there is significant uncertainty in this area around the viability of alternative battery chemistries and the timing of their introduction; the regulatory environment and the extent to which electricity distribution businesses will be able to promote/utilise/market storage services; and the level of responsiveness of the public to load-driven pricing signals.

Under the status quo this technology is not economic except in exceptional circumstances, and it is not expected that there will be major developments in this area for the next five years. TPCL has been engaged in pilot studies to explore how consumers may use energy storage to respond to price signals.

2.4 PowerNet / The Power Company Ltd (TPCL) Structure

PowerNet Limited (PowerNet) is an incorporated joint venture owned by TPCL and Electricity Invercargill Limited (EIL) and is contracted to manage the network assets of TPCL in accordance with a Network Management Agreement (Agreement).

The Agreement includes provision for PowerNet to act as agent on behalf of TPCL to collect revenue from line and metering charges to retailers or end consumers, pay transmission costs, incur maintenance expenditure and to pass the net amount through to TPCL each month as its agent. PowerNet charges an agency fee that covers its overheads for operating the line and metering agencies for TPCL.

3. TPCL PRICING OVERVIEW

TPCL's prices are used to charge electricity retailers for the cost of its local electricity distribution network, pass-through costs (such as industry levies) and the costs associated with national grid transmission. As highlighted above, electricity retailers determine how to package these charges together with the energy, metering and other retail costs when setting the retail prices that appear in consumers' power accounts.

PowerNet uses "GXP billing" for its residential & general connections. This means that variable consumption charges are based on electricity volumes injected into the network at the Transpower grid exit points, rather than based on the usage at individual customer connection points. Quantities are determined by the wholesale electricity market reconciliation process, which is itself governed by an Industry Participation Code. This method saves on administration costs, which are ultimately transferred back into the pricing.

3.1 Consumer load groups used for pricing

There are two defined types of consumers: Residential & General consumers; and Individual Consumers (for which prices are connection-specific).

3.1.1 Individual Consumers

There are 273 consumers for whom TPCL calculates a connection-specific lines charges. These consumers are referred to as "Individual Consumers," and are required to have half-hour or time-of-use meters, including kVA maximum demand registers.

In most cases, these installations have contract capacities in excess of 100kVA. Due to their size, these consumers have a higher impact on the network design and operation and therefore their geographic location is taken into account when calculating their individual line charges. Customers who are supplied closer to zone substations and Grid Exit Points use less of the network; individual line charges can reflect this. This also provides a signal for future investment and through the correct pricing discourages network by-pass.

Individual factors considered in cost allocations to individual line charge customers include:

- Connections having dedicated transformers.
- Low percentage use of the low voltage network
- Low diversity as capacity and demand increases
- Customer-owned transformers
- Additional security and back supplies, n-1
- Higher importance on network maintenance.

In the case of these consumers, there are also individually calculated or estimated loss factors.

These consumers, through the half-hour or time-of-use metering, have individual energy and demand profiles, which are used to calculate the line charges. Metering of these consumers includes kVA demand metering which provides the peak demand and also the anytime peak demand. The latter figures are used in the calculation of line charges and to determine the contract capacity. For these consumers, the contract capacity is based on the next highest standard transformer size above their anytime demand or, alternatively, as per the original

contract if growth is predicted and the network has been designed and built to supply the increased level.

Irrigation Installations and Embedded Networks

Irrigation installations and embedded networks are a sub-group of individual consumers. An “Irrigation Installation” is a connected customer’s installation, which is used solely for pumping water commercially for irrigating farmland. An “Embedded Network” is an electricity distribution network that is owned by someone other than The Power Company Limited and is connected to The Power Company’s network via a registered Network Supply Point. The embedded network must be metered with a compliant half hour meter at the NSP. Due to the uncertain nature of electricity consumption in both irrigation installations and embedded networks this sub group of installations will have, their line charges calculated in the same way as individual customers, but will have the total line charge recovered with a fully fixed line charge and must be metered with fully compliant half hour metering.

3.1.2 Residential & General customers

The Residential & General category includes all residential connections and general single and 3 phase connections up to 100kVA capacity. Prices for these customers include a daily charge and a kWh price applied to energy used during the Day period, which is defined as 7am to 11pm. Energy usage during the Night period (11pm to 7am) does not attract any charge.

Prices for Residential & General consumers vary according to:

- **Connection density (Urban or Rural):** The urban areas are defined as where the transformer capacity density of the 11kV line or cables is at least 120kVA/km and where there is a prevalence of transformers in excess of 100kVA per unit and consists of at least 50 customers within a continuous boundary and within 20 km of a zone substation.

The remaining areas are classified as rural and there is a price cap on the fixed charge component of the line charge.

- **Capacity:**
 - General connections are split between single and three phase categories, they are then further disaggregated into load groups based on the size of the service fuse or size of transformer supplying them. The differentials between load groups reflect the use of the network assets for each group and the diversity each group has around peak load times.

Residential connections are either 8 kVA or 15 kVA. 8kVA residential connections require a 32-amp circuit breaker to be installed on the main switchboard to control the complete installation. This capacity is only allowed for single-phase installations.

- Different consumer groups are based on practical fuse sizes. For pricing purposes, all residential consumers are classed as single-phase irrespective of whether they are supplied two-phase or three-phase. This is due to the fact that for many of the consumers there was no choice in their method of supply and there are many older multi-phase residential installations. All old residential consumer installations are classed as “historic residential”.

- Control:** Whether there is significant controllable load on the premises. If so, the connection qualifies for a “with off peak” line charge, which is lower than the “all peak” prices that apply connections without significant controllable load. The eligibility for a “with off peak” line charge is determined on the basis that at least 25% of the total annual energy consumption is separately metered on a ripple controlled tariff, such as a water heater or consumed between 23:00 and 07:00 hours.

In line with the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004, residential customers consuming less than 9000 kWh per annum are able to transfer to the Residential Low User option tariffs. To be eligible for the Low Fixed Charge Tariff Option the connection must meet the residential definition of *“a residential consumer is where the consumer's metered point of connection to the network is for the purposes of supplying a home (the principle place of residence of the consumer), not normally used for any business activity and not used as a holiday home. The connection must meet the definition of "Domestic premises" under Section 5 of the Electricity Industry Act 2010”*.

These options attract a lower fixed daily charge and a higher variable consumption charge. Retailers with customers on these pricing plans must submit the monthly consumption amounts for these customers in a separate file to PowerNet.

The consumer specific pricing options available for Residential & General consumers are as follows:

Residential Standard	Code	
	Urban	Rural
Small Residential (8kVA 1 Phase) - All Peak	UD08P	RD08P
Small Residential (8kVA 1 Phase) - With Off Peak	UD08Q	RD08Q
Residential (15kVA 1 Phase) - All Peak	UD20P	RD20P
Residential (15kVA 1 Phase) - With Off Peak	UD20Q	RD20Q
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	RDL08P
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	RDL08Q
Residential Low Fixed Charge Option (15kVA 1 Phase) - All Peak	UDL20P	RDL20P
Residential Low Fixed Charge Option (15kVA 1 Phase) - With Off Peak	UDL20Q	RDL20Q
General Single Phase	Urban	Rural
Street Lights (1 Phase)	US001L	RS001L
1 kVA 1 Phase - All Peak	US001P	RS001P
8 kVA 1 Phase - All Peak	US008P	RS008P
8 kVA 1 Phase - With Off Peak	US008Q	RS008Q
15 kVA 1 Phase - All Peak	US020P	RS020P
15 kVA 1 Phase - With Off Peak	US020Q	RS020Q
General Three Phase		
15 kVA 3 Phase - All Peak	UT015P	RT015P
15 kVA 3 Phase - With Off Peak	UT015Q	RT015Q
30 kVA 3 Phase - All Peak	UT030P	RT030P
30 kVA 3 Phase - With Off Peak	UT030Q	RT030Q
50 kVA 3 Phase - All Peak	UT050P	RT050P
50 kVA 3 Phase - With Off Peak	UT050Q	RT050Q
75 kVA 3 Phase - All Peak	UT075P	RT075P

75 kVA 3 Phase - With Off Peak	UT075Q	RT075Q
100 kVA 3 Phase - All Peak	UT100P	RT100P
100 kVA 3 Phase - With Off Peak	UT100Q	RT100Q

3.2 Summary of target revenue and pricing changes

TPCL has not made any significant change to its pricing structure for the 12 months from 1 April 2021. Refinements made to TPCL's pricing definitions are:

- a new tariff has been created for an export charge for residential and general customers exporting distributed generation into the network. This requirement will allow TPCL visibility of the amount of kWh being supplied by solar generation. The price is set at zero, so does not result in any change in charges to consumers.
- the description for residential and general 20kVA price codes will now state 15kVA to reflect that 63amp fuses are used for this customer group. This is considered a more accurate means for rounding and will bring consistency with other lines companies. This does not have any impact on customers or their electricity supply.

Target revenue for 2021/22 is calculated at \$66.7 million, increasing from \$64.2 million the previous year. Below is a summary revenue for both transmission costs and distribution price components broken down by the two customer group categories for the 2021-22 year. We also outline the change in revenue compared with the previous year:

	Group customers	Individual customers	Total
2021-22 Revenue			
Distribution	\$46,788,204	\$7,307,354	\$54,095,558
Transmission	\$7,771,945	\$4,849,555	\$12,621,500
Total	\$54,560,149	\$12,156,909	\$66,717,058
Previous year			
Distribution	\$45,381,359	\$6,947,464	\$52,328,823
Transmission	\$7,462,274	\$4,414,903	\$11,877,177
Total	\$52,073,633	\$11,362,367	\$64,206,000

The changes in revenues are based on changes to our costs and our allocation of these costs to the customer groups. Other factors that impact on the allocation of costs relate to changes in quantities and individual customers profile changes as well as contractual changes.

Transmission changes relate to an increase in Transpower's connection charges and increased co-incident peak demands with Transpower's highest 100 peaks for the lower south island. ACOT payments to distributed generators also increased.

Distribution revenue changes reflect changes in operation and maintenance costs and capital investment requirements.

For the average residential consumer, the total TPCL price (including distribution and transmission) will increase by approximately \$1.13 (including GST) per month. Residential customer pricing is as follows:

		2020/21	2021/22
Daily prices			
Domestic – urban	\$/day	1.2367	1.2491
Domestic – rural	\$/day	1.3969	1.4109
Variable Charges			
All except low user – Day	c/kWh	9.001	9.100
Low User - Day	c/kWh	14.543	14.601

We note that discounts are now included in our pricing schedule. The methodology on how these discounts are determined is available on our website. These discounts are provided to consumers as an annual rebate on their bill via their electricity retailer.

3.3 Customer Consultation

Where significant changes in pricing structure are considered, PowerNet consults with customers. While the pricing to apply 1 April 2021 does not involve any significant changes, PowerNet does anticipate consulting over the next 12 months on the potential to introduce Time-of-Use pricing.

Even in the absence of significant pricing change, PowerNet seeks the views of consumers as part of the Asset Management Process (AMP) and has reflected these views in the published AMP. This included A face to face survey with key clients including expectations on price and current service

1. A bulk phone survey of current customers including expectations on price and quality
2. Consultation meetings at various locations throughout the network
3. Individual consumers are consulted as they consider supply upgrades or new connections to the network.

The views are considered in preparation of the AMP.

Quality in the form of security of supply (n versus n-1), capacity (equipment loadings) both impact on the cost of supply and subsequently prices charged. Price is able to be varied through different payment options (such as capital contributions, line charges and new investment agreements) which are discussed with large individual consumers as they consider supply upgrades or new connections to the network.

4. PRICING PRINCIPLES ASSESSMENT

The Electricity Authority has recently revised its distribution pricing principles and provided clarification of how the principles should be applied in practice.

The 2019 Distribution Pricing Principles:

- (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);
 - (ii) reflecting the impacts of network use on economic costs;
 - (iii) reflecting differences in network service provided to (or by) consumers; and
 - (iv) encouraging efficient network alternatives.
- (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.
- (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
 - (ii) enable price/quality trade-offs.
- (d) Development of prices should be transparent and have regard to transaction costs, consumer impacts, and uptake incentives.

We have considered each of these principles in developing our line prices.

4.1 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)

The PowerNet cost of supply model allocates costs to individual customers based on their geographical location and taking into account their share of the actual assets employed to supply them. The remaining group customers have the resulting costs allocated to them on an averaged basis once the individual customers' costs have been deducted from the total costs. It is not easy to accurately establish the stand-alone costs for most customers supplied by a common service via a meshed network. However we can conclude that stand alone costs would be higher than average costs for those customers given the scale efficiencies in supplying them from a meshed network. PowerNet believes that the cost allocators used in the model are a representation of the underlying cost drivers of the business and therefore is subsidy free.

Although the methodology attempts to minimise cross subsidisation between the larger individual consumers and between consumer load groups, there may be some degree of cross subsidisation between, for instance, urban and rural consumers within the same consumer group. This was recognised 16 years ago when a capped differential of 15% was introduced between rural and

urban consumers in the same consumer group. Legislation precluded further steps to reduce this cross subsidisation even if the network owner had resolved to reduce the cross subsidisation.

New connections to the network pay a capital contribution if the expected revenue from the line charge does not cover the capital recovery cost required, this ensures that new connections are not subsidised and that total revenue from the new customer is not less than the expected incremental costs.

Reflecting the impacts of network use on economic costs

TPCL's pricing structure uses capacity-based load groups to ensure prices have regard to the level of service capacity and encourages the use of controlled energy consumption by having a price differential in the fixed charge for group customers. Load control is utilised to keep charges down by: (1) minimising Transpower charges by controlling the network load during the LSI peaks; (2) managing GXP load when maximum demand reaches the capacity of that GXP; and (3) managing load on feeders during temporary arrangements to manage constraints.

The day/night energy component of charges to residential and general customers also provides a strong signal to consumers to utilise spare network capacity at night thus reducing capital investment in the network. As discussed above in section 2.2, there are some assets in the TPCL's network that are at or approaching capacity limits (eg, a number of zone substations), as well as two GXPs. A time-of-day pricing structure assists in deferring network upgrades. The move to TOU pricing that is being contemplated by TPCL would serve to refine and improve the signals of the existing day/night structure. Looking to the future, and the potential for developments such as electric vehicles, to bring network assets closer to capacity limits, a forward-looking approach to having structures in place and understanding/developing the responsiveness of customers to signals before they need to be relied upon has merit.

With regard to charges for individual customers, these are determined annually through a method which incorporates allocation of a portion of charges through peak demand measures. This is because the most significant cost driver that influences investment requirements in the network is the combined peak demand of all consumers in an area. PowerNet designs and constructs its network to meet this peak load. This ensures that prices signal the impact of additional demand on future investment costs. The use of a more sophisticated charging arrangement for individual customers reflects that they typically have greater capacity to manage and respond to demand-driven charges than smaller customers.

TPCL's peak times are outlined in the methodology and have encouraged individual customers to employ demand response actions such as turning on alternative generation or load shifting during these times to reduce their peak demands. Residential customers have the option to put some of their appliances on controlled tariffs to qualify for the off-peak fixed charge.

Customers are encouraged to use energy at night through the use of night store heaters, heating the hot water or using their appliances such as clothes driers, washing machines etc. during this period. The customer is then financially rewarded, as the consumption does not attract any variable line charge. The "whole house day/night tariff" can reward consumers financially through prudent management of their power requirements.

The network has a number of embedded generators connected to it. These generators receive avoided transmission payments if they have been generating during Transpowers top 100 peak times for the lower South Island. These payments are also offered to any new investors in distributed generation. PowerNet's peak demand component of the line charge provides a large reward to customers who invest in distribution alternatives.

Reflecting differences in network service provided to (or by) consumers

Different levels of daily charges for residential and general consumers with controlled as compared with uncontrolled connections reflect that controlled load has different service availability than uncontrolled load.

For individual customers, pricing reflects that different assets are used by different customers, which could also be associated with different service levels.

Encouraging efficient network alternatives

The locational specific pricing that is incorporated into Individual Customer charges assists in providing signals on the cost of network provision in particular locations that can then be compared against network alternatives to encourage efficient decision-making by consumers. The use of at least some geographic pricing for residential and general customers, through the distinction between rural and urban connections, also assists in this regard.

Signalling when the network is likely to be at its busiest or when capacity is available also provides signals on when network alternatives can aid in meeting peak loads or in smoothing peaks through load shifting. Day/night pricing will assist with this to a degree – for example, by encouraging EV charging overnight. However it is envisaged that TOU pricing will allow more accurate signalling of network busy times than the broad day/night periods that are currently in use. For individual customers, charges reflect demand during peak periods which would encourage efficient decision-making on customer investment in and use of network alternatives.

4.2 Where prices that signal economic costs would under-recover target revenues, the shortfall should be made up by prices that least distort network use

TPCL uses capacity charges to recover costs that are not recovered through peak demand charges (Individual Customer) or Day kWh charges (Residential & General) charges. These types of charges would have less distortionary impacts in recovering sunk costs than kWh or demand charges would, but arguably fairer than a single fixed charge for each and every ICPs. However, there are limitations on the proportion of costs that can be recovered through capacity or daily charges as a result of the Low Fixed Charge Regulations, as well as fairness considerations.

TPCL also notes that while the recovery of sunk or fixed costs from variable charges will distort usage to some extent, reasonably low uptake of evolving technologies (PV, EVs) on TPCL's network area for the foreseeable future (as discussed in section 2.3) likely means that there will be limited adverse consequences from variable charges.

Another interpretation of prices that least distort network use is Ramsey pricing, where those consumers with inelastic demand face higher charges as their consumption is least likely to be distorted as a result. However, this principle is difficult to apply as price elasticity information is difficult to obtain and it is likely the price elasticities will be different within each load group.

4.3 Prices should be responsive to the requirements and circumstances of end users by allowing negotiation to: (i) reflect the economic value of services; and (ii) enable price/quality trade-offs

As is discussed in section 9, in some cases non-standard prices and contracts are appropriate. This may be the case where, for example, a customer has enhanced security arrangements. In situations where customers have significant capital contributions or new investment agreements, robust commercial contracts incorporating prudential requirements are prudent to mitigate the

risk of these assets being stranded. These contracts can also assist in avoiding uneconomic bypass of the network when negotiating commercial arrangements and encourage growth within the network. TPCL's individual pricing for large customers and individual account management to industrial and large commercial customers addresses the risk of bypass by negotiating arrangements that, as closely as is practical, reflect the network costs incurred by each individual consumer.

TPCL's pricing model for large individual consumers ensures that the price is cost reflective and takes into consideration a distance factor from the customer's premises to the local zone substation, thus relating their line charges to the assets used for their supply. The closer to the zone substation the lower the distribution cost component. This component also allows for the shared use of those assets.

The pricing model allows customers to own their own distribution transformers passing on the savings made by ownership.

Each zone substation has individual costs allocated to it based on the substation assets and the share of the use of the subtransmission network as determined by load flow analysis. These individual zone substation costs are allocated to the individual consumers based on their respective load profiles and share of the use of the zone substation.

The use of individual capacity and demands also ensures that the price is cost reflective. By these processes, TPCL discourages uneconomic bypass of its network and allows negotiation to tailor its services to the specific needs of the consumer.

During the consultation process with consumers, particularly the larger individual consumers, and often when they are extending or requiring a new supply, price/quality trade-offs are discussed and offered, these often in the form of offering the customer an (n-1) supply. Consumers who choose this level of supply will have the extra costs reflected in their individual line charge.

Each year PowerNet conducts a customer survey of 400 residential and commercial customers. Customers are asked if they would pay an extra \$10 per month in their line charge to reduce the number of outages they experienced each year, 82% stated no to this question.

4.4 Development of prices should be transparent and have regard to transaction costs, consumer impacts, and uptake incentives.

TPCL's current price structure has been in place since 1996 and has only seen changes to tariff options in response to customer demand or legislative requirements such as the Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004.

Through the disclosure of the pricing methodology, the costs allocated to each consumer group are transparent. This allows stakeholders to make informed decisions between capacity based price categories.

TPCL has maintained its pricing structure and differentials between peak and off-peak fixed charges and has kept night consumption free of variable charges to give stability and certainty to customers who have invested in controllable load due to the price differential and potential savings when the investment was made.

Price levels for individual consumers each year are based on the previous year's performance and projections for the current year following discussions with the consumer when required.

More efficient use of electricity by these consumers may be reflected at the time in the variable charges but will primarily be effective as the basis for calculating reduced line charges (in real terms) for the following year.

All retailers who use the network are subject to the same tariff schedules from PowerNet therefore, PowerNet considers that its prices are economically equivalent across all retailers.

Once the line charges have been established by the methodology, the pricing structure is straight forward, limited to a fixed daily charge and variable consumption tariff for the majority of customers. PowerNet recognises that whilst the pricing structure is simple, there are a large number of options due to the urban/rural and peak/off-peak options available within each capacity group. The Electricity (Low Fixed Charge Tariff Option for Domestic Consumers) Regulations 2004 requiring a low fixed charge option for each residential tariff has also greatly increased the number of options.

The issue is a compromise between simplicity and equitability of pricing. Three parameters influence the cost, the location of the premises to be supplied (governs the assets used), the load to be supplied (governs the size of assets used) and the time the load is supplied (governs the diversity and hence size and share of the assets used).

TPCL's line charge methodology has endeavoured to incorporate these aspects and then apply in the most equitable but simple way practicable.

TPCL uses "GXP billing" for its residential & general connections, which saves on administration costs, and ultimately should result in lower costs and prices.

TPCL also recognises that "ICP pricing and billing" can potentially send stronger price signals to consumers but does constrain tariff innovation by the retailers. The alternative is for a further breakdown of the GXP energy volumes into "peak" and "shoulder" rates or "congestion" and "non congestion" periods, which would be differentially charged to the retailers. This would sharpen the signal to the retailers and end use consumers and is currently being contemplated in a potential move to TOU pricing.

With regard to uptake incentives, because pricing is at a GXP level for residential and general customers, TPCL's pricing structure (eg, Day/Night) is necessarily applied for all customers at a wholesale level. Whether TPCL's pricing structure is passed on to end consumers or repackaged is a decision made by retailers.

TPCL's pricing from 1 April 2021 does not incorporate structural changes and as a result, consumer impacts of the change in price levels are likely to be predictable. However, if TPCL implements a significant change in pricing structures, such as TOU implementation or follows a government-led LFC transition, we would anticipate that consumer impact analysis would be much more relevant.

5. REVENUE REQUIREMENT

TPCL is an electricity distribution business (EDB) that is exempt from the price quality provisions of the Commerce Act due to its trust ownership structure. As a result, TPCL's revenue is not reset by the Commerce Commission from 1 April 2021 under the Commerce Commission's Electricity Distribution Services Default Price-Quality Path Determination 2020 (the Determination).

The Commission's Determination is based on a variety of Input Methodologies that determines the inputs into the calculation of the Weighted Average Cost of Capital (WACC) used in the Commerce Commissions price reset calculations.

TPCL's view is the inputs into the Commission's WACC calculation include out-of-date tax-adjusted market risk premium and narrow time bands for calculations of interest costs used in the WACC calculation and in the reset calculation use of inflation assumptions from a party with a vested interest in a mid-range inflation outcome.

The inputs have resulted in lower price reset outcomes, which cause concern for non-exempt EDBs. TPCL as an exempt EDB has engaged an independent expert to calculate its WACC based on its actual cost of debt and a more current tax adjusted market risk premium as proposed by the Commissions consultants for the fibre input methodologies.

TPCL's WACC is materially above the Commission's WACC used in the reset. It has been applied to the Return of Capital calculation.

Posted Discount

TPCL has for a number of years credited a discount to its consumers on the qualifying date of 31 August each year.

From 2019 onwards TPCL has made a further commitment by posting the discount alongside its prices schedules effective from 1 April each year.

The discount is a credit for a portion of the lines charges paid for electricity distribution services in the preceding 12 months period from 1 August to 31 July. Discounts are credited to each consumers' electricity retailer in September and the amount is then credited to their account.

Determining Each Component of the Revenue Requirement

This Disclosure is required to outline the costs of the EDB that are targeted to be recovered through charges for electricity distribution services.

- The estimated costs of operating TPCL's EDB for the year from 1 April 2021 to 31 March 2022 are grouped into the categories of:
- Direct network costs, including operational and maintenance cost and direct overheads.
- Indirect network costs which includes indirect overheads and administration costs
- Transmission costs, including Transpower, other distributors and distributed generators
- Regulatory depreciation (return of capital)
- Return on capital made up of TPCL's WACC return on the regulated asset base
- Regulatory taxation

Revenue Requirement for the year ended 31 March 2022		\$000
Direct network costs		11,763
Indirect network costs		6,377
Transmission costs		12,817
Depreciation (RAB)		14,886
Return of capital (WACC x RAB)		19,803
Regulatory Taxation		3,663
Total Revenue Requirement Before Discount		69,309
Posted Discount		8,200
Total Revenue Requirement		61,109

Capital contribution revenue is excluded from the revenue requirement as the revenue is netted off against the cost of the regulatory assets the contribution relates to.

Total budgeted line charge revenue before the posted discount is \$66,717,000. This results in an implicit discount of \$2,592,000 below the total revenue requirement (before the posted discount) of \$69,309,000.

6. METHOD FOR COST ALLOCATION

The costs from each of the categories used to calculate the Revenue Requirement are allocated between the relevant consumers and consumer groups. Each consumer or consumer groups' share of the use of the assets and costs are calculated to reflect their respective use. The objective is to reflect the share of the costs in a robust and equitable manner and the line charges be structured so that the network investment and line charges are responsive to the consumer and consumer groups' behaviour or pattern of usage.

6.1 Customer Profiles

The derivation of the line charges is based on seven profile parameters relating to the customer group, or individual customer. They are:

- (a) The Contract Capacity kVA (kW) of the installation
- (b) The Peak demand kVA. (kW) (0700-1100 hours and 1700-2200 hours, each week day during subtransmission peak months of individual grid exit points)
- (c) The Peak energy MWh. (0700-1100 hours and 1700-2200 hours, each week day during subtransmission peak months)
- (d) The Winter Day energy MWh. (0700-2300 hours, May to September inclusive)
- (e) The Summer Day energy MWh. (0700-2300 hours, October to April inclusive)
- (f) The Total energy for the 12 month period MWh.
- (g) Coincident Peak demand with Transpower's 100 highest peaks for the lower South Island (kVA), half hour metered customers only.

6.2 Transpower and Subtransmission Costs

The basis of allocation of Transpower connection charges and subtransmission costs is on the after diversity maximum demand for each customer during the periods of network maximum demand. Similarly the allocation of the distribution costs is on an after diversity distribution capacity of the customer's installation.

The PowerNet methodology takes into account the duration that the customer impacts on the peak loading hours of the network. This is achieved by allocating some of the Transmission, subtransmission and distribution costs based on the Peak energy and the Winter Day energy.

This in effect reduces the charges for a customer who incurs just one half hour peak for the whole peak period or is only impacting on the peak hours for part of the peak period and increases the charges for those customers who are impacting regularly on the peak periods.

It has the effect of integrating the peak demand over a longer period.

6.3 Peak Demand

The Peak demands for the various customers and customer groups have a diversity factor applied to them, which reflects to some extent their impact on the total after diversity maximum demand on the network. These diversity factors, based on their peak demands, are as follows:

1kVA = 100%

2kVA to 110kVA = ramp function from 13.75% to 39%

Between 110kVA and 3,000kVA = ramp function from 40% - 95%

Above 3,000kVA = 95%.

These diversity factors reflect the increased diversity of a large number of smaller customers compared to less diversity for the larger customers.

6.4 Contract Capacities

Similarly, diversity factors are applied to the contract capacities of the various customers. These diversity factors are as follows:

For connections up to 50kVA = 30%

For connections between 51kVA and 100kVA = 30% - 75%

For connections between 101kVA and 2,500kVA = ramp function from 75% - 95%

For connections above 2,500kVA = 95%.

These diversities reflect the differing impacts of the different sized customers on the local capacity of the reticulation system. There is an increased diversity between the smaller customers than with the large customers with respect to the capital investment in the local distribution network.

6.5 Subtransmission and Distribution Split

The costs of the subtransmission and distribution components of the line charges are split into two categories:

a. Supply

The “supply” part is based on the depreciation of the network assets, other ownership costs and the cost of capital required to fund the assets. As the company is owned by a consumer trust, the required gross return is presently comparatively low as most of the consumer shareholders receive an implicit benefit in the way of reduced line charges.

b. Maintenance

The “maintenance” part is based on the Maintenance Works Programme for the current year.

Management costs for capital and maintenance work are allocated to Supply and Maintenance respectively.

The profile parameters for determining the line charges for the individual customers, grouped by capacity are:

Contract Capacity kVA	Number of Connections	Coincident Peak Demand Reading kVA	Peak Demand Reading kVA	Total Energy Reading MWh	Peak Reading MWh	Winter Day Reading MWh	Summer Day Reading MWh
30	4	32	140	223	28	70	109
50	18	401	708	2,458	269	707	1,045
75	9	148	463	1,144	118	318	493
100	34	335	1,814	3,682	444	1,023	1,634
150	61	947	5,462	9,616	1,241	3,044	4,117
200	51	1,213	5,953	11,059	1,467	3,321	5,024
300	39	3,060	6,700	18,872	2,359	5,839	7,690
500	23	2,918	11,305	15,419	1,722	4,588	6,644
750	10	1,606	3,062	12,483	1,356	3,457	5,215
1000	6	2,691	4,394	15,143	1,899	4,892	5,646
1250	2	695	1,813	5,429	686	1,434	2,652
1500	4	1,206	2,245	4,738	622	1,334	2,199
1800	1	698	1,435	5,483	696	1,238	2,566
2000	2	1,859	2,743	10,510	1,236	3,068	4,802
3000	1	223	443	1,364	203	182	748
3500	1	1,024	2,170	10,841	1,092	2,872	4,583
4000	1	1,867	3,482	16,255	1,150	3,272	7,832
4500	1	58	198	96	10	26	37
5000	1	1,139	2,595	11,157	1,400	3,432	4,311
9000	1	1,925	4,994	22,434	1,335	3,812	11,234
10000	1	4,289	9,318	40,503	5,795	10,037	17,942
13000	1	1	20	1	1	1	1
30200	1	11,651	26,010	110,155	17,188	17,835	55,187

The profile parameters for determining the line charges for the Residential & General customers are:

Consumer Capacity	Code	Number of Connections	After Diversity Peak Demand kW	Total Energy Group MWh	Winter Peak Group MWh	Winter Day Group MWh	Summer Day Group MWh
TPC Urban							
Residential Standard							
Small Residential (8kVA 1 Phase) - All Peak	UD08P	95	86	454	51	152	197
Small Residential (8kVA 1 Phase) - With Off Peak	UD08Q	183	142	875	73	264	372
Residential (15kVA 1 Phase) - All Peak	UD20P	1,727	3,935	20,676	2,306	6,919	8,975
Residential (15kVA 1 Phase) - With Off Peak	UD20Q	6,873	13,315	82,301	6,884	24,786	35,010
Residential Low Fixed Charge Option (15kVA 1 Phase) - All Peak	UDL20P	1,756	4,003	11,683	1,303	3,909	5,071
Residential Low Fixed Charge Option (15kVA 1 Phase) - With Off Peak	UDL20Q	5,714	11,071	38,015	3,180	11,449	16,171
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	70	64	298	25	100	129
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	152	118	647	54	195	275
General Single Phase							
Street Lights (1 Phase)	US001L	5,438	1,387	5,714	637	1,912	2,480
1 kVA 1 Phase - All Peak	US001P	27	27	334	37	112	145
8 kVA 1 Phase - All Peak	US008P	220	201	1,055	118	353	458
8 kVA 1 Phase - With Off Peak	US008Q	14	11	68	6	21	29
15 kVA 1 Phase - All Peak	US020P	375	854	4,485	500	1,501	1,947
15 kVA 1 Phase - With Off Peak	US020Q	102	197	1,216	102	366	517
General Three Phase							

15 kVA 3 Phase - All Peak	UT015P	112	191	1,006	112	337	437
15 kVA 3 Phase - With Off Peak	UT015Q	11	16	99	8	30	42
30 kVA 3 Phase - All Peak	UT030P	547	2,250	8,406	938	2,813	3,649
30 kVA 3 Phase - With Off Peak	UT030Q	100	350	1,537	129	463	654
50 kVA 3 Phase - All Peak	UT050P	317	2,907	13,576	1,514	4,543	5,893
50 kVA 3 Phase - With Off Peak	UT050Q	79	616	3,383	283	1,019	1,439
75 kVA 3 Phase - All Peak	UT075P	96	1,737	6,490	724	2,172	2,817
75 kVA 3 Phase - With Off Peak	UT075Q	19	292	1,285	107	387	546
100 kVA 3 Phase - All Peak	UT100P	20	583	2,179	243	729	946
100 kVA 3 Phase - With Off Peak	UT100Q	3	76	335	28	101	143
TPC Rural							
Residential							
Small Residential (8kVA 1 Phase) - All Peak	RD08P	111	101	531	59	178	230
Small Residential (8kVA 1 Phase) - With Off Peak	RD08Q	86	66	411	34	124	175
Residential (15kVA 1 Phase) - All Peak	RD20P	1,990	4,535	23,828	2,657	7,973	10,343
Residential (15kVA 1 Phase) - With Off Peak	RD20Q	5,319	10,305	63,694	5,328	19,182	27,095
Residential Low Fixed Charge Option (15kVA 1 Phase) - All Peak	RDL20P	936	2,133	6,227	694	2,084	2,703
Residential Low Fixed Charge Option (15kVA 1 Phase) - With Off Peak	RDL20Q	2,054	3,980	13,665	1,143	4,115	5,813
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	39	36	166	14	56	72
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	33	26	141	12	42	60
General Single Phase							
Street Lights (1 Phase)	RS001L	835	213	877	98	294	381

1 kVA 1 Phase - All Peak	RS001P	125	125	1,545	172	517	671
8 kVA 1 Phase - All Peak	RS008P	1,074	979	5,146	574	1,722	2,234
8 kVA 1 Phase - With Off Peak	RS008Q	29	23	140	12	42	60
15 kVA 1 Phase - All Peak	RS020P	1,618	3,689	19,379	2,161	6,485	8,412
15 kVA 1 Phase - With Off Peak	RS020Q	304	589	3,644	305	1,097	1,550
General Three Phase							
15 kVA 3 Phase - All Peak	RT015P	337	576	3,027	338	1,013	1,314
15 kVA 3 Phase - With Off Peak	RT015Q	12	17	108	9	32	46
30 kVA 3 Phase - All Peak	RT030P	1,841	7,573	28,293	3,155	9,467	12,281
30 kVA 3 Phase - With Off Peak	RT030Q	432	1,510	6,639	555	1,999	2,824
50 kVA 3 Phase - All Peak	RT050P	652	5,979	27,923	3,114	9,344	12,120
50 kVA 3 Phase - With Off Peak	RT050Q	513	3,999	21,970	1,838	6,617	9,346
75 kVA 3 Phase - All Peak	RT075P	94	1,701	6,355	709	2,127	2,758
75 kVA 3 Phase - With Off Peak	RT075Q	42	646	2,839	238	855	1,208
100 kVA 3 Phase - All Peak	RT100P	28	838	3,129	349	1,047	1,358
100 kVA 3 Phase - With Off Peak	RT100Q	9	229	1,006	84	303	428

7. COST ALLOCATION TO CAPACITY GROUPS

This section describes the cost allocations to each capacity group and individual customers using the methodology described above.

7.1 Transmission Charges

Transmission charges reflect the Transpower grid asset management costs incurred by The Power Company Ltd based on the four points of supply and also include the equivalent costs of the embedded generation supplied by the Southern Generation point of supply at Flatt Hill wind generation at Bluff, and the Maitua Industrial Park Hydro generation at Maitua.

The five points of supply are:

- (a) Gore
- (b) Edendale
- (c) Invercargill
- (d) North Makarewa
- (e) Maitua, Flat Hill

Transpower transmission charges have two components:

- (a) Connection charge
- (b) Interconnection charge

7.1.1 Connection Charge

The Transpower connection charge is based on the Transpower local assets utilised to provide the supply and includes Transpower new investment charges.

In the case of the Invercargill point of supply the connection charge is split between The Power Company Limited and Electricity Invercargill Limited, each network is connected to the transmission grid there.

The total connection charges for each point of supply are:

(a)	Gore	\$514,935
(b)	Edendale	\$277,119
(c)	Invercargill	\$385,546
(d)	North Makarewa	\$777,028

The connection charges are applied to customers on the basis of the following allocation:

Peak Demand	70%
Peak Energy	20%

Winter Day Energy 10%

For individual customers this equates to:

Point of Supply	Per kVA Peak Demand	Per Winter Peak MWh	Per Winter Day MWh
Gore	\$9.62	\$5.37	\$1.76
Edendale	\$5.71	\$5.02	\$1.50
Invercargill	\$6.65	\$3.23	\$1.09
North Makarewa	\$9.12	\$4.46	\$1.46

After the revenue from the individual customers has been subtracted from the total the remaining group customer charges are as follows:

	Per kVA Peak Demand	Per Peak MWh	Per Winter Day MWh
All Points of Supply	\$7.71	\$4.83	\$1.06

The difference in the two sets of rates above reflects the difference in losses and diversity factors between the large individual customers and the smaller customer groups.

7.1.2 Interconnection Charge

This charge is based on the average of the 100 highest coincident peak demands at each point of supply with that recorded for Transpower's lower South Island region during the period 1 September to 31 August each year.

The total interconnection charges for each point of supply are:

(a)	Gore	\$2,478,425
(b)	Edendale	\$1,596,285.39
(c)	Invercargill	\$3,006,288
(d)	North Makarewa	\$3,351,542
(e)	Flat Hill, Maitara	\$234,331

The interconnection charges are applied to customers on the basis of the following allocation:

Half Hour Metered:

Coincident peak with lower South Island region top 100 peaks - 100%

Non Half Hour Metered:

Peak Demand	60%
Peak Energy	30%
Winter Day Energy	10%

For individual Non Half Hour Metered customers this equates to the following charges:

Point of Supply	Per kVA Peak Demand	Per Peak MWh	Per Winter Day MWh
Gore	\$39.69	\$38.79	\$8.48
Edendale	\$32.59	\$50.16	\$9.96
Invercargill (TPCL)	\$44.44	\$37.79	\$8.51
North Makarewa	\$36.09	\$28.87	\$6.32

For individual Half Hour Metered customers this equates to the following charges:

Point of Supply	Per kVA Coincident Peak Demand
Gore	\$98.07
Edendale	\$98.07
Invercargill (TPCL)	\$98.07
North Makarewa	\$98.07

After the revenue from the individual customers has been subtracted from the total the remaining group customer charges are as follows:

	Per kVA Peak Demand	Per Winter Peak MWh	Per Winter Day MWh
All Points of Supply	\$41.05	\$45.00	\$6.56

The differences in the above rates reflect the differences in losses and diversity factors between the large individual customers and the small customer groups.

7.1.3 Transpower Revenue for Individual Customers

The total Transpower revenue for individual customers grouped by capacity is shown in the following table:

Consumer Capacity kVA	Number of Connections	Transpower Revenue per Consumer Group	Average Line Charge
30	4	\$4,492	\$1,123
50	18	\$43,780	\$2,432
75	9	\$17,689	\$1,965
100	34	\$53,843	\$1,584
150	61	\$189,643	\$3,109
200	51	\$190,143	\$3,728
300	39	\$359,761	\$9,225
500	23	\$318,929	\$13,866
750	10	\$178,015	\$17,802
1000	6	\$293,762	\$48,960
1250	2	\$82,738	\$41,369
1500	4	\$129,339	\$32,335
1800	1	\$78,436	\$78,436
2000	2	\$200,811	\$100,405
3000	1	\$24,614	\$24,614
3500	1	\$117,548	\$117,548
4000	1	\$224,900	\$224,900
4500	1	\$6,550	\$6,550
5000	1	\$149,612	\$149,612
9000	1	\$233,941	\$233,941
10000	1	\$534,661	\$534,661
13000	1	\$281,701	\$281,701
30200	1	\$1,416,348	\$1,416,348

7.1.4 Transpower Revenue for Group Customers

The total Transpower revenue for group customers is shown in the following table.

Consumer Capacity	Code	Number of Connections	Transpower Charge	Transpower Revenue per Consumer Group
TPC Urban Residential Standard				
Small Residential (8kVA 1 Phase) - All Peak	UD08P	95	\$79	\$7,506
Small Residential (8kVA 1 Phase) - With Off Peak	UD08Q	183	\$66	\$12,005
Residential (15kVA 1 Phase) - All Peak	UD20P	1,727	\$198	\$341,919
Residential (15kVA 1 Phase) - With Off Peak	UD20Q	6,873	\$164	\$1,128,631
Residential Low Fixed Charge Option (15kVA 1 Phase) - All Peak	UDL20P	1,756	\$159	\$279,943
Residential Low Fixed Charge Option (15kVA 1 Phase) - With Off Peak	UDL20Q	5,714	\$133	\$761,240
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	70	\$70	\$4,924
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	152	\$63	\$9,514
General Single Phase				
Street Lights (1 Phase)	US001L	5,438	\$20	\$109,080
1 kVA 1 Phase - All Peak	US001P	27	\$138	\$3,739
8 kVA 1 Phase - All Peak	US008P	220	\$79	\$17,447
8 kVA 1 Phase - With Off Peak	US008Q	14	\$66	\$936
15 kVA 1 Phase - All Peak	US020P	375	\$198	\$74,167

15 kVA 1 Phase - With Off Peak	US020Q	102	\$164	\$16,669
General Three Phase				
15 kVA 3 Phase - All Peak	UT015P	112	\$149	\$16,635
15 kVA 3 Phase - With Off Peak	UT015Q	11	\$123	\$1,355
30 kVA 3 Phase - All Peak	UT030P	547	\$312	\$170,714
30 kVA 3 Phase - With Off Peak	UT030Q	100	\$260	\$26,000
50 kVA 3 Phase - All Peak	UT050P	317	\$758	\$240,260
50 kVA 3 Phase - With Off Peak	UT050Q	79	\$630	\$49,733
75 kVA 3 Phase - All Peak	UT075P	96	\$1,373	\$131,801
75 kVA 3 Phase - With Off Peak	UT075Q	19	\$1,144	\$21,732
100 kVA 3 Phase - All Peak	UT100P	20	\$2,270	\$44,257
100 kVA 3 Phase - With Off Peak	UT100Q	3	\$1,891	\$5,672
TPC Rural Residential				
Small Residential (8kVA 1 Phase) - All Peak	RD08P	111	\$79	\$8,773
Small Residential (8kVA 1 Phase) - With Off Peak	RD08Q	86	\$66	\$5,633
Residential (15kVA 1 Phase) - All Peak	RD20P	1,990	\$198	\$394,053
Residential (15kVA 1 Phase) - With Off Peak	RD20Q	5,319	\$164	\$873,468
Residential Low Fixed Charge Option (15kVA 1 Phase) - All Peak	RDL20P	936	\$159	\$149,218
Residential Low Fixed Charge Option (15kVA 1 Phase) - With Off Peak	RDL20Q	2,054	\$133	\$273,641
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	39	\$70	\$2,743
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	33	\$63	\$2,065
General Single Phase				

Street Lights (1 Phase)	RS001L	835	\$20	\$16,749
1 kVA 1 Phase - All Peak	RS001P	125	\$138	\$17,308
8 kVA 1 Phase - All Peak	RS008P	1,074	\$79	\$85,098
8 kVA 1 Phase - With Off Peak	RS008Q	29	\$66	\$1,921
15 kVA 1 Phase - All Peak	RS020P	1,618	\$198	\$320,481
15 kVA 1 Phase - With Off Peak	RS020Q	304	\$164	\$49,965
General Three Phase				
15 kVA 3 Phase - All Peak	RT015P	337	\$149	\$50,055
15 kVA 3 Phase - With Off Peak	RT015Q	12	\$123	\$1,478
30 kVA 3 Phase - All Peak	RT030P	1,841	\$312	\$574,560
30 kVA 3 Phase - With Off Peak	RT030Q	432	\$260	\$112,321
50 kVA 3 Phase - All Peak	RT050P	652	\$758	\$494,163
50 kVA 3 Phase - With Off Peak	RT050Q	513	\$630	\$322,948
75 kVA 3 Phase - All Peak	RT075P	94	\$1,373	\$129,055
75 kVA 3 Phase - With Off Peak	RT075Q	42	\$1,144	\$48,039
100 kVA 3 Phase - All Peak	RT100P	28	\$2,270	\$63,549
100 kVA 3 Phase - With Off Peak	RT100Q	9	\$1,891	\$17,017

7.2 Subtransmission Charges

Subtransmission charges are based on the subtransmission costs (66kV and 33kV network) and the zone substation costs.

There are two components making up the subtransmission charges:

- (a) Supply charge
- (b) Maintenance charge

7.2.1 Supply Charge

The subtransmission network was broken up into its constituent components including every line and every zone substation. These components were categorised, i.e. 66,000 and 33,000V, indoor and outdoor, size, number of transformers, circuit breakers, length of line etc.

Values for these subtransmission network components were based on the replacement value costs. These values were then amended by the ratio of the overall replacement cost to the asset value of the network. The appropriate share of the supply charge was allocated to each zone substation on this basis.

The share of the subtransmission lines by each zone substation was determined using the superposition theorem and calculating load flows through the interconnected mesh network.

The total supply charge for all the TPCL zone substations is \$16,033,347

The supply charge for TPCL is allocated across all customers connected to each zone substation on the following basis:

Peak Demand	70%
Peak Energy	20%
Winter Day Energy	10%

7.2.2 Maintenance Charge

The subtransmission maintenance charges for TPC total \$3,327,275

These maintenance charges are allocated across the customers on the following basis:

Total Energy	50%
Peak Demand	50%

7.2.3 Total Subtransmission Charges

The total subtransmission charges allocated to each zone substation are shown in the following table.

Zone Substation	Total Supply Charge	Total Maintenance Charge
Awarua	\$185,126	\$38,541
Bluff	\$449,792	\$93,642
Centre Bush	\$390,727	\$81,346
Conical Hills	\$328,021	\$68,291
Dipton	\$329,280	\$68,553
Edendale	\$320,588	\$74,159
Glenham	\$253,971	\$52,874
Gorge Road	\$358,073	\$74,547
Hillside	\$278,176	\$57,914
Kelso	\$557,078	\$115,978
Kennington	\$216,779	\$45,131
Lumsden	\$669,237	\$139,329
Makarewa	\$351,579	\$73,195
Athol	\$701,579	\$146,062
Mataura	\$348,624	\$72,580
Monowai	\$164,355	\$34,217
Mossburn	\$737,647	\$161,653
NZMP	\$387,158	\$84,845
North Gore	\$265,168	\$55,205
Ohai	\$500,303	\$92,998
Orawia	\$616,464	\$116,674
Otatara	\$292,298	\$60,853
Otautau	\$393,606	\$74,495
White Hill	\$76,275	\$15,880
Riversdale	\$523,160	\$108,917
Riverton	\$463,113	\$96,416
Seaward Bush	\$277,795	\$57,834
South Gore	\$236,767	\$49,292
Te Anau	\$1,400,249	\$291,518
Tokanui	\$375,275	\$78,128
Underwood	\$485,734	\$101,125
Waikiwi	\$537,670	\$111,938
Waikaka	\$318,990	\$66,411
Winton	\$735,248	\$153,071

Colyer RD	\$597,134	\$124,317
Hedgehope	\$483,288	\$100,616
Isla Bank	\$384,992	\$80,152
ICC46	\$42,030	\$8,577

7.2.4 Subtransmission Charges for Individual Customers above 100 kVA

The subtransmission charges relating to each zone substation are shown in the following table.

Zone Substation	Supply Charge per kVA Winter Peak Demand	Supply Charge per Winter Peak MWh	Supply Charge per Winter Day MWh	Maintenance Charge per Commercial Total MWh	Maintenance Charge per kVA Winter Peak Demand
Awarua	\$69.48	\$26.38	\$7.61	\$1.02	\$10.33
Bluff	\$70.52	\$32.69	\$8.53	\$1.79	\$10.49
Centre Bush	\$73.33	\$73.67	\$20.69	\$3.90	\$10.90
Conical Hills	\$246.23	\$36.52	\$10.37	\$2.59	\$36.62
Dipton	\$130.09	\$211.65	\$55.44	\$11.85	\$19.35
Edendale	\$36.35	\$26.07	\$7.32	\$1.40	\$6.01
Glenham	\$133.50	\$105.37	\$29.92	\$6.31	\$19.85
Gorge Road	\$113.89	\$114.23	\$32.20	\$5.91	\$16.94
Hillside	\$261.02	\$151.26	\$41.77	\$8.62	\$38.82
Kelso	\$95.91	\$53.27	\$15.18	\$3.31	\$14.26
Kennington	\$26.85	\$18.38	\$7.53	\$1.31	\$3.99
Lumsden	\$155.05	\$91.67	\$25.25	\$5.07	\$23.06
Makarewa	\$62.99	\$28.33	\$7.96	\$1.58	\$9.37
Athol	\$309.79	\$210.99	\$65.07	\$15.41	\$46.07
Mataura	\$37.01	\$26.32	\$7.58	\$1.28	\$5.50
Monowai	\$308.43	\$310.45	\$85.00	\$18.48	\$45.87
Mossburn	\$220.60	\$222.46	\$62.27	\$13.70	\$34.53
NZMP	\$12.38	\$5.72	\$8.89	\$0.38	\$1.94
North Gore	\$19.31	\$11.03	\$3.08	\$0.70	\$2.87
Ohai	\$147.28	\$85.84	\$23.85	\$4.47	\$19.55
Orawia	\$149.76	\$91.99	\$26.29	\$5.20	\$20.25
Otatara	\$56.84	\$31.04	\$9.10	\$2.18	\$8.45
Otautau	\$88.99	\$34.36	\$9.95	\$1.86	\$12.03
White Hill	\$95.43	\$432.22	\$74.94	\$16.43	\$14.19
Riversdale	\$81.48	\$58.04	\$16.17	\$3.10	\$12.12
Riverton	\$73.50	\$35.72	\$10.01	\$2.14	\$10.93
Seaward Bush	\$29.79	\$10.13	\$2.74	\$0.60	\$4.43
South Gore	\$15.77	\$9.49	\$2.61	\$0.51	\$2.34
Te Anau	\$167.64	\$89.07	\$24.33	\$5.17	\$24.93
Tokanui	\$259.87	\$213.80	\$55.65	\$12.25	\$38.64
Underwood	\$32.58	\$20.97	\$5.90	\$0.94	\$4.85
Waikiwi	\$35.94	\$15.19	\$4.36	\$0.98	\$5.34
Waikaka	\$319.27	\$167.53	\$66.70	\$12.00	\$47.48
Winton	\$52.81	\$22.08	\$7.73	\$1.46	\$7.85

Colyer RD	\$60.38	\$51.42	\$12.22	\$1.73	\$8.98
Hedgehope	\$228.16	\$208.13	\$43.73	\$19.11	\$33.93
Isla Bank	\$144.57	\$414.50	\$114.10	\$38.06	\$21.50

7.2.5 Subtransmission Charges for Group Customers

After the revenue from the individual customers has been subtracted from the total the remaining group customer charges are as follows:

	Supply	Supply	Supply	Maintenance	Maintenance
	Charge per	Charge	Charge	Charge	Charge per
	kVA	per	per Winter	per Domestic	kVA Winter
	Peak Demand	Peak MWh	Day MWh	Total MWh	Peak Demand
Residential & General	\$80.75	\$49.88	\$11.01	\$2.82	\$13.49

7.3 Distribution charges

Distribution charges are based on the distribution costs, which include 11kV and 400V line and cables and distribution substations and transformers.

All individual customers have location based distribution charges. These customers pay their distribution charges based on four factors - the radial distance from the zone substation, the contract capacity of the installation and the number and size of transformers used to supply them.

The residential & general customers have non-locational distribution charges. For these customers the costs of the distribution network are averaged. These customers are identified as belonging to one of two groups, Urban and Rural.

Urban customers are located in the following areas:

Invercargill	Mossburn
Gore	Lumsden
Te Anau	Riversdale
Winton	Manapouri
Mataura	Tapanui
Riverton	Edendale
Otautau	Wyndham
Tuatapere	Wallacetown
Ohai	Otatara
Nightcaps	

The remaining customers are classified as rural.

There are three components making up the distribution charges

- (a) Supply charge
- (b) Maintenance charge
- (c) Transformer charge

7.3.1 Supply Charge

The supply charge is the required return on the assets by the shareholder and depreciation.

The total supply charge for TPCL totals \$15,630,315.

The non-locational supply charges are allocated across customers on the following basis:

Contract Capacity	70%
Peak Energy	20%
Winter Day Energy	10%

7.3.2 Maintenance Charge

The maintenance charges for TPCL total \$5,933,558.

The maintenance portion of the non-locational distribution charges is allocated across customers on the following basis:

Total Energy	50%
Contract Capacity	50%

7.3.3 Transformer Charge

The supply and maintenance transformer charges for TPCL total \$6,504,063.

The transformer portion of the distribution charges is allocated across consumers on the following basis:

Number of transformers and transformer capacity	100%
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7.3.4 Locational Individual Distribution Charges

(a)	Distribution Supply charge	\$3.23 per kVA km Urban
(b)	Distribution Supply charge	\$0.71 per kVA km Rural
(c)	Distribution Transformer charge	\$289.04 per Transformer
(d)	Distribution Maintenance charge	\$2,255 per km Urban
(e)	Distribution Maintenance charge	\$968 per km Rural

- | | | |
|-----|--------------------------------|---|
| (f) | Maintenance Transformer charge | \$862.19 per Transformer for capacity $\geq 75\text{kVA}$ |
| (g) | Maintenance Transformer charge | \$50.24 per Transformer for capacity $< 75\text{kVA}$ |

The Transformer charge of \$295.89 per transformer is multiplied by a price ratio depending on the size of the transformer. The ratios for the different sized transformers are shown below.

Transformer Size	Ratio applied
15kVA Transformer	1.00
30kVA Transformer	1.44
50kVA Transformer	1.88
75kVA Transformer	2.30
100kVA Transformer	2.80
150kVA Transformer	3.50
200kVA Transformer	4.40
300kVA Transformer	5.16
500kVA Transformer	7.20
750kVA Transformer	8.80
1,000kVA Transformer	9.96
1,250kVA Transformer	13.20
1,500kVA Transformer	15.60

In calculating the distribution, maintenance charges an allowance is made for the fact that customers above 150kVA have less use of the 400V network than smaller customers, i.e. they often have their own local transformer or exclusive supply cables from a transformer. The line portion of the distribution maintenance charges is multiplied by a factor of 70%.

7.3.5 Distribution Charges for Residential & General Customers

After the revenue from the individual customers has been subtracted from the total, the remaining residential & general customer charges are as follows:

TPC Urban

- | | | |
|-----|---------------------------------|---|
| (a) | Distribution Supply charge | \$6.96 per kVA Contract Capacity |
| (b) | Distribution Supply charge | \$28.72 per Winter Peak MWh |
| (c) | Distribution Supply charge | \$6.14 per Winter Day MWh |
| (d) | Distribution Maintenance charge | \$1.37 per Domestic Total MWh |
| (e) | Distribution Maintenance charge | \$1.37 per Commercial Total MWh |
| (f) | Distribution Maintenance charge | \$1.01 per kVA Contract Capacity |
| (g) | Distribution Transformer charge | \$10.58 per kVA AD Transformer capacity |

TPC Rural

- | | | |
|-----|---------------------------------|-----------------------------------|
| (a) | Distribution Supply charge | \$41.14 per kVA Contract Capacity |
| (b) | Distribution Supply charge | \$110.30 per Winter Peak MWh |
| (c) | Distribution Supply charge | \$24.58 per Winter Day MWh |
| (d) | Distribution Maintenance charge | \$10.63 per Domestic Total MWh |
| (e) | Distribution Maintenance charge | \$10.63 per Commercial Total MWh |

- | | | |
|-----|---------------------------------|---|
| (f) | Distribution Maintenance charge | \$11.52 per kVA Contract Capacity |
| (g) | Distribution Transformer charge | \$10.58 per kVA AD Transformer capacity |

The model applies an 8% discount for rural single-phase group customers and a 10% discount for urban single-phase group customers compared to three phase customers of similar size. This is to reflect the reduced investment in network assets for single-phase customers.

7.4 Overheads

The PowerNet overhead charges are based on those costs, which cannot be allocated directly to either capital or maintenance.

These costs include the following:

- (a) Executive Management
- (b) Directors Fees
- (c) System Control
- (d) Miscellaneous overheads, e.g. buildings, etc.

These charges are split equally over the total customer base.

The total overhead costs are \$4,894,515

The charge per customer is \$134.42

7.5 Power Factor Charge

All charges assume a power factor of not less than 0.95 lagging.

Individual and general customers may have a data logger installed to assess their power factor. If a customer has a power factor of less than 0.95 lagging and after a period of notice has not been corrected then an annual power factor charge of \$80 per kVA will be applied.

The kVA is based on the total kVA less kVA at 0.95 power factor. The kVA will be assessed on the average of the 12 highest kWh half hour periods during the assessment period.

7.6 Powernet Charges

7.6.1 PowerNet Revenue for Individual Customers

The total PowerNet revenue for individual customers grouped by capacity is shown in the following table.

Consumer Capacity kVA	Subtransmission Charge	Distribution Charge	Overhead Charge	Total PowerNet Charge
30	\$5,914.22	\$4,134.06	\$537.67	\$10,585.94
50	\$44,617.02	\$20,076.33	\$2,419.50	\$67,112.85
75	\$24,157.10	\$13,010.85	\$1,209.75	\$38,377.70
100	\$88,845.25	\$86,806.96	\$4,570.17	\$180,222.38
150	\$216,189.31	\$178,122.96	\$8,199.43	\$402,511.69
200	\$362,798.16	\$170,516.86	\$6,855.26	\$540,170.28
300	\$332,860.88	\$142,180.34	\$5,242.26	\$480,283.48
500	\$1,354,727.09	\$99,708.92	\$2,822.75	\$1,457,258.77
750	\$121,317.54	\$42,476.49	\$1,344.17	\$165,138.20
1000	\$187,434.35	\$35,673.39	\$806.50	\$223,914.23
1250	\$54,111.65	\$15,755.12	\$268.83	\$70,135.60
1500	\$120,516.34	\$44,315.82	\$537.67	\$165,369.84
1800	\$71,511.11	\$20,371.47	\$134.42	\$92,017.01
2000	\$87,523.54	\$37,003.45	\$268.83	\$124,795.83
3000	\$22,851.95	\$1,041.57	\$134.42	\$24,027.94
3500	\$219,601.90	\$14,355.82	\$134.42	\$234,092.14
4000	\$84,976.25	\$605,639.01	\$134.42	\$690,749.67
4500	\$4,038.85	\$1,658.65	\$134.42	\$5,831.92
5000	\$185,957.38	\$2,762.99	\$134.42	\$188,854.78
6000	\$537,893.08	\$58,213.15	\$134.42	\$596,240.65
10000	\$522,389.46	\$4,555.83	\$134.42	\$527,079.71
13000	\$207,800.77	\$0.00	\$0.00	\$207,800.77
30200	\$370,409.35	\$0.00	\$0.00	\$370,409.35

7.6.2 PowerNet Revenue for Group Customers

The total PowerNet revenue for group customers is shown in the following table.

Consumer Capacity	Code	Number of Connections	Subtransmission Charge	Distribution Charge	Overheads	Total PowerNet Revenue
TPC Urban						
Residential Standard						
Small Residential (8kVA 1 Phase) - All Peak	UD08P	95	\$13,061.23	\$12,085.57	\$12,736.00	\$37,882.79
Small Residential (8kVA 1 Phase) - With Off Peak	UD08Q	183	\$21,565.40	\$19,863.52	\$24,564.68	\$65,993.60
Residential (15kVA 1 Phase) - All Peak	UD20P	1,727	\$594,992.51	\$550,546.94	\$232,070.67	\$1,377,610.13
Residential (15kVA 1 Phase) - With Off Peak	UD20Q	6,873	\$2,027,472.07	\$1,867,469.98	\$923,779.73	\$4,818,721.77
Residential Low Fixed Charge Option (15kVA 1 Phase) - All Peak	UDL20P	1,756	\$503,846.40	\$504,368.41	\$236,035.97	\$1,244,250.78
Residential Low Fixed Charge Option (15kVA 1 Phase) - With Off Peak	UDL20Q	5,714	\$1,400,193.09	\$1,397,193.29	\$768,057.82	\$3,565,444.20
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	70	\$8,922.58	\$8,519.42	\$9,409.18	\$26,851.17
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	152	\$17,177.26	\$16,107.64	\$20,431.36	\$53,716.27
General Single Phase						
Street Lights (1 Phase)	US001L	5,438	\$192,624.08	\$108,091.19	\$14,619.18	\$315,334.44
1 kVA 1 Phase - All Peak	US001P	27	\$6,162.63	\$3,211.58	\$3,629.25	\$13,003.46
8 kVA 1 Phase - All Peak	US008P	220	\$30,361.33	\$28,093.36	\$29,605.31	\$88,060.00
8 kVA 1 Phase - With Off Peak	US008Q	14	\$1,681.57	\$1,548.87	\$1,915.44	\$5,145.88
15 kVA 1 Phase - All Peak	US020P	375	\$129,061.51	\$119,420.70	\$50,339.11	\$298,821.31

15 kVA 1 Phase - With Off Peak	US020Q	102	\$29,943.75	\$27,580.68	\$13,643.31	\$71,167.74
General Three Phase						
15 kVA 3 Phase - All Peak	UT015P	112	\$28,948.38	\$26,785.95	\$15,054.69	\$70,789.01
15 kVA 3 Phase - With Off Peak	UT015Q	11	\$2,433.85	\$2,241.78	\$1,478.59	\$6,154.22
30 kVA 3 Phase - All Peak	UT030P	547	\$303,171.93	\$291,299.54	\$73,526.01	\$667,997.48
30 kVA 3 Phase - With Off Peak	UT030Q	100	\$47,378.04	\$45,353.51	\$13,441.68	\$106,173.23
50 kVA 3 Phase - All Peak	UT050P	317	\$421,122.85	\$387,411.53	\$42,610.14	\$851,144.52
50 kVA 3 Phase - With Off Peak	UT050Q	79	\$89,794.60	\$82,258.07	\$10,618.93	\$182,671.60
75 kVA 3 Phase - All Peak	UT075P	96	\$234,065.97	\$219,699.30	\$12,904.02	\$466,669.29
75 kVA 3 Phase - With Off Peak	UT075Q	19	\$39,600.08	\$37,033.04	\$2,553.92	\$79,187.03
100 kVA 3 Phase - All Peak	UT100P	20	\$78,596.73	\$73,327.88	\$2,621.13	\$154,545.74
100 kVA 3 Phase - With Off Peak	UT100Q	3	\$10,336.33	\$9,608.14	\$403.25	\$20,347.72
TPC Rural Residential						
Small Residential (8kVA 1 Phase) - All Peak	RD08P	111	\$15,266.82	\$44,853.49	\$14,886.66	\$75,006.98
Small Residential (8kVA 1 Phase) - With Off Peak	RD08Q	86	\$10,118.92	\$29,950.18	\$11,526.24	\$51,595.35
Residential (15kVA 1 Phase) - All Peak	RD20P	1,990	\$685,714.65	\$2,014,610.20	\$267,455.91	\$2,967,780.76
Residential (15kVA 1 Phase) - With Off Peak	RD20Q	5,319	\$1,569,096.70	\$4,644,242.68	\$714,929.57	\$6,928,268.94
Residential Low Fixed Charge Option (15kVA 1 Phase) - All Peak	RDL20P	936	\$268,565.05	\$806,158.43	\$125,814.16	\$1,200,537.65
Residential Low Fixed Charge Option (15kVA 1 Phase) - With Off Peak	RDL20Q	2,054	\$503,324.57	\$1,518,045.30	\$276,092.19	\$2,297,462.06
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	39	\$4,971.15	\$14,808.30	\$5,242.26	\$25,021.71
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	33	\$3,729.27	\$11,083.44	\$4,435.76	\$19,248.47

General Single Phase						
Street Lights (1 Phase)	RS001L	835	\$29,577.25	\$63,726.59	\$2,244.76	\$95,548.61
1 kVA 1 Phase - All Peak	RS001P	125	\$28,530.69	\$63,262.60	\$16,802.10	\$108,595.39
8 kVA 1 Phase - All Peak	RS008P	1,074	\$148,084.73	\$435,068.73	\$144,397.29	\$727,550.75
8 kVA 1 Phase - With Off Peak	RS008Q	29	\$3,451.64	\$10,216.24	\$3,931.69	\$17,599.58
15 kVA 1 Phase - All Peak	RS020P	1,618	\$557,687.01	\$1,638,468.63	\$217,520.05	\$2,413,675.70
15 kVA 1 Phase - With Off Peak	RS020Q	304	\$89,757.49	\$265,665.96	\$40,896.32	\$396,319.78
General Three Phase						
15 kVA 3 Phase - All Peak	RT015P	337	\$87,103.60	\$255,907.89	\$45,298.47	\$388,309.96
15 kVA 3 Phase - With Off Peak	RT015Q	12	\$2,655.11	\$7,858.65	\$1,613.00	\$12,126.76
30 kVA 3 Phase - All Peak	RT030P	1,841	\$1,020,364.76	\$3,008,355.17	\$247,461.40	\$4,276,181.33
30 kVA 3 Phase - With Off Peak	RT030Q	432	\$204,673.11	\$607,001.75	\$58,068.07	\$869,742.94
50 kVA 3 Phase - All Peak	RT050P	652	\$866,158.04	\$2,505,478.02	\$87,639.78	\$3,459,275.84
50 kVA 3 Phase - With Off Peak	RT050Q	513	\$583,096.58	\$1,698,682.56	\$68,955.84	\$2,350,734.97
75 kVA 3 Phase - All Peak	RT075P	94	\$229,189.60	\$661,900.17	\$12,635.18	\$903,724.95
75 kVA 3 Phase - With Off Peak	RT075Q	42	\$87,537.01	\$254,360.02	\$5,645.51	\$347,542.55
100 kVA 3 Phase - All Peak	RT100P	28	\$112,856.84	\$324,197.61	\$3,763.67	\$440,818.13
100 kVA 3 Phase - With Off Peak	RT100Q	9	\$31,009.00	\$89,630.62	\$1,209.75	\$121,849.37

7.7 Loss Constraint Excess Payment

Loss Constraint Excess Payments are credits rebated by Transpower as a result of money received from the Clearing Manager for the Wholesale Electricity Market and are excluded from the Transmission Charges. The payments are allocated each month to the retailers on the basis of total energy consumption for the month in which the rebate applied.

7.8 Target Revenue Requirement Summary

Below is a summary of our projected revenue for both Transmission costs and distribution price components broken down by the two customer group categories for the 2021-22 year. We also outline the change in revenue compared with the previous year:

	Group customers	Individual customers	Total
2021-22 Revenue			
Distribution	\$46,788,204	\$7,307,354	\$54,095,558
Transmission	\$7,771,945	\$4,849,555	\$12,621,500
Total	\$54,560,149	\$12,156,909	\$66,717,058
Previous year			
Distribution	\$45,381,359	\$6,947,464	\$52,328,823
Transmission	\$7,462,274	\$4,414,903	\$11,877,177
Total	\$52,073,633	\$11,362,367	\$64,206,000

The changes in revenues are based on changes to our costs and our allocation of these costs to the customer groups. Other factors that impact on the allocation of costs relate to changes in quantities and individual customers profile changes as well as contractual changes.

Transmission changes relate to an increase in Transpower's connection charges and increased co-incident peak demands with Transpower's highest 100 peaks for the lower south island. ACOT payments to distributed generators also increased.

Distribution revenue changes reflect changes in operation and maintenance costs and an increased return.

Line Charge Revenue for Individual Customers

The line charge revenue for individual customers grouped by capacity is shown in the following table.

Consumer Capacity kVA	Number of Connections	Line Charge Revenue per Consumer Group	Average Line Charge
30	4	\$15,078	\$3,769
50	18	\$110,893	\$6,161
75	9	\$56,067	\$6,230
100	34	\$234,065	\$6,884
150	61	\$593,355	\$9,727
200	51	\$730,725	\$14,328
300	39	\$840,045	\$21,540
500	23	\$1,776,188	\$77,226
750	10	\$343,154	\$34,315
1000	6	\$517,676	\$86,279
1250	2	\$152,873	\$76,437
1500	4	\$294,709	\$73,677
1800	1	\$170,453	\$170,453
2000	2	\$325,607	\$162,803
3000	1	\$48,642	\$48,642
3500	1	\$351,640	\$351,640
4000	1	\$1,090,828	\$1,090,828
4500	1	\$12,382	\$12,382
5000	1	\$338,467	\$338,467
9000	1	\$1,305,566	\$1,305,566
10000	1	\$1,061,741	\$1,061,741
13000	1	\$489,502	\$489,502
30200	1	\$1,786,757	\$1,786,757

7.8.1 Line Charge Revenue for Group Customers

The line charge revenue for group customers is shown in the following table.

Consumer Capacity	Code	Number of Connections	Fixed Charge per Day	Variable Charge per Day kWh Purchases	Line Charge Revenue per Consumer Group
TPC Urban					
Residential Standard					
Small Residential (8kVA 1 Phase) - All Peak	UD08P	95	\$0.99550	\$0.09100	\$45,389
Small Residential (8kVA 1 Phase) - With Off Peak	UD08Q	183	\$0.65120	\$0.09100	\$77,998
Residential (15kVA 1 Phase) - All Peak	UD20P	1,727	\$1.79050	\$0.09100	\$1,719,529
Residential (15kVA 1 Phase) - With Off Peak	UD20Q	6,873	\$1.24910	\$0.09100	\$5,947,353
Residential Low Fixed Charge Option (15kVA 1 Phase) - All Peak	UDL20P	1,756	\$0.15000	\$0.14601	\$1,524,194
Residential Low Fixed Charge Option (15kVA 1 Phase) - With Off Peak	UDL20Q	5,714	\$0.10000	\$0.14601	\$4,326,684
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	70	\$0.15000	\$0.11739	\$31,775
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	152	\$0.10000	\$0.11739	\$63,230
General Single Phase					
Street Lights (1 Phase)	US001L	5,438	\$0.14460	\$0.09100	\$424,414
1 kVA 1 Phase - All Peak	US001P	27	\$0.70530	\$0.09100	\$16,742
8 kVA 1 Phase - All Peak	US008P	220	\$0.99530	\$0.09100	\$105,507
8 kVA 1 Phase - With Off Peak	US008Q	14	\$0.65100	\$0.09100	\$6,082
15 kVA 1 Phase - All Peak	US020P	375	\$1.79040	\$0.09100	\$372,988
15 kVA 1 Phase - With Off Peak	US020Q	102	\$1.24890	\$0.09100	\$87,837
General Three Phase					
15 kVA 3 Phase - All Peak	UT015P	112	\$1.76180	\$0.09100	\$87,425
15 kVA 3 Phase - With Off Peak	UT015Q	11	\$1.19780	\$0.09100	\$7,509
30 kVA 3 Phase - All Peak	UT030P	547	\$2.81510	\$0.09100	\$838,711
30 kVA 3 Phase - With Off Peak	UT030Q	100	\$1.88360	\$0.09100	\$132,173
50 kVA 3 Phase - All Peak	UT050P	317	\$5.68990	\$0.09100	\$1,091,405
50 kVA 3 Phase - With Off Peak	UT050Q	79	\$3.87400	\$0.09100	\$232,404
75 kVA 3 Phase - All Peak	UT075P	96	\$7.48060	\$0.09100	\$598,470
75 kVA 3 Phase - With Off Peak	UT075Q	19	\$5.04180	\$0.09100	\$100,919
100 kVA 3 Phase - All Peak	UT100P	20	\$10.99940	\$0.09100	\$198,803
100 kVA 3 Phase - With Off Peak	UT100Q	3	\$7.63960	\$0.09100	\$26,020

Consumer Capacity	Code	Number of Connections	Fixed Charge per Day	Variable Charge per Day kWh Purchases	Line Charge Revenue per Consumer Group
TPC Rural					
Residential					
Small Residential (8kVA 1 Phase) - All Peak	RD08P	111	\$1.12170	\$0.09100	\$83,780
Small Residential (8kVA 1 Phase) - With Off Peak	RD08Q	86	\$0.75980	\$0.09100	\$57,228
Residential (20kVA 1 Phase) - All Peak	RD20P	1,990	\$2.06180	\$0.09100	\$3,361,834
Residential (20kVA 1 Phase) - With Off Peak	RD20Q	5,319	\$1.41090	\$0.09100	\$7,801,737
Residential Low Fixed Charge Option (20kVA 1 Phase) - All Peak	RDL20P	936	\$0.15000	\$0.14601	\$1,349,755
Residential Low Fixed Charge Option (20kVA 1 Phase) - With Off Peak	RDL20Q	2,054	\$0.10000	\$0.14601	\$2,571,104
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	39	\$0.15000	\$0.11739	\$27,765
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	33	\$0.10000	\$0.11739	\$21,314
General Single Phase					
Street Lights (1 Phase)	RS001L	835	\$0.16280	\$0.09100	\$112,298
1 kVA 1 Phase - All Peak	RS001P	125	\$0.70530	\$0.09100	\$125,903
8 kVA 1 Phase - All Peak	RS008P	1,074	\$1.12170	\$0.09100	\$812,649
8 kVA 1 Phase - With Off Peak	RS008Q	29	\$0.75980	\$0.09100	\$19,521
20 kVA 1 Phase - All Peak	RS020P	1,618	\$2.06180	\$0.09100	\$2,734,157
20 kVA 1 Phase - With Off Peak	RS020Q	304	\$1.41090	\$0.09100	\$446,285
General Three Phase					
15 kVA 3 Phase - All Peak	RT015P	337	\$2.02000	\$0.09100	\$438,365
15 kVA 3 Phase - With Off Peak	RT015Q	12	\$1.37270	\$0.09100	\$13,605
30 kVA 3 Phase - All Peak	RT030P	1,841	\$3.22000	\$0.09100	\$4,850,741
30 kVA 3 Phase - With Off Peak	RT030Q	432	\$2.18730	\$0.09100	\$982,064
50 kVA 3 Phase - All Peak	RT050P	652	\$6.51000	\$0.09100	\$3,953,438
50 kVA 3 Phase - With Off Peak	RT050Q	513	\$4.45910	\$0.09100	\$2,673,683
75 kVA 3 Phase - All Peak	RT075P	94	\$8.98000	\$0.09100	\$1,032,780
75 kVA 3 Phase - With Off Peak	RT075Q	42	\$6.04780	\$0.09100	\$395,581
100 kVA 3 Phase - All Peak	RT100P	28	\$13.22000	\$0.09100	\$504,367
100 kVA 3 Phase - With Off Peak	RT100Q	9	\$9.16770	\$0.09100	\$138,867

8. HOW FIXED AND VARIABLE PRICES ARE SET

The total line charge is split into fixed charges and variable charges. The fixed/variable split is approximately 50:50.

For the installations with half hour metering the total line charge is halved to establish the fixed charge per annum. The variable charge is calculated as the remaining charge divided by the number of Day kWh in the customer energy profile to give a variable charge in dollars per Day kWh.

In the case of all other installations the variable charge is a standard charge of \$0.10279 per Day kWh. The fixed charge is then calculated as the difference between the total charge and the number of Day kWh for the installation times \$0.10279. This method of calculating the fixed charge accounts for the fact that some installations have negative fixed charges.

The Variable Charge of \$0.10279 per kWh of daytime sales equates to \$0.0910 per kWh of daytime purchases at the grid exit point.

For rural group customers with capacities less than 75kVA the fixed line charge is capped at 15% higher than the equivalent urban charge, for capacities greater than or equal to 75kVA the cap is set at 20%.

The application of fixed and variable charges is an application of the line charge to the end-use consumer. The objectives behind the fixed and variable charges are as follows:

- The 50:50 fixed: variable line charge is a compromise between a totally fixed charge that would benefit the large consumer within a load group, and a totally variable charge that would benefit the small consumer within a load group. Due to the uncertain and variable consumption levels of irrigation supplies and embedded networks, the line charges for these consumer groups are recovered by a 100% fixed line charge.
- As stated above, the fixed and variable charge allows the larger consumer in a load group to pay more which reflects to some extent their reduced diversity on the maximum demands seen at subtransmission and transmission level. Although the distribution network in the vicinity of the premises has to have enough capacity to supply the full capacity of the installation, the remainder of the network is designed to take into account the diversity between consumer demands. As a general rule, the less energy a consumer uses, the greater the diversity, hence the less capital investment required to supply. A totally fixed line charge does not take this into account so there would need to be more load sub-groups such as very small, small, medium, large and very large domestic consumers besides the existing All Peak and With Off Peak categories.
- It is important to note that the variable charge is on daytime energy only, so residential consumers with large night loads, such as storage or water heating, do not pay extra as this consumption is utilising network assets, the capacity of which is designed on the basis of and costs recovered by the peak load in daytime hours. This encourages better utilisation of the network and less capital investment.
- Retailers may directly pass through a totally fixed charge to consumers.
- It is a means whereby the line owner can share the risk of climatic variations and be responsive to changes in the local economy. It has been well received in the commercial

market that when a consumer has a production downturn or invests in energy conservation measures, there is an immediate response through a reduction in the variable charges.

- Consumers also have the opportunity to shift load to night time to receive immediate benefits.
- If a consumer is expanding its business, the variable charges mean that the line owner can receive some immediate extra revenue and it can also cushion the increase in line charges for the following year.
- The practical application of a variable component of the line charge for the Residential & General resulted in a necessity for a uniform variable charge and individual fixed charges for each segment. PowerNet uses the 'GXP billing' approach for the Residential and General customers, where, variable charges are based on electricity volumes measured at the Transpower grid exit points. Quantities are determined by the wholesale electricity market reconciliation process with adjustments for embedded networks and individual customer quantities.
- The variable charge component is based on daytime energy usage, i.e. between 07:00 and 23:00 hours. Hence, nighttime consumption does not contribute directly to the line charge account.

Loss Factors - the amount of energy delivered from the Transpower grid exit points through the distribution network to supply electricity to customers is greater than the amount of energy metered at the customers' premises. The difference between these volumes is called 'distribution losses'. TPCL charges electricity retailers based on the volumes of electricity metered at the grid exit point, this is called grid exit point (GXP) billing. To calculate the energy volumes at the GXP, the customer-metered volumes are multiplied by the loss factor. The electricity retailer therefore must multiply the GXP energy price that TPCL charges them by the loss factor to arrive at the customer energy price for distribution charges.

The loss factors for 2021-22 for residential and general customers are:

Winter Day	1.1350
Winter Night	1.0819
Summer Day	1.1256
Summer Night	1.0592
Winter	May – September
Summer	October – April
Day	7am – 11pm
Night	11pm – 7am

Loss factors for individual line charge customers are calculated on an individual basis.

9. NON-STANDARD CONTRACTS

PowerNet has a standard methodology for the determination of line charges for large customers, these line charges are charged to the customer via an interposed basis with the energy retailer.

In rare cases the standard methodology may not fully recover the return and operating costs of the large capital expenditure required in supplying these customers. These customers may also have enhanced security arrangements. In these situations where customers have significant capital contributions, and new investment agreements, robust commercial contracts incorporating prudential requirements are prudent to mitigate the risk of these assets being stranded. These contracts can also assist in avoiding uneconomic by-pass of the network when negotiating commercial arrangements and encourage growth within the network.

PowerNet contracts directly with four ICP's for the line services provided to their large industrial sites. This is essentially because the value of The PowerNet owned assets dedicated to the supply of these sites is significant (in the millions of dollars).

The manner in which the charges were set in these contracts reflect the term of the agreement, the incremental costs involved in supplying these customers, the customer owned assets, any additional maintenance costs and the use of upstream network assets consistent with the pricing methodology and pricing principals.

9.1 Line Services Interruptions

Customers on non-standard contracts can contract to have an N-1 security arrangement, this is where the customer has an alternative supply to their site from the substation should their normal supply route be interrupted, this can be an automatic or manual change over process. Should customers choose to have the additional security of supply, their line charges will reflect the additional cost.

Customers on non-standard contracts who have standard security arrangements are subject to the same restoration arrangements as customers on standard contracts.

9.1.1 *Target revenue from ICPs on Non-standard contracts*

The total target revenue from ICPs on Non-standard Contracts for the 2021/2022 year is \$5.819m.

10. DISTRIBUTED GENERATION

PowerNet's line pricing methodology and Part 6 of the Electricity Industry Participation Code 2010 applies to Distributed Generation connected to the electricity network for varying capacities.

In certain situations, it will be possible to connect Distributed Generation to the network downstream of the meter at a low capacity without modifications to the electricity network, in which case a standard off take Line Charge will be required to be paid to PowerNet.

In other situations there may be incremental costs incurred by PowerNet due to investigation and network modifications required. As with all customers seeking connection to the PowerNet electricity network where incremental costs are incurred an upfront capital contribution may be required to be paid.

For large capacity Distributed Generation options may exist to meet incremental costs either through payment of an upfront capital contribution and /or entering into a New Investment Agreement and / or Delivery Services Agreement with appropriate prudential security. A normal line charge will also apply according to the installation connection capacity of the Distributed Generators off take.

10.1 Financial Transactions with Distributed Generators

An application fee based on the capacity of connection is payable by the party making application to connect Distributed Generation to the network.

Financial transactions that can occur when Distributed Generation is connected to The Power Company electricity network are:

Transaction Types	Capacity
Normal off take Line Charge (paid by the Distributed Generator to PowerNet)	All capacities
Capital Contribution (paid by the Distributed Generator to PowerNet)	All capacities where incremental costs are incurred by the network
New Investment Agreement charge (paid by the Distributed Generator to PowerNet)	For capacities > 500kW
Recovery of High Voltage Direct Current (HVDC) Transmission Charges (paid by the Distributed Generator to PowerNet)	Where the Distributed Generation is injected into the Transmission Network
Avoided Transmission Charges (paid by PowerNet to the Distributed Generator)	Where the Distributed Generation reduces Interconnection Charges at peak times

10.2 Capital Contributions

Capital Contributions are calculated in accordance with the published Capital Contribution policy.

10.3 New Investment Agreement and / or Delivery Services Agreement Charges

New Investment Agreement and / or Delivery Services Agreement charges are negotiated with each customer and depend on factors including length of contract, asset lives, sunk costs, recoverable costs, maintenance costs, return on investment and prudential security provided.

10.4 HVDC Transmission Charges

HVDC Transmission Charges are recovered from Distributed Generators based on their share of the injection demand and energy into the Transmission Network at the grid exit point they inject into.

10.5 Avoided Transmission Charge revenue

Avoided Transmission Charge revenue is allocated to Distributed Generators based on their generation demand injected into the network coincident with Transpower's top 100 demand peaks for the lower South Island, under the Electricity Authority Transmission Pricing Methodology (TPM), for the period 1 September to 31 August.

The Transpower interconnection charge is then applied over the period 1 April to 31 March. This lag can result in a one-year delay in the allocation of revenue to Distributed Generators.

The revenue paid to Distributed Generators is based on the annual interconnection rate set by Transpower under the TPM. The Avoided Transmission Charge revenue allocation to Distributed Generators is subject to change in the TPM. Currently there are two Distributed Generators receiving this payment.

Avoided Transmission Charge payments are only paid to Distributed Generators who the Electricity Authority determines are necessary to enable Transpower to meet the grid reliability standards under Schedule 6.4 of the Electricity Industry Participation Code (Code) or have a connection agreement with The Power Company Limited for such payments. Distributed Generators must also be submitting full half hour metered export consumption data to the network on a monthly basis to be eligible for payments.

10.6 Energy Reporting

Where distributed generation is connected to the distributor's network, kWh being exported onto the distributor's network must be submitted to the distributor.

The format the data is submitted must match the format of the ICPs other submitted data, e.g. either EIEP1 or EIEP3 format.

For clarity, export onto the distributor's network, and consumption off the distributor's network, are to be reported separately under the relevant price options (i.e. they should not be netted off).

The introduction of zero-price export price will ensure that retailers provide export kWh volumes for all small-scale DG connections (ie, solar).

11. PRICING STRATEGY

Given that TPCL's pricing to Individual Customers is highly cost reflective, the focus for future pricing changes is in the structure of pricing for residential and general customers. Two issues for further development are: (1) how to improve time-of-day signals regarding peak times on the network that are likely to drive future investment; and (2) how to reduce distortions from the recovery of sunk costs.

TPCL has made significant progress on the first of these issues by examining TOU price implementation. PowerNet has engaged in significant work streams to enable TOU pricing including: billing system changes; engagement with retailers seeking support and feedback on best practice to implementing a change to TOU and how the necessary data will be provided; and preparing TOU pricing models along with comprehensive customer impact analysis. We have introduced new loss codes to identify low user energy at a GXP level to aid the analysis.

A recommendation to the TPCL Board of Directors has been approved to implement a combination of installed capacity and TOU pricing for residential and general consumers, subject to the Government announcing the removal or phase out of the Low User regulations. The change in consumers' lines charges as a result of TOU will depend on usage profiles, but generally TOU implementation will have the least bill impact of available price reform options.

TOU pricing provides an incentive for consumers to shift energy usage out of peak periods, which can avoid or defer costly network upgrades. New uses of electricity networks such as charging electric vehicles (EVs) mean that it will be even more important to have meaningful peak pricing signals. Ensuring that the supporting price structures, such as TOU, are in place before EV uptake is widespread will mean that pricing will be up and running and effective when it is needed, allowing time for consumer education and for networks to understand consumer preferences and price responsiveness.

As a significant proportion of TPC's costs are essentially fixed, it would not be efficient for all costs to be recovered through charges that relate to energy usage. As a result, a portion of our costs is recovered from daily charges. TPC's daily charges vary according to a connection's capacity (installed capacity) and availability of controlled load.

APPENDIX 1: COMMERCE COMMISSION INFORMATION DISCLOSURE REQUIREMENTS

In the below table, we describe the relevant sections of this methodology where we demonstrate compliance with the key sections of the Commerce Commission's information disclosure requirements:

IDD Section	Key sections of methodology demonstrating compliance
2.4.1 (1)	Sections 3, 5-9
2.4.1 (2)	Section 3.2
2.4.1 (3)	Sections 9 & 10
2.4.1 (4)	Section 3.3
2.4.2	No changes to the methodology
2.4.3 (1)	Section 6
2.4.3 (2)	Section 4
2.4.3 (3)	Section 5
2.4.3 (4)	Section 5
2.4.3 (5) (a) , (b)	Section 3
2.4.3 (6)	Section 3.2
2.4.3 (7)	Sections 6 & 7
2.4.3 (8)	Appendix 2
2.4.4 (1-3)	Section 11
2.4.5 (1) (a) to (c)	Section 9
2.4.5 (2) (a) & (b)	Section 9
2.4.5 (3) (a) & (b)	Section 10

APPENDIX 2: LINE CHARGE TABLES

Line Charge Breakdown for Individual Customers

ICP Number	Contract Capacity kVA	Trans Power Charge	Subtransmission Charge	Distribution Charge	Overhead Charge	Total Line Charge	Fixed Charge per annum	Variable Charge per Day MWh
800105TP-315	10,000	\$534,661	\$522,389	\$4,556	\$134.42	\$1,061,741	\$530,871	\$18.97
800107TP-390	200	\$7,720	\$7,566	\$3,089	\$134.42	\$18,510	\$9,255	\$14.64
800116TP-578	3,000	\$24,614	\$22,852	\$1,042	\$134.42	\$48,642	\$24,321	\$26.14
800117TP-93D	750	\$91	\$72	\$260	\$134.42	\$558	\$558	\$0.00
8001275TP-A4C	75	\$4,505	\$8,557	\$1,536	\$134.42	\$14,733	\$7,366	\$36.12
800127TP-EC5	300	\$2,725	\$2,317	\$2,906	\$134.42	\$8,083	\$4,041	\$30.97
800128TP-11B	100	\$9	\$109	\$2,399	\$134.42	\$2,652	\$2,652	\$0.00
800134TP-8A8	5,000	\$149,612	\$185,957	\$2,763	\$134.42	\$338,467	\$169,233	\$21.86
8001365TP-9E5	750	\$35,463	\$27,164	\$354	\$134.42	\$63,115	\$31,558	\$17.44
800139TP-7F3	300	\$8,542	\$5,298	\$2,656	\$134.42	\$16,630	\$8,315	\$37.84
118447TP-ECC	150	\$4,294	\$3,606	\$2,414	\$134.42	\$10,448	(\$215)	\$91.00
800146TP-D70	30,200	\$1,416,348	\$370,409	\$0	\$0.00	\$1,786,757	\$0	\$0.00
6375156TP-218	200	\$753	\$2,394	\$3,535	\$134.42	\$6,816	\$3,408	\$67.87
615297TP-AA3	50	\$2,181	\$2,466	\$1,791	\$134.42	\$6,573	\$3,286	\$44.19
502013TP-4D1	200	\$3,015	\$1,115	\$2,434	\$134.42	\$6,698	\$2,131	\$91.00
4031015TP-9AA	200	\$17,932	\$44,605	\$1,516	\$134.42	\$64,187	\$64,187	\$0.00
382896TP-29B	200	\$306	\$5,522	\$3,218	\$134.42	\$9,180	\$9,180	\$0.00
800186TP-A9F	1,250	\$21,263	\$35,279	\$13,853	\$134.42	\$70,530	\$35,265	\$26.55
244381TP-3EE	75	\$77	\$471	\$1,674	\$134.42	\$2,357	\$2,357	\$0.00

1419275TP-57D	100	\$1,783	\$3,583	\$2,688	\$134.42	\$8,188	\$4,796	\$91.00
1819183TP-528	150	\$1,405	\$265	\$4,979	\$134.42	\$6,784	\$3,392	\$77.73
333040TP-1F2	200	\$635	\$11,489	\$3,723	\$134.42	\$15,981	\$15,981	\$0.00
482021TP-8E5	150	\$7,202	\$6,405	\$2,716	\$134.42	\$16,457	\$8,229	\$29.89
643886TP-0F5	200	\$7,187	\$5,813	\$2,727	\$134.42	\$15,862	\$7,931	\$95.26
569933TP-D35	300	\$11,729	\$5,305	\$3,254	\$134.42	\$20,422	\$10,211	\$18.52
329419TP-D0B	300	\$739	\$1,369	\$4,157	\$134.42	\$6,399	\$3,199	\$77.19
100109TP-F16	100	\$3,213	\$5,767	\$3,386	\$134.42	\$12,501	\$6,250	\$64.23
800158TP-446	500	\$0	\$0	\$0	\$0.00	\$0	\$0	\$0.00
8001315TP-CB8	1,800	\$78,436	\$71,511	\$20,371	\$134.42	\$170,453	\$85,226	\$22.40
8001316TP-078	1,500	\$51,422	\$19,788	\$24,743	\$134.42	\$96,087	\$48,044	\$31.42
391396TP-B94	100	\$1,529	\$2,394	\$3,414	\$134.42	\$7,472	\$2,636	\$91.00
437074TP-48B	30	\$946	\$2,587	\$448	\$134.42	\$4,115	\$2,057	\$66.98
437078TP-795	30	\$1,852	\$1,147	\$529	\$134.42	\$3,662	\$1,831	\$26.18
800155TP-B1D	300	\$8,512	\$1,936	\$5,421	\$134.42	\$16,004	\$8,002	\$17.62
1421365TP-AF8	150	\$3,326	\$5,772	\$4,127	\$134.42	\$13,359	\$13,359	\$0.00
338414TP-B11	100	\$795	\$632	\$3,664	\$134.42	\$5,226	\$2,613	\$85.95
5020273TP-22A	300	\$17,580	\$4,143	\$2,622	\$134.42	\$24,479	\$12,240	\$22.06
482027TP-96A	200	\$1,589	\$1,930	\$2,944	\$134.42	\$6,597	\$3,299	\$29.25
105192TP-905	300	\$10,562	\$8,752	\$3,684	\$134.42	\$23,133	\$11,566	\$105.15
185015TP-7A4	200	\$1,073	\$469	\$3,059	\$134.42	\$4,735	\$2,367	\$54.10
543645TP-165	75	\$1,358	\$2,206	\$1,566	\$134.42	\$5,264	(\$3,092)	\$91.00
5678995TP-502	200	\$6,155	\$2,889	\$2,380	\$134.42	\$11,558	\$5,779	\$26.05
800133TP-562	4,500	\$6,550	\$4,039	\$1,659	\$134.42	\$12,382	\$6,191	\$98.51
3193295TP-E03	200	\$178	\$3,680	\$3,769	\$134.42	\$7,761	\$3,881	\$57.21
141326TP-DAF	200	\$8,004	\$13,270	\$3,225	\$134.42	\$24,634	\$12,317	\$27.05
800163TP-D6A	300	\$5,414	\$8,115	\$3,938	\$134.42	\$17,602	\$8,801	\$80.24

444030TP-F7D	200	\$7,986	\$6,025	\$2,909	\$134.42	\$17,054	\$8,527	\$36.07
448899TP-2BE	100	\$723	\$1,290	\$1,705	\$134.42	\$3,853	\$2,649	\$91.00
427512TP-710	150	\$1,271	\$1,310	\$2,783	\$134.42	\$5,499	\$2,749	\$99.03
549615TP-72D	300	\$13,749	\$6,477	\$3,080	\$134.42	\$23,441	\$11,721	\$24.20
333049TP-FA3	150	\$929	\$10,745	\$3,178	\$134.42	\$14,986	\$14,986	\$0.00
3330513TP-914	150	\$425	\$8,668	\$3,276	\$134.42	\$12,503	\$12,503	\$0.00
240526TP-6BD	150	\$1,402	\$545	\$4,935	\$134.42	\$7,016	(\$164)	\$91.00
8001505TP-013	300	\$5,784	\$2,391	\$7,006	\$134.42	\$15,316	(\$21,675)	\$91.00
1421599TP-FF7	200	\$1,065	\$6,585	\$4,587	\$134.42	\$12,371	\$6,186	\$62.47
8001801TP-411	1,000	\$65,019	\$51,034	\$8,330	\$134.42	\$124,518	\$62,259	\$26.67
8001815TP-FB6	1,000	\$77,253	\$50,011	\$8,330	\$134.42	\$135,729	\$70,308	\$42.89
800181TP-755	500	\$19,211	\$11,736	\$5,313	\$134.42	\$36,395	\$18,197	\$46.53
410873TP-4E1	200	\$4,639	\$2,401	\$3,417	\$134.42	\$10,591	\$5,296	\$33.02
612680TP-5A5	100	\$3,107	\$2,835	\$3,549	\$134.42	\$9,626	\$4,813	\$37.91
175065TP-765	75	\$1,642	\$1,258	\$1,978	\$134.42	\$5,012	\$2,506	\$49.13
4004001TP-401	150	\$835	\$3,008	\$2,491	\$134.42	\$6,469	\$510	\$91.00
5290993TP-D4F	150	\$2,139	\$1,326	\$2,226	\$134.42	\$5,825	(\$2,377)	\$91.00
166730TP-721	150	\$673	\$551	\$1,906	\$134.42	\$3,264	\$1,632	\$197.82
632751TP-46B	150	\$1,956	\$1,381	\$2,592	\$134.42	\$6,063	(\$1,236)	\$91.00
318907TP-1B9	100	\$169	\$2,155	\$2,648	\$134.42	\$5,106	\$5,106	\$0.00
3193735TP-319	200	\$995	\$16,779	\$3,287	\$134.42	\$21,197	\$21,197	\$0.00
319398TP-A2A	75	\$121	\$1,442	\$1,705	\$134.42	\$3,402	\$3,402	\$0.00
3336978TP-1FC	100	\$248	\$2,698	\$3,504	\$134.42	\$6,585	\$6,585	\$0.00
141806TP-3F4	150	\$13	\$466	\$2,732	\$134.42	\$3,345	\$3,345	\$0.00
313732TP-2E5	200	\$5,785	\$13,061	\$3,005	\$134.42	\$21,985	(\$4,897)	\$91.00
249946TP-9E1	150	\$2,502	\$3,257	\$2,582	\$134.42	\$8,476	\$4,238	\$24.39
249967TP-8F1	100	\$43	\$425	\$2,482	\$134.42	\$3,086	\$3,086	\$0.00

249945TP-521	150	\$2,406	\$3,120	\$2,694	\$134.42	\$8,353	\$4,177	\$25.32
362484TP-9C2	200	\$7,642	\$7,487	\$1,702	\$134.42	\$16,965	\$8,483	\$25.87
404955TP-F5E	100	\$284	\$3,553	\$2,054	\$134.42	\$6,025	\$3,012	\$33.97
405350TP-9BB	150	\$2,826	\$10,705	\$2,411	\$134.42	\$16,076	(\$5,707)	\$91.00
405508TP-5A1	200	\$3,495	\$13,668	\$2,927	\$134.42	\$20,225	(\$9,506)	\$91.00
209549TP-1A6	100	\$150	\$1,744	\$2,991	\$134.42	\$5,019	\$2,510	\$69.37
800153TP-A92	500	\$20,728	\$5,660	\$8,006	\$134.42	\$34,528	\$17,264	\$28.90
116195TP-ECE	150	\$4,551	\$1,905	\$4,040	\$134.42	\$10,630	(\$7,694)	\$91.00
172559TP-2E6	150	\$564	\$4,165	\$4,373	\$134.42	\$9,236	\$6,281	\$91.00
162713TP-034	150	\$4,041	\$7,590	\$6,861	\$134.42	\$18,627	\$8,550	\$91.00
5791985TP-A1E	150	\$4,135	\$3,031	\$2,442	\$134.42	\$9,742	\$1,976	\$91.00
690202TP-00E	50	\$3,099	\$2,830	\$664	\$134.42	\$6,727	\$3,364	\$29.91
6902235TP-F5B	50	\$193	\$269	\$997	\$134.42	\$1,594	\$797	\$123.61
690247TP-FE4	50	\$4,304	\$5,365	\$1,552	\$134.42	\$11,356	\$5,678	\$24.71
690237TP-AB9	50	\$9,592	\$15,425	\$1,520	\$134.42	\$26,671	\$13,336	\$23.11
318943TP-216	200	\$226	\$6,868	\$3,162	\$134.42	\$10,391	\$5,196	\$78.29
243366TP-0FE	200	\$1,020	\$1,225	\$4,721	\$134.42	\$7,100	\$3,550	\$55.84
141848TP-2CA	100	\$94	\$284	\$3,018	\$134.42	\$3,531	\$1,766	\$41.33
3312316TP-8D0	200	\$2,197	\$13,781	\$4,261	\$134.42	\$20,373	\$13,504	\$91.00
166724TP-C86	500	\$39,996	\$9,208	\$3,726	\$134.42	\$53,064	\$26,532	\$15.34
166727TP-046	200	\$1,682	\$1,090	\$2,498	\$134.42	\$5,405	\$2,702	\$71.32
241126TP-B1C	150	\$4,086	\$891	\$3,730	\$134.42	\$8,841	\$4,421	\$45.56
690224TP-CD4	150	\$1,804	\$387	\$2,222	\$134.42	\$4,548	\$2,274	\$35.83
6902265TP-753	100	\$2,275	\$1,673	\$2,112	\$134.42	\$6,195	\$3,097	\$36.61
690249TP-C7F	200	\$675	\$144	\$2,527	\$134.42	\$3,481	\$1,740	\$47.44
250351TP-0CD	300	\$10,840	\$2,664	\$4,991	\$134.42	\$18,629	\$9,315	\$28.56
177096TP-8F2	200	\$8,612	\$2,444	\$3,237	\$134.42	\$14,427	\$7,214	\$30.39

800151TP-A17	100	\$526	\$807	\$2,423	\$134.42	\$3,891	\$634	\$91.00
240375TP-473	150	\$5,045	\$1,701	\$2,915	\$134.42	\$9,796	(\$8,643)	\$91.00
517704TP-375	150	\$3,954	\$2,962	\$2,502	\$134.42	\$9,553	\$1,614	\$91.00
637250TP-A0B	750	\$2,448	\$6,111	\$6,135	\$134.42	\$14,827	\$7,414	\$20.89
3193724TP-5F1	300	\$693	\$14,174	\$4,093	\$134.42	\$19,095	\$19,095	\$0.00
162358TP-044	150	\$43	\$326	\$3,015	\$134.42	\$3,519	\$1,759	\$49.87
141929TP-87B	200	\$3,037	\$6,283	\$3,493	\$134.42	\$12,948	\$1,148	\$91.00
6222490TP-205	500	\$1,020	\$1,974	\$6,410	\$134.42	\$9,539	\$4,769	\$16.93
482074TP-DA2	200	\$4,023	\$3,827	\$3,298	\$134.42	\$11,283	\$5,641	\$49.42
8001245TP-DB4	500	\$13,431	\$23,229	\$4,938	\$134.42	\$41,732	\$20,866	\$41.49
8001236TP-429	150	\$1,801	\$554	\$2,923	\$134.42	\$5,412	\$2,706	\$36.38
8001876TP-C86	300	\$3,232	\$1,766	\$4,224	\$134.42	\$9,356	(\$2,712)	\$91.00
8001235TP-8E9	200	\$4,613	\$2,976	\$3,413	\$134.42	\$11,137	\$7,437	\$91.00
625837TP-99A	500	\$12,321	\$5,139	\$3,514	\$134.42	\$21,109	\$10,554	\$54.07
555205TP-2E0	100	\$3,298	\$4,575	\$2,349	\$134.42	\$10,356	\$5,178	\$22.18
556467TP-973	1,000	\$11,235	\$10,630	\$4,721	\$134.42	\$26,720	\$13,360	\$11.07
569640TP-BA7	300	\$2,556	\$2,296	\$3,312	\$134.42	\$8,298	\$4,149	\$51.65
800103TP-29A	300	\$8,264	\$5,183	\$2,800	\$134.42	\$16,382	\$8,191	\$23.46
800114TP-5FD	750	\$25,534	\$24,008	\$5,089	\$134.42	\$54,765	\$27,383	\$20.20
521000TP-991	50	\$1,318	\$1,580	\$713	\$134.42	\$3,746	\$1,873	\$23.89
5210031TP-3F9	100	\$2,990	\$4,017	\$1,830	\$134.42	\$8,971	\$4,486	\$25.62
564570TP-57C	50	\$677	\$279	\$641	\$134.42	\$1,731	\$866	\$35.26
5791875TP-30D	200	\$7,242	\$3,457	\$2,587	\$134.42	\$13,420	\$6,710	\$24.27
5791016TP-030	50	\$1,713	\$1,900	\$596	\$134.42	\$4,343	\$2,172	\$24.39
800130TP-9A2	300	\$25,290	\$5,916	\$2,768	\$134.42	\$34,108	\$17,054	\$15.93
181975TP-7DD	150	\$6,462	\$1,953	\$3,110	\$134.42	\$11,660	\$5,830	\$17.76
4182832TP-1BD	200	\$6,607	\$24,250	\$3,300	\$134.42	\$34,292	\$5,840	\$91.00

4182836TP-0B7	150	\$1,489	\$5,555	\$3,046	\$134.42	\$10,224	\$4,848	\$91.00
418284TP-E36	500	\$17,047	\$30,377	\$5,730	\$134.42	\$53,289	\$26,644	\$105.04
176257TP-8FF	200	\$598	\$1,136	\$2,314	\$134.42	\$4,182	\$2,091	\$35.44
800164TP-0A0	300	\$13,799	\$24,221	\$3,922	\$134.42	\$42,076	\$21,038	\$54.66
319736TP-DAF	200	\$256	\$4,167	\$4,424	\$134.42	\$8,980	\$8,980	\$0.00
180710TP-2C9	150	\$1,789	\$591	\$2,403	\$134.42	\$4,918	(\$520)	\$91.00
8001695TP-CF7	750	\$29,931	\$18,122	\$3,708	\$134.42	\$51,895	\$25,948	\$15.95
208362TP-581	150	\$808	\$3,513	\$2,764	\$134.42	\$7,219	\$2,994	\$91.00
800147TP-135	150	\$9,044	\$2,464	\$2,146	\$134.42	\$13,788	\$6,894	\$20.48
800150TP-652	100	\$2,979	\$5,095	\$2,400	\$134.42	\$10,608	\$1,388	\$91.00
142817TP-7FC	150	\$590	\$466	\$2,623	\$134.42	\$3,814	\$1,591	\$91.00
175412TP-3F3	4,000	\$224,900	\$84,976	\$605,639	\$134.42	\$915,650	\$0	\$0.00
181750TP-1CC	200	\$7,914	\$1,941	\$3,161	\$134.42	\$13,151	\$6,575	\$17.58
6204314TP-54A	100	\$1,972	\$2,878	\$2,319	\$134.42	\$7,303	(\$1,961)	\$91.00
589190TP-49A	150	\$4,295	\$2,684	\$2,509	\$134.42	\$9,622	\$4,811	\$34.80
116167TP-E5C	150	\$1,648	\$340	\$2,295	\$134.42	\$4,417	\$2,209	\$49.74
118468TP-C47	100	\$876	\$1,405	\$1,958	\$134.42	\$4,373	(\$92)	\$91.00
1015827TP-5C5	150	\$4,234	\$8,732	\$3,122	\$134.42	\$16,221	\$6,998	\$91.00
190101TP-AC6	150	\$1,025	\$359	\$3,447	\$134.42	\$4,965	(\$931)	\$91.00
800169TP-FFB	150	\$3,848	\$2,004	\$2,284	\$134.42	\$8,270	\$4,135	\$19.03
400440TP-B34	100	\$989	\$1,537	\$1,766	\$134.42	\$4,426	(\$1,656)	\$91.00
364828TP-B0F	150	\$326	\$281	\$3,043	\$134.42	\$3,784	\$1,892	\$99.84
192544TP-A6D	300	\$26,213	\$7,629	\$4,819	\$134.42	\$38,795	\$19,398	\$17.57
426599TP-D2E	500	\$19,786	\$12,185	\$5,329	\$134.42	\$37,434	\$18,717	\$23.82
192519TP-D3E	150	\$4,083	\$1,414	\$3,265	\$134.42	\$8,897	(\$7)	\$91.00
1186118TP-5A2	200	\$4,034	\$2,773	\$2,406	\$134.42	\$9,348	\$4,674	\$33.36
1186119TP-9E7	300	\$9,681	\$7,953	\$2,713	\$134.42	\$20,482	(\$2,152)	\$91.00

118615TP-C46	200	\$4,476	\$3,653	\$2,406	\$134.42	\$10,670	(\$3,352)	\$91.00
6204404TP-0E5	1,000	\$42,488	\$24,923	\$4,441	\$134.42	\$71,987	\$35,993	\$23.55
6204405TP-CA0	300	\$12,752	\$5,736	\$2,637	\$134.42	\$21,260	\$10,630	\$27.04
6204407TP-C25	500	\$19,160	\$10,412	\$3,368	\$134.42	\$33,074	\$16,537	\$20.97
6204408TP-3FB	750	\$47,406	\$26,309	\$3,976	\$134.42	\$77,825	\$38,912	\$19.15
620456TP-103	750	\$13,421	\$6,323	\$3,979	\$134.42	\$23,858	\$11,929	\$27.74
8001320TP-60F	300	\$3,219	\$1,220	\$2,637	\$134.42	\$7,211	\$3,606	\$38.38
620455TP-DC3	300	\$7,833	\$3,679	\$2,702	\$134.42	\$14,349	\$7,175	\$35.15
6204406TP-060	1,500	\$22,404	\$11,600	\$12,764	\$134.42	\$46,903	\$23,451	\$33.11
62044065TP-1CD	1,000	\$38,994	\$19,878	\$4,722	\$134.42	\$63,729	\$31,864	\$24.54
176630TP-6C4	150	\$5,586	\$1,240	\$2,392	\$134.42	\$9,352	\$4,676	\$19.68
186250TP-0A9	750	\$8,692	\$3,541	\$5,625	\$134.42	\$17,993	\$8,997	\$14.65
204735TP-7C2	100	\$3,170	\$4,289	\$4,435	\$134.42	\$12,028	\$6,014	\$61.45
657599TP-EEF	200	\$8,713	\$2,186	\$324	\$134.42	\$11,358	\$11,358	\$0.00
525441TP-DF0	150	\$2,294	\$1,372	\$2,353	\$134.42	\$6,155	\$3,467	\$91.00
633604TP-988	200	\$1,452	\$3,773	\$2,583	\$134.42	\$7,943	\$3,971	\$23.71
1164012TP-00A	500	\$20,720	\$6,019	\$3,457	\$134.42	\$30,330	\$15,165	\$24.99
530906TP-856	300	\$10,984	\$12,677	\$2,643	\$134.42	\$26,438	\$13,219	\$36.00
5552033TP-EA2	9,000	\$233,941	\$537,893	\$58,213	\$134.42	\$830,182	\$0	\$0.00
5552038TP-076	13,000	\$281,701	\$207,801	\$0	\$0.00	\$489,502	\$0	\$0.00
5672985TP-1EF	100	\$1,640	\$2,998	\$1,537	\$134.42	\$6,309	\$1,696	\$91.00
615269TP-92F	300	\$15,519	\$12,655	\$3,934	\$134.42	\$32,242	\$16,121	\$61.87
543979TP-A8C	50	\$6,748	\$402	\$0	\$134.42	\$7,285	\$3,642	\$158.53
1819727TP-A3B	100	\$1,317	\$2,810	\$1,839	\$134.42	\$6,099	\$3,050	\$30.01
50150092TP-CF2	75	\$2,411	\$2,027	\$1,471	\$134.42	\$6,044	\$3,022	\$45.62
50150100TP-A94	150	\$4,922	\$1,060	\$2,284	\$134.42	\$8,399	\$4,200	\$23.51
800152TP-6D7	1,250	\$61,474	\$18,832	\$1,902	\$134.42	\$82,343	\$41,171	\$14.93

800170TP-B07	750	\$116	\$599	\$4,179	\$134.42	\$5,028	\$2,514	\$494.73
182010TP-E8B	100	\$5,561	\$6,216	\$2,428	\$134.42	\$14,339	\$7,169	\$38.14
332490TP-111	200	\$354	\$9,708	\$3,911	\$134.42	\$14,108	\$7,054	\$150.11
8001045TP-7B3	500	\$19,311	\$9,861	\$3,728	\$134.42	\$33,033	\$16,517	\$30.31
800104TP-F50	1,000	\$58,773	\$30,958	\$5,128	\$134.42	\$94,993	\$47,497	\$18.35
5791226TP-DCF	300	\$10,535	\$8,432	\$2,983	\$134.42	\$22,085	\$11,042	\$19.75
6438465TP-89B	500	\$16,921	\$15,321	\$3,951	\$134.42	\$36,327	\$18,163	\$33.37
643847TP-B5F	500	\$6,355	\$5,103	\$3,951	\$134.42	\$15,543	\$7,772	\$39.88
6438485TP-221	200	\$1,731	\$2,257	\$2,588	\$134.42	\$6,711	(\$4,506)	\$91.00
800132TP-927	100	\$3,523	\$3,672	\$3,075	\$134.42	\$10,404	\$5,202	\$28.33
8001305TP-615	30	\$1,003	\$1,649	\$1,629	\$134.42	\$4,416	(\$598)	\$91.00
8001708TP-54F	100	\$976	\$1,737	\$2,966	\$134.42	\$5,814	\$4,316	\$91.00
3149145TP-253	300	\$3,949	\$30,354	\$4,740	\$134.42	\$39,178	\$19,589	\$115.23
8001312TP-172	150	\$12,421	\$6,499	\$2,352	\$134.42	\$21,406	\$10,703	\$24.02
800113TP-837	100	\$1,255	\$1,910	\$1,718	\$134.42	\$5,018	(\$3,232)	\$91.00
331280TP-F5A	200	\$777	\$24,314	\$4,189	\$134.42	\$29,416	\$29,416	\$0.00
579184TP-AA1	100	\$3,349	\$4,727	\$1,287	\$134.42	\$9,497	\$4,749	\$33.73
568266TP-ADC	500	\$22,713	\$14,214	\$3,698	\$134.42	\$40,759	\$20,379	\$20.26
5682737TP-04F	300	\$4,995	\$2,034	\$2,835	\$134.42	\$9,998	\$4,999	\$37.09
5684239TP-311	150	\$4,979	\$1,599	\$1,930	\$134.42	\$8,642	\$4,321	\$33.12
396517TP-0FD	50	\$286	\$430	\$1,725	\$134.42	\$2,575	\$1,138	\$91.00
482070TP-CA8	300	\$6,891	\$8,379	\$4,051	\$134.42	\$19,456	\$1,197	\$91.00
308479TP-A96	200	\$1,466	\$3,051	\$9,705	\$134.42	\$14,356	\$10,128	\$91.00
300360TP-C68	75	\$241	\$420	\$692	\$134.42	\$1,488	\$1,282	\$91.00
208740TP-450	300	\$7,150	\$18,219	\$3,515	\$134.42	\$29,018	\$14,509	\$38.89
569639TP-0AB	150	\$5,044	\$2,810	\$2,236	\$134.42	\$10,224	\$5,112	\$38.52
319705TP-697	150	\$481	\$9,249	\$3,262	\$134.42	\$13,127	\$13,127	\$0.00

617670TP-292	50	\$2,546	\$1,196	\$1,739	\$134.42	\$5,615	\$2,808	\$107.99
112267TP-BDF	150	\$1,684	\$1,408	\$2,463	\$134.42	\$5,689	(\$371)	\$91.00
141924TP-720	200	\$8	\$80	\$3,393	\$134.42	\$3,616	\$1,808	\$656.56
192534TP-F30	150	\$2,151	\$440	\$2,779	\$134.42	\$5,504	\$2,752	\$33.31
800171TP-742	1,500	\$24,071	\$54,341	\$734	\$134.42	\$79,280	\$39,640	\$58.63
1101999TP-7E5	750	\$14,915	\$9,070	\$9,171	\$134.42	\$33,290	\$16,645	\$37.76
632798TP-DD5	100	\$904	\$5,071	\$2,383	\$134.42	\$8,491	\$4,246	\$39.05
634528TP-0A0	30	\$690	\$531	\$1,528	\$134.42	\$2,884	\$1,442	\$48.02
5552049TP-96E	300	\$10,227	\$15,017	\$3,734	\$134.42	\$29,113	\$14,556	\$23.59
5552055TP-ODD	3,500	\$117,548	\$219,602	\$14,356	\$134.42	\$351,640	\$351,640	\$0.00
623482TP-FAB	150	\$7,179	\$4,611	\$3,153	\$134.42	\$15,078	(\$17,405)	\$91.00
800121TP-F4A	2,000	\$84,252	\$32,826	\$7,431	\$134.42	\$124,643	\$62,322	\$15.49
184621TP-6F0	50	\$1,011	\$1,685	\$613	\$134.42	\$3,444	\$185	\$91.00
800125TP-E40	2,000	\$116,559	\$54,697	\$29,572	\$134.42	\$200,963	\$100,482	\$26.13
1101005TP-215	500	\$196	\$318	\$5,891	\$134.42	\$6,540	\$6,540	\$0.00
8001011TP-EB1	50	\$1,920	\$1,978	\$1,534	\$134.42	\$5,567	\$2,783	\$50.36
400495TP-B39	200	\$5,260	\$15,537	\$3,664	\$134.42	\$24,596	\$12,298	\$43.39
800112TP-472	100	\$2,388	\$3,205	\$2,501	\$134.42	\$8,228	\$4,114	\$30.13
434220TP-56E	50	\$1,875	\$1,891	\$1,507	\$134.42	\$5,408	\$2,704	\$31.86
416103TP-D75	50	\$1,445	\$1,457	\$1,812	\$134.42	\$4,849	\$2,424	\$33.70
530380TP-699	50	\$3,200	\$3,500	\$413	\$134.42	\$7,248	\$3,624	\$22.03
410812TP-754	50	\$1,638	\$1,807	\$870	\$134.42	\$4,450	\$2,225	\$25.58
615606TP-500	50	\$32	\$156	\$1,389	\$134.42	\$1,711	\$856	\$411.08
5791154TP-B14	150	\$5,807	\$3,917	\$2,080	\$134.42	\$11,939	(\$12,167)	\$91.00
656382TP-D30	100	\$77	\$143	\$2,347	\$134.42	\$2,702	\$2,627	\$91.00
800131TP-5E7	300	\$4,617	\$2,204	\$2,530	\$134.42	\$9,485	\$4,743	\$29.31
520373TP-2AF	1,500	\$31,442	\$34,788	\$6,075	\$134.42	\$72,439	\$36,220	\$58.50

184687TP-F60	150	\$4,258	\$1,346	\$2,364	\$134.42	\$8,102	(\$3,887)	\$91.00
522002TP-BF4	300	\$11,817	\$3,741	\$3,177	\$134.42	\$18,869	\$9,435	\$28.01
150925TP-224	150	\$10,865	\$15,561	\$2,679	\$134.42	\$29,241	\$14,620	\$37.95
150931TP-983	500	\$16,368	\$20,521	\$4,509	\$134.42	\$41,532	\$20,766	\$53.16
3764605TP-D7E	300	\$7,466	\$17,513	\$4,088	\$134.42	\$29,202	\$14,601	\$58.06
406890TP-FBA	75	\$2,937	\$2,576	\$1,091	\$134.42	\$6,739	\$3,369	\$33.90
405386TP-576	150	\$1,035	\$2,639	\$2,813	\$134.42	\$6,621	\$3,311	\$175.61
405190TP-453	150	\$2,510	\$10,037	\$2,664	\$134.42	\$15,346	(\$7,336)	\$91.00
389990TP-5F0	150	\$2,255	\$8,525	\$2,722	\$134.42	\$13,636	(\$2,357)	\$91.00
389997TP-83A	200	\$983	\$4,105	\$2,916	\$134.42	\$8,138	(\$519)	\$91.00
389999TP-BA1	300	\$1,869	\$7,022	\$3,942	\$134.42	\$12,967	\$6,483	\$118.21
401815TP-3DF	300	\$12,874	\$29,387	\$4,318	\$134.42	\$46,713	\$23,357	\$38.90
800161TP-DEF	500	\$9,451	\$9,577	\$5,199	\$134.42	\$24,361	\$12,181	\$75.19
181911TP-927	75	\$4,396	\$5,201	\$1,297	\$134.42	\$11,028	\$5,514	\$24.00
235545TP-814	200	\$11,419	\$2,883	\$3,823	\$134.42	\$18,259	\$9,129	\$23.27
6375055TP-7DC	500	\$4,328	\$12,289	\$5,029	\$134.42	\$21,781	\$10,890	\$13.21
3204065TP-B03	150	\$328	\$3,334	\$2,531	\$134.42	\$6,328	\$3,764	\$183.36
624649TP-8F7	500	\$1,563	\$5,639	\$4,342	\$134.42	\$11,678	\$5,839	\$14.54
800166TP-025	200	\$2,286	\$4,189	\$3,002	\$134.42	\$9,611	\$4,806	\$55.07
416731TP-C0E	150	\$1,607	\$5,956	\$3,046	\$134.42	\$10,742	\$5,179	\$91.00
549325TP-5D0	500	\$9,267	\$4,686	\$3,952	\$134.42	\$18,040	\$9,020	\$22.88
624606TP-58C	150	\$4,060	\$3,009	\$2,440	\$134.42	\$9,643	\$1,498	\$91.00
141845TP-D91	200	\$3,065	\$6,347	\$3,665	\$134.42	\$13,212	\$1,063	\$91.00
333060TP-CA7	150	\$543	\$9,348	\$3,360	\$134.42	\$13,385	\$13,385	\$0.00
3330508TP-D6D	300	\$516	\$9,958	\$4,193	\$134.42	\$14,801	\$14,801	\$0.00
405769TP-C13	200	\$2,826	\$11,640	\$8,325	\$134.42	\$22,925	\$4,690	\$91.00
373002TP-847	200	\$2,400	\$9,295	\$2,722	\$134.42	\$14,551	\$8,466	\$91.00

141990TP-498	150	\$2,794	\$5,475	\$4,144	\$134.42	\$12,548	\$8,806	\$91.00
1419725TP-870	200	\$3,502	\$6,009	\$3,718	\$134.42	\$13,364	\$8,723	\$91.00
315340TP-EFC	500	\$14,710	\$1,132,029	\$0	\$0.00	\$1,146,739	\$0	\$0.00
4245295TP-206	150	\$3,575	\$1,758	\$2,952	\$134.42	\$8,420	\$4,210	\$60.05
301586TP-0FB	100	\$973	\$1,777	\$2,469	\$134.42	\$5,353	\$1,944	\$91.00
424510TP-575	500	\$14,327	\$9,231	\$5,670	\$134.42	\$29,363	\$14,681	\$37.60
3193075TP-EBE	200	\$536	\$10,657	\$3,326	\$134.42	\$14,653	\$14,653	\$0.00
338411TP-65E	300	\$3,508	\$12,361	\$3,225	\$134.42	\$19,227	\$9,614	\$95.14
613920TP-315	100	\$658	\$835	\$3,164	\$134.42	\$4,791	\$2,395	\$104.21
8001015TP-FBB	300	\$15,980	\$7,951	\$2,939	\$134.42	\$27,005	\$13,502	\$16.28
800149TP-2AE	300	\$21,160	\$6,414	\$4,988	\$134.42	\$32,697	\$16,348	\$16.41

Line Charge Breakdown for Group Customers

Consumer Capacity	Code	Number of Connections	Transpower Charge	Subtransmission Charge	Distribution Charge	PowerNet Overhead	Fixed Charge per Day	Variable Charge per Day kWh
TPC Urban Residential Standard								
Small Residential (8kVA 1 Phase) - All Peak	UD08P	95	\$7,506	\$13,061	\$12,086	\$12,736	\$0.9955	\$0.09100
Small Residential (8kVA 1 Phase) - With Off Peak	UD08Q	183	\$12,005	\$21,565	\$19,864	\$24,565	\$0.6512	\$0.09100
Residential (15kVA 1 Phase) - All Peak	UD20P	1,727	\$341,919	\$594,993	\$550,547	\$232,071	\$1.7905	\$0.09100
Residential (15kVA 1 Phase) - With Off Peak	UD20Q	6,873	\$1,128,631	\$2,027,472	\$1,867,470	\$923,780	\$1.2491	\$0.09100
Residential Low Fixed Charge Option (15kVA 1 Phase) - All Peak	UDL20P	1,756	\$279,943	\$503,846	\$504,368	\$236,036	\$0.1500	\$0.14601
Residential Low Fixed Charge Option (15kVA 1 Phase) - With Off Peak	UDL20Q	5,714	\$761,240	\$1,400,193	\$1,397,193	\$768,058	\$0.1000	\$0.14601
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	70	\$4,924	\$8,923	\$8,519	\$9,409	\$0.1500	\$0.11739
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	152	\$9,514	\$17,177	\$16,108	\$20,431	\$0.1000	\$0.11739
General Single Phase								
Street Lights (1 Phase)	US001L	5,438	\$109,080	\$192,624	\$108,091	\$14,619	\$0.1446	\$0.09100
1 kVA 1 Phase - All Peak	US001P	27	\$3,739	\$6,163	\$3,212	\$3,629	\$0.7053	\$0.09100
8 kVA 1 Phase - All Peak	US008P	220	\$17,447	\$30,361	\$28,093	\$29,605	\$0.9953	\$0.09100
8 kVA 1 Phase - With Off Peak	US008Q	14	\$936	\$1,682	\$1,549	\$1,915	\$0.6510	\$0.09100
15 kVA 1 Phase - All Peak	US020P	375	\$74,167	\$129,062	\$119,421	\$50,339	\$1.7904	\$0.09100
15 kVA 1 Phase - With Off Peak	US020Q	102	\$16,669	\$29,944	\$27,581	\$13,643	\$1.2489	\$0.09100

General Three Phase								
15 kVA 3 Phase - All Peak	UT015P	112	\$16,635.49	\$28,948	\$26,786	\$15,055	\$1.7618	\$0.09100
15 kVA 3 Phase - With Off Peak	UT015Q	11	\$1,354.85	\$2,434	\$2,242	\$1,479	\$1.1978	\$0.09100
30 kVA 3 Phase - All Peak	UT030P	547	\$170,713.91	\$303,172	\$291,300	\$73,526	\$2.8151	\$0.09100
30 kVA 3 Phase - With Off Peak	UT030Q	100	\$26,000.18	\$47,378	\$45,354	\$13,442	\$1.8836	\$0.09100
50 kVA 3 Phase - All Peak	UT050P	317	\$240,260.04	\$421,123	\$387,412	\$42,610	\$5.6899	\$0.09100
50 kVA 3 Phase - With Off Peak	UT050Q	79	\$49,732.75	\$89,795	\$82,258	\$10,619	\$3.8740	\$0.09100
75 kVA 3 Phase - All Peak	UT075P	96	\$131,800.85	\$234,066	\$219,699	\$12,904	\$7.4806	\$0.09100
75 kVA 3 Phase - With Off Peak	UT075Q	19	\$21,731.79	\$39,600	\$37,033	\$2,554	\$5.0418	\$0.09100
100 kVA 3 Phase - All Peak	UT100P	20	\$44,257.25	\$78,597	\$73,328	\$2,621	\$10.9994	\$0.09100
100 kVA 3 Phase - With Off Peak	UT100Q	3	\$5,672.39	\$10,336	\$9,608	\$403	\$7.6396	\$0.09100
TPC Rural Residential								
Small Residential (8kVA 1 Phase) - All Peak	RD08P	111	\$8,773.24	\$15,266.82	\$44,853.49	\$14,886.66	\$1.1217	\$0.09100
Small Residential (8kVA 1 Phase) - With Off Peak	RD08Q	86	\$5,632.89	\$10,118.92	\$29,950.18	\$11,526.24	\$0.7598	\$0.09100
Residential (15kVA 1 Phase) - All Peak	RD20P	1,990	\$394,053.26	\$685,715	\$2,014,610	\$267,456	\$2.0618	\$0.09100
Residential (15kVA 1 Phase) - With Off Peak	RD20Q	5,319	\$873,467.98	\$1,569,097	\$4,644,243	\$714,930	\$1.4109	\$0.09100
Residential Low Fixed Charge Option (15kVA 1 Phase) - All Peak	RDL20P	936	\$149,217.79	\$268,565	\$806,158	\$125,814	\$0.1500	\$0.14601
Residential Low Fixed Charge Option (15kVA 1 Phase) - With Off Peak	RDL20Q	2,054	\$273,641.46	\$503,325	\$1,518,045	\$276,092	\$0.1000	\$0.14601
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	39	\$2,743.40	\$4,971	\$14,808	\$5,242	\$0.1500	\$0.11739
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	33	\$2,065.46	\$3,729	\$11,083	\$4,436	\$0.1000	\$0.11739

General Single Phase

Street Lights (1 Phase)	RS001L	835	\$16,749.10	\$29,577	\$63,727	\$2,245	\$0.1628	\$0.09100
1 kVA 1 Phase - All Peak	RS001P	125	\$17,307.92	\$28,531	\$63,263	\$16,802	\$0.7053	\$0.09100
8 kVA 1 Phase - All Peak	RS008P	1,074	\$85,098.47	\$148,084.73	\$435,068.73	\$144,397.29	\$1.1217	\$0.09100
8 kVA 1 Phase - With Off Peak	RS008Q	29	\$1,921.42	\$3,451.64	\$10,216.24	\$3,931.69	\$0.7598	\$0.09100
15 kVA 1 Phase - All Peak	RS020P	1,618	\$320,480.81	\$557,687	\$1,638,469	\$217,520	\$2.0618	\$0.09100
15 kVA 1 Phase - With Off Peak	RS020Q	304	\$49,965.24	\$89,757	\$265,666	\$40,896	\$1.4109	\$0.09100

General Three Phase

15 kVA 3 Phase - All Peak	RT015P	337	\$50,055.01	\$87,104	\$255,908	\$45,298	\$2.0200	\$0.09100
15 kVA 3 Phase - With Off Peak	RT015Q	12	\$1,478.02	\$2,655	\$7,859	\$1,613	\$1.3727	\$0.09100
30 kVA 3 Phase - All Peak	RT030P	1,841	\$574,559.99	\$1,020,365	\$3,008,355	\$247,461	\$3.2200	\$0.09100
30 kVA 3 Phase - With Off Peak	RT030Q	432	\$112,320.79	\$204,673	\$607,002	\$58,068	\$2.1873	\$0.09100
50 kVA 3 Phase - All Peak	RT050P	652	\$494,162.60	\$866,158	\$2,505,478	\$87,640	\$6.5100	\$0.09100
50 kVA 3 Phase - With Off Peak	RT050Q	513	\$322,948.11	\$583,097	\$1,698,683	\$68,956	\$4.4591	\$0.09100
75 kVA 3 Phase - All Peak	RT075P	94	\$129,055.00	\$229,190	\$661,900	\$12,635	\$8.9800	\$0.09100
75 kVA 3 Phase - With Off Peak	RT075Q	42	\$48,038.68	\$87,537	\$254,360	\$5,646	\$6.0478	\$0.09100
100 kVA 3 Phase - All Peak	RT100P	28	\$63,548.87	\$112,857	\$324,198	\$3,764	\$13.2200	\$0.09100
100 kVA 3 Phase - With Off Peak	RT100Q	9	\$17,017.16	\$31,009	\$89,631	\$1,210	\$9.1677	\$0.09100

