



**THE POWER COMPANY LTD**

**POWERNET LIMITED LINE PRICING METHODOLOGY**

**FOR THE POWER COMPANY LIMITED NETWORK  
AS AT 1 APRIL 2017**

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## 1. GLOSSARY OF TERMS

**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 150 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).

## 2. CHANGES TO PRICING METHODOLOGY

Changes to TPCL's pricing terminology and definitions of customers groups have been made to align with the standards established by the ENA. For example:

- Domestic has become Residential
- Commercial has become General

A glossary of terms has been introduced to help with the understanding of the industry related terminology.

## 3. INTRODUCTION

The purpose of this document is to outline the methodology The Power Company Limited uses to economically reflect the costs of providing delivery services to the different consumer groups supplied on the network.

### 3.1 Background

PowerNet Limited (PNL) has a responsibility for the management of the network assets owned by The Power Company Limited (TPCL).

The network consists of:

- 444km of 66kV lines and 456km of 33kV lines and cables.
- 37 zone substations to transform High Voltage (HV) to Medium Voltage (MV).
- One 11kV feeder supplied from Electricity Invercargill Limited's Racecourse Road Substation.
- 6,650 km of 11kV lines and 120km of 11kV cables.
- 10,536 distribution transformers supplying 35,208 customers.

- 28 Voltage regulator sites, controlling local voltage.
- The low voltage (230V) has 841 km of lines and 206km of cable.



### 3.2 Compliance with Electricity Authority Information Disclosure Guidelines

This methodology has been prepared to meet the requirements of the Commerce Commission's Commerce Act (Electricity Distribution Services Information Disclosure) Determination 2012,

In addition, in February 2010 the Electricity Commission published its Distribution Pricing Principles and Information Disclosure Guidelines (2010 IDG). These contain a set of pricing principles and guidelines for information to be disclosed regarding the extent to which the pricing methodology adopted by an electricity distributor complies with those principles. The disclosure guidelines require the following disclosures (which are similar to, but not exactly the same as the 2008 IDR disclosure requirements):

- (a) Prices are to be based on a well-defined, clearly explained and published methodology, with any material revisions to the methodology notified and clearly marked.
- (b) The pricing methodology must demonstrate:
  - i. How the methodology links to the pricing principles and any noncompliance;
  - ii. Rationale for consumer groupings and method for determining the allocation of consumers to consumer groups;
  - iii. Quantification of key components of costs and revenues;
  - iv. An explanation of the cost allocation methodology and the rationale for the allocation to each consumer group;
  - v. An explanation of the derivation of the tariffs to be charged to each consumer group and the rationale for the tariff design; and
  - vi. Pricing arrangements used to share the value of any deferral of investment in distribution and transmission assets, with the investors in alternatives such as distributed generation or load management; where alternatives are practicable and where network economics warrant.
- (c) The pricing methodology should also:
  - i. Employ industry standard terminology, where possible; and
  - ii. where a change to the previous pricing methodology is implemented, describe the impact on consumer classes and transition arrangements implemented to introduce the new methodology.

The below table outlines the sections of this methodology which address the requirements of each of the above guidelines:

<b>Guideline</b>	<b>Methodology section addressing guideline</b>
(a).	This entire document is written to meet these standards.
(b)i.	Section 2.4
(b)ii	Section 4
(b)iii	Section 5
(b)iv	Section 6
(b)v	Section 4
(b)vi	We assess and consult with customers on an individual basis regarding these opportunities.
(c)i	We consider we use standard industry terminology.

(c)ii	N/A
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### 3.3 Pricing Principles

The 2010 Electricity Commission's Distribution Pricing Principles are as follows:

- (a) Prices are to signal the economic costs of service provision, by:
  - i. Being subsidy free (equal to or greater than incremental costs, and less than or equal to stand alone costs) except where subsidies arise from compliance with legislation and/or other regulation;
  - ii. Having regard, to the extent practicable, to the level of available service capacity; and Signalling, to the extent practicable, the impact of additional usage on future investment costs.
- (b) Where prices based on 'efficient' incremental costs would under-recover allowed revenues, the shortfall should be made up by setting prices in a manner that has regard to consumers' demand responsiveness, to the extent practicable.
- (c) Provided that prices satisfy (a) above, prices should be responsive to the requirement and circumstances of stakeholders in order to:
  - i. Discourage uneconomic bypass;
  - ii. Allow for negotiation to better reflect the economic value of services and enable stakeholders to make price/quality trade-offs or non-standard arrangements for services; and
  - iii. Where network economics warrant, and to the extent practicable, encourage investment in transmission and distribution alternatives (eg: distributed generation or demand response) and technology innovation.
- (d) Development of prices should be transparent, promote price stability and certainty for stakeholders, and changes to prices should have regard to the impact on stakeholders.
- (e) Development of prices should have regard to the impact of transaction costs on retailers, consumers and other stakeholders and should be economically equivalent across retailers.

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

### 3.4 Electricity Authority Pricing Principles Comparison

In this section PowerNet sets out how it considers it meets the Electricity Authority's pricing principles.

#### 3.4.1 Prices are to signal the economic costs of service provision, by:

- i. Being subsidy free (equal to or greater than incremental costs, and less than or equal to stand alone costs) except where subsidies arise from compliance with legislation and/or other regulation;*
- ii. Having regard, to the extent practicable, to the level of available service capacity; and*
- iii. Signalling, to the extent practicable, the impact of additional usage on future investment costs.*

The PowerNet cost allocation 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. This method results in a cost allocation which recovers revenue in between standalone costs and the incremental cost of supply.

PowerNet takes subsidy free prices to mean that for each consumer group, the revenues from that group should not be below the cost of connecting that consumer group to the network (incremental costs), or, be greater than the costs of supplying that group, as if they were the only customer group (stand-alone costs). It is not easy to accurately establish the stand alone costs for most customers supplied by a common service via a meshed network. 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 is some degree of cross subsidisation between, for instance, urban and rural consumers within the same consumer group. This cross subsidisation was recognised 15 years ago when a capped differential of 15% was introduced between rural and urban consumers in the same consumer group. Legislation has 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.

PowerNet's pricing structure is based on 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.

The day/night energy component also provides a strong signal to consumers to reduce their costs by utilising spare network capacity at night thus reducing capital investment in the network.

Individual customers have a capacity based charge along with a peak demand charge.

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.

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

PowerNet believes that this principle is similar to the Ramsey Pricing principle which is a form of price discrimination used by monopolies, where those consumers with inelastic demand face higher charges as their consumption is least likely to be distorted as a result.

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.

A rule of thumb from past experience led to the conclusion that a 10% increase in charges would result in a 1% decrease in usage for about six to nine months, after which usage would return to normal as consumers adjusted to the new prices and returned to previous habits and patterns of usage. The imposition of higher fixed charges has resulted in a noticeable number of disconnections of premises such as farm sheds as consumers have looked for ways of reducing costs.

In the past PowerNet has not found it practicable to assess consumers' demand responsiveness and set charges accordingly to recover lost revenue. These changes, including the loss of revenue from the introduction of the "Low Fixed Charges", have been addressed in future price adjustments. Revenue growth from new loads has also tended to compensate for revenue reduction from more efficient use.

PowerNet also uses tariff structures which have variable charges to recover predominately fixed charges which can differentiate different consumers' elasticity but also results in a degree of annual revenue uncertainty due to climate and economic variations.

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

- i. Discourage uneconomic bypass;*
- ii. Allow for negotiation to better reflect the economic value of services and enable stakeholders to make price/quality trade-offs or non-standard arrangements for services; and*
- iii. Where network economics warrant, and to the extent practicable, encourage investment in transmission and distribution alternatives (e.g.: distributed generation or demand response) and technology innovation.*

The main risk of bypass is that large consumers will choose to connect directly to the Transpower network. PowerNet'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 practical, reflect the network costs incurred by each individual consumer.

PowerNet'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 sub transmission 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, PowerNet 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.

PowerNet' 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.

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

PowerNet'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.

PowerNet 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.

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

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 tariff structure is straight forward, limited to a fixed daily charge and variable consumption tariff for the majority of customers. PowerNet recognises that whilst the tariff structure is simple, there are a large number of tariff 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).

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

PowerNet uses "GXP billing" for its residential & general connections, this is where variable consumption charges are based on electricity volumes injected into the network at the Transpower grid exit 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 transferred back into the pricing.

PowerNet also recognises that "ICP pricing and billing" can 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.

We have been awaiting a confirmed direction from the Electricity Authority before we move forward with more changes.

## 4. CUSTOMER CONSULTATION

PowerNet seeks the views of consumers as part of the Asset Management Process (AMP) and has reflected these views in section 1.6.5 of the published AMP.

The views were obtained via the following methods:

1. A bulk phone survey of current customers including expectations on price and quality
2. A face to face survey of with key clients including expectations on price and current service
3. Consultation meetings at various locations throughout the network
4. 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.

## 5. CONSUMER GROUPS

There are two defined types of consumers. They are as follows:

### (a) Individual Consumers

These consumers 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.

#### **(b) Residential & General**

Residential & General; include all residential connections and general single and 3 phase connections up to 100kVA 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 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.

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".

The 8kVA residential consumer requires 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.

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 tariffs must submit the monthly consumption amounts for these customers in a separate file to PowerNet.

The bases for the different consumer groups are contract capacity and whether there is significant controllable load on the premises. The latter point qualifies the consumer for either an “all peak” or “with off peak” line charge. Different consumer groups are based on practical fuse sizes. The eligibility for a “with off peak” line charge is determined on the basis that at least 25% of the total energy consumption has to be separately metered or consumed between 23:00 and 07:00 hours or by an appropriate ripple controlled appliance, such as a water heater.

The group consumer segments are divided into two areas taking into account the types of reticulation involved in their supply. These distinct groupings are classed as urban and 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.

The consumer groups are:

<b>Contract Capacity Group</b>	<b>Code</b>
<b>TPC Urban Residential Standard</b>	
Small Residential (8kVA 1 Phase) - All Peak	UD08P
Small Residential (8kVA 1 Phase) - With Off Peak	UD08Q
Residential (20kVA 1 Phase) - All Peak	UD20P
Residential (20kVA 1 Phase) - With Off Peak	UD20Q
Residential Low Fixed Charge Option (20kVA 1 Phase) - All Peak	UDL08P
Residential Low Fixed Charge Option (20kVA 1 Phase) - With Off Peak	UDL08Q
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL20P
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL20Q
<b>General Single Phase</b>	
Street Lights (1 Phase)	US001L
1 kVA 1 Phase - All Peak	US001P
8 kVA 1 Phase - All Peak	US008P
8 kVA 1 Phase - With Off Peak	US008Q
20 kVA 1 Phase - All Peak	US020P
20 kVA 1 Phase - With Off Peak	US020Q
<b>General Three Phase</b>	

15 kVA 3 Phase - All Peak	UT015P
15 kVA 3 Phase - With Off Peak	UT015Q
30 kVA 3 Phase - All Peak	UT030P
30 kVA 3 Phase - With Off Peak	UT030Q
50 kVA 3 Phase - All Peak	UT050P
50 kVA 3 Phase - With Off Peak	UT050Q
75 kVA 3 Phase - All Peak	UT075P
75 kVA 3 Phase - With Off Peak	UT075Q
100 kVA 3 Phase - All Peak	UT100P
100 kVA 3 Phase - With Off Peak	UT100Q
	RD08P
<b>TPC Rural</b>	RD08Q
<b>Residential</b>	RD20P
Small Residential (8kVA 1 Phase) - All Peak	RD20Q
Small Residential (8kVA 1 Phase) - With Off Peak	RDL08P
Residential (20kVA 1 Phase) - All Peak	RDL08Q
Residential (20kVA 1 Phase) - With Off Peak	RDL20P
Residential Low Fixed Charge Option (20kVA 1 Phase) - All Peak	RDL20Q
Residential Low Fixed Charge Option (20kVA 1 Phase) - With Off Peak	
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RS001L
	RS001P
<b>General Single Phase</b>	RS008P
Street Lights (1 Phase)	RS008Q
1 kVA 1 Phase - All Peak	RS020P
8 kVA 1 Phase - All Peak	RS020Q
8 kVA 1 Phase - With Off Peak	
20 kVA 1 Phase - All Peak	
20 kVA 1 Phase - With Off Peak	RT015P
	RT015Q
<b>General Three Phase</b>	RT030P
15 kVA 3 Phase - All Peak	RT030Q
15 kVA 3 Phase - With Off Peak	RT050P
30 kVA 3 Phase - All Peak	RT050Q
30 kVA 3 Phase - With Off Peak	RT075P
50 kVA 3 Phase - All Peak	RT075Q
50 kVA 3 Phase - With Off Peak	RT100P
75 kVA 3 Phase - All Peak	RT100Q

## 6. COST ALLOCATION

### 6.1 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.

The level of line and metering charges are set by TPCL taking into account direct and indirect costs, asset depreciation and an appropriate return on investment from the assets (before discounts).

### 6.2 Allocations

TPCL uses a cost of supply model which uses a number of key inputs or cost drivers which can be determined and appropriately allocated between the relevant consumers and consumer groups.

The key cost drivers used within this model are:

- (a) Transmission Grid Asset Management costs (Transpower and Distributed Generators).
- (b) Sub transmission network costs split into a “supply” component and a “maintenance” component – 66,000 and 33,000V line and cables and 30 zone substations.
- (c) Distribution network costs split into a “supply” component and a “maintenance” component - 11,000, 400V networks and distribution Substations.
- (d) Overhead non asset related direct costs.
- (e) Ownership costs comprising depreciation, return on investment and other costs of ownership.

Each consumer or consumer groups’ share of the use of the above assets and costs are then 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.

The following table lists the costs that we have forecast for the 2017– 2018 year, which equates to our total target revenue.

### Total Costs

<b>Transmission</b>		<b>\$14,575,431</b>
Transpower Connection and Interconnection charges Avoided transmission costs to Distributed Generators		
<b>Administration &amp; Governance</b>		<b>\$5,695,663</b>
Administration - non asset related direct costs. \$2,334,237 Governance – agency fee \$3,361,426		
<b>Operation and Maintenance</b>		<b>\$10,184,985</b>
Field services operation and maintenance costs		
<b>Ownership</b>		<b>\$56,351,152</b>
Asset Value (average carrying value of regulatory investment asset - (\$370,738,147 + \$375,836,924) / 2	\$398,997,366	
TPCL applicable WACC (after tax) 6.66%	\$25,934,829	
Taxation	\$10,085,764	
Depreciation and write offs	\$ 20,330,559	
<b>Costs to be Recovered</b>		<b>\$86,807,231</b>
<b>Implicit Discount</b>		<b>(\$28,061,865)</b>
<b>Total Target Revenue</b>		<b>\$58,745,366</b>

### 6.3 Customer Profiles

The derivation of the line charges is based on seven consumer profile parameters. They are:

- (a) The Contract Capacity kVA (kW) of the installation.
- (b) The Peak demand kVA. (kW) (0700-1100 hours and 1700-2100 hours, each week day during sub-transmission peak months of individual grid exit points)
- (c) The Peak energy MWh. (0700-1100 hours and 1700-2100 hours, each week day during sub-transmission 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 Transpowers 100 highest peaks for the lower South Island (kVA), half hour metered customers only.

## 6.4 Transpower and Subtransmission Costs

The basis of allocation of Transpower connection charges and sub transmission 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, sub transmission 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.

## 6.5 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.

## 6.6 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.

## 6.7 Subtransmission and Distribution Split

The costs of the sub transmission 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	3	2	84	169	22	41	72
50	20	333	882	2206	292	710	928
75	7	131	327	785	87	214	362
100	33	421	1729	3905	493	1126	1735
150	66	998	6328	10432	1386	3238	4662
200	51	1322	5976	11919	1504	3317	5647
300	37	2730	6133	17736	2215	5496	7300
500	25	2770	9357	16819	1987	5249	7011
750	9	1693	3169	12260	1514	3505	5046
1000	8	2675	4388	16521	2018	5047	6530
1250	2	578	1848	5359	641	1301	2749
1500	2	533	1172	2122	314	761	914
2000	3	2094	4318	17606	1788	4455	8330
2250	1	723	1817	5904	598	1293	2865
3000	1	324	742	3334	414	743	1547
4500	1	30	109	59	11	27	11
5000	1	1591	2675	11792	1330	3281	4930

<b>6000</b>	1	888	3699	16947	933	2517	8692
<b>10000</b>	1	4822	10399	43194	6847	9769	20178
<b>30200</b>	1	5647	24916	100471	16548	15143	51617

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
<b>TPC Urban</b>							
<b>Residential Standard</b>							
Small Residential (8kVA 1 Phase) - All Peak	UD08P	68	59	323	40	112	136
Small Residential (8kVA 1 Phase) - With Off Peak	UD08Q	237	174	1125	105	353	464
Residential (20kVA 1 Phase) - All Peak	UD20P	1,248	2693	14814	1844	5158	6232
Residential (20kVA 1 Phase) - With Off Peak	UD20Q	8,982	16478	106618	9956	33409	43952
Residential Low Fixed Charge Option (20kVA 1 Phase) - All Peak	UDL20P	836	1804	5513	686	1919	2319
Residential Low Fixed Charge Option (20kVA 1 Phase) - With Off Peak	UDL20Q	4,471	8202	29484	2753	9239	12155
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	38	33	160	15	56	67
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	139	102	587	55	184	242
<b>General Single Phase</b>							
Street Lights (1 Phase)	US001L	4,343	1107	4777	595	1663	2010
1 kVA 1 Phase - All Peak	US001P	43	43	556	69	194	234
8 kVA 1 Phase - All Peak	US008P	213	184	1011	126	352	425
8 kVA 1 Phase - With Off Peak	US008Q	15	11	71	7	22	29
20 kVA 1 Phase - All Peak	US020P	353	762	4190	522	1459	1763
20 kVA 1 Phase - With Off Peak	US020Q	115	211	1365	127	428	563

<b>General Three Phase</b>							
15 kVA 3 Phase - All Peak	UT015P	100	162	890	111	310	374
15 kVA 3 Phase - With Off Peak	UT015Q	12	17	107	10	33	44
30 kVA 3 Phase - All Peak	UT030P	538	2095	8195	1020	2853	3447
30 kVA 3 Phase - With Off Peak	UT030Q	112	371	1706	159	535	703
50 kVA 3 Phase - All Peak	UT050P	306	2657	12990	1617	4523	5464
50 kVA 3 Phase - With Off Peak	UT050Q	90	664	3820	357	1197	1575
75 kVA 3 Phase - All Peak	UT075P	87	1491	5830	726	2030	2452
75 kVA 3 Phase - With Off Peak	UT075Q	22	320	1474	138	462	608
100 kVA 3 Phase - All Peak	UT100P	16	453	1772	221	617	746
100 kVA 3 Phase - With Off Peak	UT100Q	2	48	222	21	69	91
<b>TPC Rural</b>							
<b>Residential</b>							
Small Residential (8kVA 1 Phase) - All Peak	RD08P	96	83	456	57	159	192
Small Residential (8kVA 1 Phase) - With Off Peak	RD08Q	109	80	518	48	162	213
Residential (20kVA 1 Phase) - All Peak	RD20P	1,303	2812	15467	1926	5385	6506
Residential (20kVA 1 Phase) - With Off Peak	RD20Q	6,497	11919	77120	7202	24166	31792
Residential Low Fixed Charge Option (20kVA 1 Phase) - All Peak	RDL20P	451	973	2974	370	1035	1251
Residential Low Fixed Charge Option (20kVA 1 Phase) - With Off Peak	RDL20Q	1,564	2869	10314	963	3232	4252
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	33	28	139	13	48	59
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	21	15	89	8	28	37
<b>General Single Phase</b>							
Street Lights (1 Phase)	RS001L	517	132	569	71	198	239

1 kVA 1 Phase - All Peak	RS001P	126	126	1631	203	568	686
8 kVA 1 Phase - All Peak	RS008P	1,022	882	4853	604	1689	2041
8 kVA 1 Phase - With Off Peak	RS008Q	24	18	114	11	36	47
20 kVA 1 Phase - All Peak	RS020P	1,722	3716	20440	2545	7117	8598
20 kVA 1 Phase - With Off Peak	RS020Q	323	593	3834	358	1201	1581
<b>General Three Phase</b>							
15 kVA 3 Phase - All Peak	RT015P	300	486	2671	333	930	1123
15 kVA 3 Phase - With Off Peak	RT015Q	14	19	125	12	39	51
30 kVA 3 Phase - All Peak	RT030P	1,903	7412	28988	3609	10093	12194
30 kVA 3 Phase - With Off Peak	RT030Q	439	1453	6687	624	2095	2757
50 kVA 3 Phase - All Peak	RT050P	439	3812	18636	2320	6488	7839
50 kVA 3 Phase - With Off Peak	RT050Q	714	5270	30309	2830	9497	12495
75 kVA 3 Phase - All Peak	RT075P	75	1285	5026	626	1750	2114
75 kVA 3 Phase - With Off Peak	RT075Q	49	714	3284	307	1029	1354
100 kVA 3 Phase - All Peak	RT100P	23	651	2548	317	887	1072
100 kVA 3 Phase - With Off Peak	RT100Q	11	265	1219	114	382	502

## 7. COST ALLOCATIONS TO CAPACITY GROUPS

### 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 Pioneer Generation point of supply at Monowai Power Station in Western Southland and Flatt Hill wind generation at Bluff, the Meridian Wind Farm at White Hill 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) Monowai, White Hill, Maitua, Flatt 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	\$622,665
(b)	Edendale	\$291,382
(c)	Invercargill	\$372,088
(d)	North Makarewa	\$826,913

The total connection charge for Invercargill is \$1,031,728. The Power Company's share is \$372,088.

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	\$13.68	\$6.12	\$2.03
Edendale	\$6.41	\$2.70	\$3.93
Invercargill	\$7.24	\$3.30	\$1.12
North Makarewa	\$10.29	\$5.84	\$1.47

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	\$10.82	\$5.67	\$1.34

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	\$2,951,220
(b)	Edendale	\$1,184,381
(c)	Invercargill	\$3,169,463
(d)	North Makarewa	\$3,384,034
(e)	Monowai, White Hill, Matura	\$1,773,286

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:

<b>Point of Supply</b>	<b>Per kVA Peak Demand</b>	<b>Per Peak MWh</b>	<b>Per Winter Day MWh</b>
Gore	\$55.57	\$43.50	\$9.60
Edendale	\$26.03	\$19.16	\$18.59
Invercargill (TPCL)	\$52.85	\$42.15	\$9.52
North Makarewa	\$54.98	\$35.87	\$6.02

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

<b>Point of Supply</b>	<b>Per kVA Coincident Peak Demand</b>
Gore	\$123.98
Edendale	\$123.98
Invercargill (TPCL)	\$123.98
North Makarewa	\$123.98

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

	<b>Per kVA Peak Demand</b>	<b>Per Winter Peak MWh</b>	<b>Per Winter Day MWh</b>
<b>All Points of Supply</b>	\$59.38	\$54.46	\$8.60

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:

<b>Consumer Capacity kVA</b>	<b>Number of Connections</b>	<b>Transpower Revenue per Consumer Group</b>	<b>Average Line Charge</b>
30	3	\$2,556	\$852
50	20	\$50,449	\$2,522
75	7	\$18,358	\$2,623
100	33	\$82,829	\$2,510
150	66	\$269,873	\$4,089
200	51	\$267,640	\$5,248
300	37	\$394,191	\$10,654
500	25	\$387,119	\$15,485
750	9	\$233,827	\$25,981
1000	8	\$367,712	\$45,964
1250	2	\$89,869	\$44,934
1500	2	\$72,944	\$36,472
2000	3	\$289,935	\$96,645
2250	1	\$102,781	\$102,781
3000	1	\$47,107	\$47,107
4500	1	\$4,428	\$4,428
5000	1	\$246,656	\$246,656
6000	1	\$149,526	\$149,526
10000	1	\$745,307	\$745,307
30200	1	\$940,541	\$940,541

### 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
<b>TPC Urban Residential Standard</b>				
Small Residential (8kVA 1 Phase) - All Peak	UD08P	68	\$107	\$7,256
Small Residential (8kVA 1 Phase) - With Off Peak	UD08Q	237	\$89	\$20,988
Residential (20kVA 1 Phase) - All Peak	UD20P	1,248	\$267	\$332,925
Residential (20kVA 1 Phase) - With Off Peak	UD20Q	8,982	\$221	\$1,988,537
Residential Low Fixed Charge Option (20kVA 1 Phase) - All Peak	UDL20P	836	\$216	\$180,188
Residential Low Fixed Charge Option (20kVA 1 Phase) - With Off Peak	UDL20Q	4,471	\$180	\$805,796
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	38	\$95	\$3,610
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	139	\$84	\$11,737
<b>General Single Phase</b>				
Street Lights (1 Phase)	US001L	4,343	\$29	\$124,129
1 kVA 1 Phase - All Peak	US001P	43	\$196	\$8,422
8 kVA 1 Phase - All Peak	US008P	213	\$107	\$22,729
8 kVA 1 Phase - With Off Peak	US008Q	15	\$89	\$1,328

20 kVA 1 Phase - All Peak	US020P	353	\$267	\$94,169
20 kVA 1 Phase - With Off Peak	US020Q	115	\$221	\$25,460
<b>General Three Phase</b>				
15 kVA 3 Phase - All Peak	UT015P	100	\$200	\$20,008
15 kVA 3 Phase - With Off Peak	UT015Q	12	\$166	\$1,993
30 kVA 3 Phase - All Peak	UT030P	538	\$421	\$226,672
30 kVA 3 Phase - With Off Peak	UT030Q	112	\$351	\$39,340
50 kVA 3 Phase - All Peak	UT050P	306	\$1,022	\$312,650
50 kVA 3 Phase - With Off Peak	UT050Q	90	\$849	\$76,437
75 kVA 3 Phase - All Peak	UT075P	87	\$1,853	\$161,250
75 kVA 3 Phase - With Off Peak	UT075Q	22	\$1,545	\$33,994
100 kVA 3 Phase - All Peak	UT100P	16	\$3,064	\$49,024
100 kVA 3 Phase - With Off Peak	UT100Q	2	\$2,554	\$5,109
<b>TPC Rural Residential</b>				
Small Residential (8kVA 1 Phase) - All Peak	RD08P	96	\$107	\$10,244
Small Residential (8kVA 1 Phase) - With Off Peak	RD08Q	109	\$89	\$9,653
Residential (20kVA 1 Phase) - All Peak	RD20P	1,303	\$267	\$347,598
Residential (20kVA 1 Phase) - With Off Peak	RD20Q	6,497	\$221	\$1,438,380
Residential Low Fixed Charge Option (20kVA 1 Phase) - All Peak	RDL20P	451	\$216	\$97,207
Residential Low Fixed Charge Option (20kVA 1 Phase) - With Off Peak	RDL20Q	1,564	\$180	\$281,876
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	33	\$95	\$3,135
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	21	\$84	\$1,773

<b>General Single Phase</b>					
Street Lights (1 Phase)	RS001L	517	\$29	\$14,777	
1 kVA 1 Phase - All Peak	RS001P	126	\$196	\$24,679	
8 kVA 1 Phase - All Peak	RS008P	1,022	\$107	\$109,054	
8 kVA 1 Phase - With Off Peak	RS008Q	24	\$89	\$2,125	
20 kVA 1 Phase - All Peak	RS020P	1,722	\$267	\$459,373	
20 kVA 1 Phase - With Off Peak	RS020Q	323	\$221	\$71,509	
<b>General Three Phase</b>					
15 kVA 3 Phase - All Peak	RT015P	300	\$200	\$60,023	
15 kVA 3 Phase - With Off Peak	RT015Q	14	\$166	\$2,325	
30 kVA 3 Phase - All Peak	RT030P	1,903	\$421	\$801,780	
30 kVA 3 Phase - With Off Peak	RT030Q	439	\$351	\$154,197	
50 kVA 3 Phase - All Peak	RT050P	439	\$1,022	\$448,540	
50 kVA 3 Phase - With Off Peak	RT050Q	714	\$849	\$606,401	
75 kVA 3 Phase - All Peak	RT075P	75	\$1,853	\$139,009	
75 kVA 3 Phase - With Off Peak	RT075Q	49	\$1,545	\$75,713	
100 kVA 3 Phase - All Peak	RT100P	23	\$3,064	\$70,471	
100 kVA 3 Phase - With Off Peak	RT100Q	11	\$2,554	\$28,098	

## 7.2 Sub-transmission Charges

Sub-transmission charges are based on the sub-transmission costs (66kV and 33kV network) and the zone substation costs.

There are two components making up the sub transmission charges:

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

### 7.2.1 Supply Charge

The sub-transmission 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 sub-transmission 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 sub-transmission 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 \$13,098,722.

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 sub transmission maintenance charges for TPC total \$3,259,195

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

Total Energy	50%
Peak Demand	50%

In this case the commercial customers incur a weighting compared to domestic customers of 2:1. This reflects the higher level of importance for commercial customers of the maintenance to the network. This weighted ratio only applies to the total energy component, i.e. 50% of the cost.

### 7.2.3 Total Sub-transmission Charges

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

<b>Zone Substation</b>	<b>Total Supply Charge</b>	<b>Total Maintenance Charge</b>
Awarua	\$152,899	\$38,044
Bluff	\$371,491	\$92,434
Centre Bush	\$322,709	\$80,296
Conical Hills	\$270,918	\$67,409
Dipton	\$271,958	\$67,668
Edendale	\$200,056	\$73,202
Glenham	\$209,759	\$52,192
Gorge Road	\$295,739	\$73,585
Hillside	\$229,751	\$57,166
Kelso	\$460,100	\$114,481
Kennington	\$179,042	\$44,549
Lumsden	\$552,735	\$137,530
Makarewa	\$290,376	\$72,251
Athol	\$579,447	\$144,177
Mataura	\$287,935	\$71,643
Monowai	\$135,744	\$33,775
Mossburn	\$545,106	\$159,567
NZMP	\$336,590	\$83,750
North Gore	\$219,007	\$54,493
Ohai	\$424,278	\$91,798
Orawia	\$509,148	\$115,168
Otatara	\$241,414	\$60,068
Otautau	\$384,246	\$73,534
White Hill	\$62,997	\$15,675
Riversdale	\$432,087	\$107,511
Riverton	\$382,493	\$95,171
Seaward Bush	\$229,436	\$57,088
South Gore	\$195,550	\$48,656
Te Anau	\$1,156,491	\$287,755
Tokanui	\$309,946	\$77,120
Underwood	\$401,177	\$99,820
Waikiwi	\$444,072	\$110,493
Waikaka	\$263,460	\$65,553
Winton	\$607,255	\$151,096
Colyer RD	\$426,186	\$106,043

Hedgehope	\$399,156	\$99,317
Isla Bank	\$317,972	\$79,117
ICC46	\$42,108	\$10,128

## 7.2.4 Sub transmission Charges for Individual Customers above 100 kVA

The sub transmission 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 Domestic Total MWh	Maintenance Charge per Commercial Total MWh	Maintenance Charge per kVA Winter Peak Demand
Awarua	\$61.22	\$20.85	\$6.50	\$0.88	\$1.75	\$10.88
Bluff	\$66.11	\$25.83	\$7.27	\$1.41	\$2.83	\$11.75
Centre Bush	\$64.61	\$58.21	\$17.65	\$3.47	\$6.94	\$11.48
Conical Hills	\$216.95	\$28.86	\$8.85	\$2.35	\$4.70	\$38.56
Dipton	\$114.62	\$167.24	\$47.23	\$9.80	\$19.59	\$20.37
Edendale	\$24.20	\$15.56	\$4.72	\$1.00	\$2.00	\$6.32
Glenham	\$146.44	\$83.26	\$25.54	\$5.77	\$11.54	\$26.03
Gorge Road	\$121.76	\$90.26	\$27.48	\$5.41	\$10.82	\$21.64
Hillside	\$281.32	\$119.52	\$35.63	\$7.89	\$15.77	\$50.00
Kelso	\$81.88	\$42.09	\$12.96	\$2.79	\$5.57	\$14.55
Kennington	\$26.07	\$14.52	\$6.51	\$0.72	\$1.43	\$4.63
Lumsden	\$125.75	\$72.44	\$21.53	\$3.99	\$7.99	\$22.35
Makarewa	\$42.28	\$22.39	\$6.80	\$1.17	\$2.35	\$7.51
Athol	\$46,401.39	\$349.87	\$98.15	\$23.21	\$46.43	\$8,246.78
Mataura	\$27.21	\$20.80	\$6.47	\$0.79	\$1.57	\$4.84
Monowai	\$271.75	\$245.30	\$72.49	\$16.91	\$33.83	\$48.30
Mossburn	\$244.41	\$157.28	\$47.54	\$10.55	\$21.10	\$51.10
NZMP	\$11.49	\$4.76	\$9.19	\$0.20	\$0.40	\$2.04
North Gore	\$21.66	\$8.72	\$2.62	\$0.54	\$1.07	\$3.85
Ohai	\$145.69	\$69.65	\$20.89	\$3.65	\$7.29	\$22.52
Orawia	\$139.82	\$72.69	\$22.45	\$4.35	\$8.70	\$22.59
Otatara	\$48.27	\$24.52	\$7.78	\$1.90	\$3.80	\$8.58
Otautau	\$76.92	\$32.09	\$10.05	\$1.61	\$3.22	\$10.52
White Hill	\$84.08	\$341.52	\$63.27	\$4.33	\$8.65	\$14.94
Riversdale	\$78.46	\$45.86	\$13.79	\$2.55	\$5.10	\$13.94
Riverton	\$62.23	\$28.22	\$8.54	\$1.84	\$3.69	\$11.06
Seaward Bush	\$28.05	\$8.00	\$2.33	\$0.45	\$0.89	\$4.99
South Gore	\$18.93	\$8.31	\$2.51	\$0.46	\$0.92	\$3.36
Te Anau	\$196.21	\$70.38	\$20.75	\$3.89	\$7.78	\$34.87
Tokanui	\$228.97	\$168.94	\$47.39	\$11.21	\$22.42	\$40.69
Underwood	\$26.79	\$16.57	\$5.04	\$0.50	\$1.00	\$4.76
Waikiwi	\$27.54	\$12.00	\$3.73	\$0.76	\$1.51	\$4.89
Waikaka	\$191.80	\$132.38	\$57.62	\$10.98	\$21.96	\$34.09
Winton	\$38.20	\$17.45	\$6.64	\$1.06	\$2.13	\$6.79
Colyer RD	\$61.92	\$43.02	\$8.84	\$0.93	\$1.86	\$11.00
Hedgehope	\$159.82	\$164.46	\$37.06	\$17.49	\$34.97	\$28.40

Isla Bank	\$254.63	\$327.52	\$97.33	\$34.82	\$69.65	\$45.25
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### 7.2.5 Sub transmission 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 Charge per kVA Peak Demand	Supply Charge per Peak MWh	Supply Charge per Winter Day MWh	Maintenance Charge per Domestic Total MWh	Maintenance Charge Per Commercial Total MWh	Maintenance Charge per kVA Winter Peak Demand
<b>Residential &amp; General</b>	\$71.40	\$36.95	\$8.83	\$1.93	\$3.87	\$13.51

## 7.3 Distribution Charges

Distribution charges are based on the distribution costs which include 11,000 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.

The urban customers are located in the following areas:

- (a) Invercargill
- (b) Gore
- (c) Te Anau
- (d) Winton
- (e) Maitua
- (f) Riverton
- (g) Otautau
- (h) Tuatapere
- (i) Ohai
- (j) Nightcaps
- (k) Mossburn
- (l) Lumsden
- (m) Riversdale
- (n) Manapouri
- (o) Tapanui
- (p) Edendale
- (q) Wyndham
- (r) Wallacetown
- (s) Otatara

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 \$13,403,344.

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 \$5,703,592.

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 \$5,182,277.

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	\$2.91 per kVA km Urban
(b)	Distribution Supply charge	\$0.64 per kVA km Rural
(c)	Distribution Transformer charge	\$261.93 per Transformer
(d)	Distribution Maintenance charge	\$2,272 per km Urban
(e)	Distribution Maintenance charge	\$928 per km Rural
(f)	Maintenance Transformer charge	\$937 per Transformer for capacity $\geq 75$ kVA
(g)	Maintenance Transformer charge	\$53.31 per Transformer for capacity $< 75$ kVA

The Transformer charge of \$261.93 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%.

Individual commercial customers incur a weighting on the transformer portion of the maintenance charge of 5:1. This reflects the importance of the maintenance to the network for commercial customers.

### 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      | \$6.35 per kVA Contract Capacity        |
| (b) | Distribution Supply charge      | \$21.77 per Winter Peak MWh             |
| (c) | Distribution Supply charge      | \$5.05 per Winter Day MWh               |
| (d) | Distribution Maintenance charge | \$1.13 per Domestic Total MWh           |
| (e) | Distribution Maintenance charge | \$2.25 per Commercial Total MWh         |
| (f) | Distribution Maintenance charge | \$1.10 per kVA Contract Capacity        |
| (g) | Distribution Transformer charge | \$10.08 per kVA AD Transformer capacity |

#### *TPC Rural*

- |     |                                 |                                   |
|-----|---------------------------------|-----------------------------------|
| (a) | Distribution Supply charge      | \$37.06 per kVA Contract Capacity |
| (b) | Distribution Supply charge      | \$85.24 per Winter Peak MWh       |
| (c) | Distribution Supply charge      | \$20.58 per Winter Day MWh        |
| (d) | Distribution Maintenance charge | \$7.39 per Domestic Total MWh     |
| (e) | Distribution Maintenance charge | \$14.78 per Commercial Total MWh  |

- (f) Distribution Maintenance charge \$12.24 per kVA Contract Capacity
- (g) Distribution Transformer charge \$10.08 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.

With respect to the maintenance charges for group customers the commercial customers incur a weighting to residential customers of 2:1. This represents a higher level of importance for commercial customers of the maintenance to the network. This weighted ratio only applies to the total energy component i.e. 50% of the charge.

## 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 \$3,369,371

The charge per customer is \$95.18

## 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	\$3,076.32	\$3,856.63	\$285.55	\$7,218.50
50	\$42,551.94	\$17,530.83	\$1,808.51	\$61,891.28
75	\$12,126.16	\$7,268.02	\$571.11	\$19,965.29
100	\$78,365.93	\$73,018.47	\$3,045.91	\$154,430.32
150	\$222,902.36	\$177,578.30	\$6,187.01	\$406,667.68
200	\$343,475.22	\$150,174.23	\$4,664.06	\$498,313.50
300	\$287,615.79	\$129,290.58	\$3,521.84	\$420,428.21
500	\$1,567,247.52	\$101,040.52	\$2,284.44	\$1,670,572.47
750	\$195,400.74	\$29,617.78	\$856.66	\$225,875.18
1000	\$197,179.74	\$49,886.56	\$761.48	\$247,827.78
1250	\$50,779.98	\$14,790.74	\$190.37	\$65,761.09
1500	\$91,434.15	\$5,878.90	\$190.37	\$97,503.42
2000	\$210,610.11	\$46,770.49	\$285.55	\$257,666.15
2250	\$66,259.71	\$20,126.96	\$95.18	\$86,481.85
3000	\$39,216.09	\$954.29	\$95.18	\$40,265.56
4500	\$1,796.11	\$1,504.72	\$95.18	\$3,396.02
5000	\$147,882.46	\$2,506.57	\$95.18	\$150,484.22
6000	\$435,012.84	\$28,251.44	\$95.18	\$463,359.46
10000	\$489,295.61	\$4,131.48	\$95.18	\$493,522.27
30200	\$392,169.99	\$0.00	\$0.00	\$392,169.99

## 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	Sub transmission Charge	Distribution Charge	Overheads	Total PowerNet Revenue
<b>TPC Urban</b>						
<b>Residential Standard</b>						
Small Residential (8kVA 1 Phase) - All Peak	UD08P	68	\$7,731.70	\$7,679.13	\$6,472.57	\$21,883.40
Small Residential (8kVA 1 Phase) - With Off Peak	UD08Q	237	\$23,010.63	\$22,803.97	\$22,558.80	\$68,373.40
Residential (20kVA 1 Phase) - All Peak	UD20P	1,248	\$354,748.73	\$352,336.34	\$118,790.64	\$825,875.72
Residential (20kVA 1 Phase) - With Off Peak	UD20Q	8,982	\$2,180,184.16	\$2,160,604.28	\$854,949.98	\$5,195,738.42
Residential Low Fixed Charge Option (20kVA 1 Phase) - All Peak	UDL20P	836	\$200,108.08	\$214,124.59	\$79,574.50	\$493,807.17
Residential Low Fixed Charge Option (20kVA 1 Phase) - With Off Peak	UDL20Q	4,471	\$912,429.07	\$974,812.89	\$425,571.29	\$2,312,813.26
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	38	\$4,009.73	\$4,108.28	\$3,617.02	\$11,735.02
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	139	\$12,958.44	\$13,061.48	\$13,230.69	\$39,250.61
<b>General Single Phase</b>						
Street Lights (1 Phase)	US001L	4,343	\$143,917.62	\$82,549.17	\$8,267.75	\$234,734.54
1 kVA 1 Phase - All Peak	US001P	43	\$9,461.79	\$5,153.10	\$4,092.95	\$18,707.84
8 kVA 1 Phase - All Peak	US008P	213	\$24,218.42	\$24,053.73	\$20,274.36	\$68,546.52
8 kVA 1 Phase - With Off Peak	US008Q	15	\$1,456.37	\$1,443.29	\$1,427.77	\$4,327.43
20 kVA 1 Phase - All Peak	US020P	353	\$100,341.59	\$99,659.24	\$33,600.24	\$233,601.06
20 kVA 1 Phase - With Off Peak	US020Q	115	\$27,913.74	\$27,663.05	\$10,946.25	\$66,523.04

<b>General Three Phase</b>						
15 kVA 3 Phase - All Peak	UT015P	100	\$23,040.24	\$22,176.09	\$9,518.48	\$54,734.81
15 kVA 3 Phase - With Off Peak	UT015Q	12	\$2,391.10	\$2,285.18	\$1,142.22	\$5,818.49
30 kVA 3 Phase - All Peak	UT030P	538	\$263,496.59	\$263,988.74	\$51,209.43	\$578,694.76
30 kVA 3 Phase - With Off Peak	UT030Q	112	\$47,280.83	\$47,084.02	\$10,660.70	\$105,025.55
50 kVA 3 Phase - All Peak	UT050P	306	\$361,243.39	\$346,130.16	\$29,126.55	\$736,500.10
50 kVA 3 Phase - With Off Peak	UT050Q	90	\$91,776.85	\$87,362.81	\$8,566.63	\$187,706.30
75 kVA 3 Phase - All Peak	UT075P	87	\$187,446.51	\$183,545.45	\$8,281.08	\$379,273.04
75 kVA 3 Phase - With Off Peak	UT075Q	22	\$40,855.93	\$39,772.11	\$2,094.07	\$82,722.11
100 kVA 3 Phase - All Peak	UT100P	16	\$56,987.67	\$55,472.55	\$1,522.96	\$113,983.18
100 kVA 3 Phase - With Off Peak	UT100Q	2	\$6,139.96	\$5,942.11	\$190.37	\$12,272.43
<b>TPC Rural Residential</b>						
Small Residential (8kVA 1 Phase) - All Peak	RD08P	96	\$10,915.35	\$33,485.02	\$9,137.74	\$53,538.10
Small Residential (8kVA 1 Phase) - With Off Peak	RD08Q	109	\$10,582.95	\$32,658.97	\$10,375.14	\$53,617.06
Residential (20kVA 1 Phase) - All Peak	RD20P	1,303	\$370,382.69	\$1,136,223.36	\$124,025.81	\$1,630,631.86
Residential (20kVA 1 Phase) - With Off Peak	RD20Q	6,497	\$1,577,004.73	\$4,866,636.11	\$618,415.72	\$7,062,056.57
Residential Low Fixed Charge Option (20kVA 1 Phase) - All Peak	RDL20P	451	\$107,953.04	\$339,486.56	\$42,928.35	\$490,367.95
Residential Low Fixed Charge Option (20kVA 1 Phase) - With Off Peak	RDL20Q	1,564	\$319,176.71	\$1,007,519.37	\$148,869.05	\$1,475,565.12
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	33	\$3,482.13	\$10,836.58	\$3,141.10	\$17,459.81
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	21	\$1,957.75	\$6,071.88	\$1,998.88	\$10,028.51

<b>General Single Phase</b>						
Street Lights (1 Phase)	RS001L	517	\$17,132.26	\$38,623.99	\$984.21	\$56,740.47
1 kVA 1 Phase - All Peak	RS001P	126	\$27,725.25	\$66,430.05	\$11,993.29	\$106,148.59
8 kVA 1 Phase - All Peak	RS008P	1,022	\$116,202.95	\$356,475.91	\$97,278.88	\$569,957.74
8 kVA 1 Phase - With Off Peak	RS008Q	24	\$2,330.19	\$7,190.97	\$2,284.44	\$11,805.59
20 kVA 1 Phase - All Peak	RS020P	1,722	\$489,485.02	\$1,501,593.73	\$163,908.25	\$2,154,987.00
20 kVA 1 Phase - With Off Peak	RS020Q	323	\$78,401.19	\$241,946.05	\$30,744.69	\$351,091.93
<b>General Three Phase</b>						
15 kVA 3 Phase - All Peak	RT015P	300	\$69,120.73	\$215,937.43	\$28,555.44	\$313,613.60
15 kVA 3 Phase - With Off Peak	RT015Q	14	\$2,789.61	\$8,786.14	\$1,332.59	\$12,908.34
30 kVA 3 Phase - All Peak	RT030P	1,903	\$932,033.48	\$2,915,786.14	\$181,136.70	\$4,028,956.31
30 kVA 3 Phase - With Off Peak	RT030Q	439	\$185,323.96	\$583,579.59	\$41,786.13	\$810,689.68
50 kVA 3 Phase - All Peak	RT050P	439	\$518,254.40	\$1,594,180.93	\$41,786.13	\$2,154,221.46
50 kVA 3 Phase - With Off Peak	RT050Q	714	\$728,096.37	\$2,257,542.56	\$67,961.96	\$3,053,600.88
75 kVA 3 Phase - All Peak	RT075P	75	\$161,591.82	\$495,622.78	\$7,138.86	\$664,353.46
75 kVA 3 Phase - With Off Peak	RT075Q	49	\$90,997.30	\$281,048.17	\$4,664.06	\$376,709.53
100 kVA 3 Phase - All Peak	RT100P	23	\$81,919.78	\$249,979.98	\$2,189.25	\$334,089.01
100 kVA 3 Phase - With Off Peak	RT100Q	11	\$33,769.76	\$103,779.29	\$1,047.03	\$138,596.08

## 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 2017 -18 year. We also outline the change in revenue compared with the previous year:

<b>Year 2017-18</b>	<b>Group Customers</b>	<b>Individual</b>	<b>Total</b>
Distribution	\$38,374,952	\$5,795,074	\$44,170,026
Transmission	\$ 9,811,689	\$4,763,651	\$14,575,340
<b>Total</b>	<b>\$48,186,641</b>	<b>\$10,558,725</b>	<b>\$58,745,366</b>

### Revenue from previous year,

Distribution	\$37,652,821	\$5,785,945	\$43,438,766
Transmission	\$ 9,217,154	\$4,491,364	\$13,708,518
<b>Total</b>	<b>\$46,869,975</b>	<b>\$10,277,309</b>	<b>\$57,147,284</b>

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 interconnection peak demand rate of 8.1% and increased ACOT payments to distributed generators.

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

### 7.8.1 Line Charge Revenue for Individual Customers

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

<b>Consumer Capacity kVA</b>	<b>Number of Connections</b>	<b>Line Charge Revenue per Consumer Group</b>	<b>Average Line Charge</b>
30	3	\$9,775	\$3,258
50	20	\$114,788	\$5,739
75	7	\$43,548	\$6,221
100	33	\$242,257	\$7,341
150	66	\$680,987	\$10,318
200	51	\$782,722	\$15,347
300	37	\$814,619	\$22,017
500	25	\$2,057,692	\$82,308
750	9	\$459,703	\$51,078
1000	8	\$615,540	\$76,942
1250	2	\$155,630	\$77,815
1500	2	\$170,447	\$85,224
2000	3	\$547,601	\$182,534
2250	1	\$189,263	\$189,263
3000	1	\$87,373	\$87,373
4500	1	\$7,824	\$7,824
5000	1	\$397,140	\$397,140
6000	1	\$1,200,842	\$1,200,842
10000	1	\$1,238,830	\$1,238,830
30200	1	\$1,332,711	\$1,332,711

## 7.8.2 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 MWh Purchases	Line Charge Revenue per Consumer Group
<b>TPC Urban</b>					
<b>Residential Standard</b>					
Small Residential (8kVA 1 Phase) - All Peak	UD08P	68	\$0.92	\$84.28	\$29,139
Small Residential (8kVA 1 Phase) - With Off Peak	UD08Q	237	\$0.60	\$84.28	\$89,361
Residential (20kVA 1 Phase) - All Peak	UD20P	1,248	\$1.66	\$84.28	\$1,158,801
Residential (20kVA 1 Phase) - With Off Peak	UD20Q	8,982	\$1.16	\$84.28	\$7,184,276
Residential Low Fixed Charge Option (20kVA 1 Phase) - All Peak	UDL20P	836	\$0.15	\$135.85	\$673,995
Residential Low Fixed Charge Option (20kVA 1 Phase) - With Off Peak	UDL20Q	4,471	\$0.10	\$135.85	\$3,118,610
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	38	\$0.15	\$108.83	\$15,345
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	139	\$0.10	\$108.83	\$50,988
<b>General Single Phase</b>					
Street Lights (1 Phase)	US001L	4,343	\$0.13	\$84.28	\$358,864
1 kVA 1 Phase - All Peak	US001P	43	\$0.65	\$84.28	\$27,130
8 kVA 1 Phase - All Peak	US008P	213	\$0.92	\$84.28	\$91,275
8 kVA 1 Phase - With Off Peak	US008Q	15	\$0.60	\$84.28	\$5,656
20 kVA 1 Phase - All Peak	US020P	353	\$1.66	\$84.28	\$327,770
20 kVA 1 Phase - With Off Peak	US020Q	115	\$1.16	\$84.28	\$91,983
<b>General Three Phase</b>					
15 kVA 3 Phase - All Peak	UT015P	100	\$1.38	\$84.28	\$74,742.35
15 kVA 3 Phase - With Off Peak	UT015Q	12	\$0.91	\$84.28	\$7,811.02
30 kVA 3 Phase - All Peak	UT030P	538	\$2.33	\$84.28	\$805,367.13
30 kVA 3 Phase - With Off Peak	UT030Q	112	\$1.56	\$84.28	\$144,365.10
50 kVA 3 Phase - All Peak	UT050P	306	\$4.73	\$84.28	\$1,049,150.10
50 kVA 3 Phase - With Off Peak	UT050Q	90	\$3.22	\$84.28	\$264,143.41
75 kVA 3 Phase - All Peak	UT075P	87	\$11.47	\$84.28	\$540,523.50
75 kVA 3 Phase - With Off Peak	UT075Q	22	\$7.73	\$84.28	\$116,715.89
100 kVA 3 Phase - All Peak	UT100P	16	\$21.24	\$84.28	\$163,006.70
100 kVA 3 Phase - With Off Peak	UT100Q	2	\$14.75	\$84.28	\$17,381.12

<b>TPC Rural</b>					
<b>Residential</b>					
Small Residential (8kVA 1 Phase) - All Peak	RD08P	96	\$1.04	\$84.28	\$63,781.96
Small Residential (8kVA 1 Phase) - With Off Peak	RD08Q	109	\$0.70	\$84.28	\$63,269.73
Residential (20kVA 1 Phase) - All Peak	RD20P	1,303	\$1.91	\$84.28	\$1,978,229.48
Residential (20kVA 1 Phase) - With Off Peak	RD20Q	6,497	\$1.31	\$84.28	\$8,500,436.21
Residential Low Fixed Charge Option (20kVA 1 Phase) - All Peak	RDL20P	451	\$0.15	\$135.85	\$587,574.64
Residential Low Fixed Charge Option (20kVA 1 Phase) - With Off Peak	RDL20Q	1,564	\$0.10	\$135.85	\$1,757,440.67
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	33	\$0.15	\$108.83	\$20,594.53
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	21	\$0.10	\$108.83	\$11,801.75
<b>General Single Phase</b>					
Street Lights (1 Phase)	RS001L	517	\$0.15	\$84.28	\$71,517.09
1 kVA 1 Phase - All Peak	RS001P	126	\$0.65	\$84.28	\$130,827.41
8 kVA 1 Phase - All Peak	RS008P	1,022	\$1.04	\$84.28	\$679,012.16
8 kVA 1 Phase - With Off Peak	RS008Q	24	\$0.70	\$84.28	\$13,930.95
20 kVA 1 Phase - All Peak	RS020P	1,722	\$1.91	\$84.28	\$2,614,360.07
20 kVA 1 Phase - With Off Peak	RS020Q	323	\$1.31	\$84.28	\$422,601.34
<b>General Three Phase</b>					
15 kVA 3 Phase - All Peak	RT015P	300	\$1.56	\$84.28	\$373,636.21
15 kVA 3 Phase - With Off Peak	RT015Q	14	\$1.06	\$84.28	\$15,232.95
30 kVA 3 Phase - All Peak	RT030P	1,903	\$2.67	\$84.28	\$4,830,736.10
30 kVA 3 Phase - With Off Peak	RT030Q	439	\$1.81	\$84.28	\$964,886.70
50 kVA 3 Phase - All Peak	RT050P	439	\$5.42	\$84.28	\$2,602,761.81
50 kVA 3 Phase - With Off Peak	RT050Q	714	\$3.71	\$84.28	\$3,660,001.95
75 kVA 3 Phase - All Peak	RT075P	75	\$13.77	\$84.28	\$803,362.48
75 kVA 3 Phase - With Off Peak	RT075Q	49	\$9.27	\$84.28	\$452,422.96
100 kVA 3 Phase - All Peak	RT100P	23	\$25.52	\$84.28	\$404,560.32
100 kVA 3 Phase - With Off Peak	RT100Q	11	\$17.71	\$84.28	\$166,693.88

## 8. FIXED AND VARIABLE CHARGES

The total line charge is charged as a split fixed and variable charge. This allows PowerNet to share some of the risk with the Energy Trader. 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 MWh in the customer energy profile to give a variable charge in dollars per Day MWh.

In the case of all other installations the variable charge is a standard charge of \$93.48 per Day MWh. The fixed charge is then calculated as the difference between the total charge and the number of Day MWh for the installation times \$93.48. This method of calculating the fixed charge accounts for the fact that some installations have negative fixed charges.

The Variable Charge of \$93.48 per MWh of daytime sales equates to \$84.28 per MWh 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 not based on the derivation of the line charge but is an application of the line charge to the end-use consumer. The objectives behind the fixed and variable charges are as follows:

- (a) The 50:50 fixed: variable line charge is a compromise between a totally fixed charge which would benefit the large consumer within a load group and a totally variable charge which 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.
- (b) 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 sub transmission 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.
- (c) 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.

- (d) Retailers may directly pass through a totally fixed charge to consumers.
- (e) 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.
- (f) Consumers also have the opportunity to shift load to night time to receive immediate benefits.
- (g) If a consumer is expanding the 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.
- (h) 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 group 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.
- (i) The variable charge component is based on daytime energy usage, i.e. between 07:00 and 23:00 hours. Hence, night time consumption does not contribute directly to the line charge account.

## 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 two 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.

### **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.

### **Target revenue from ICP's on Non-standard contracts**

The total target revenue from ICP's on Non-standard Contracts for the 2017/2018 year is \$2.490m.

## 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.

### 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

### Capital Contributions

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

### 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.

### HVDC Transmission Charges

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

### **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 four Distributed Generators receiving this payment.

## 11. 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:

<b>IDD Section</b>	<b>Key sections of methodology demonstrating compliance</b>
2.4.1 (1)	Sections 2 - 8
2.4.1 (2)	Section 6.7
2.4.1 (3)	Sections 8&9
2.4.1 (4)	Section 3
2.4.2	No changes to the methodology
2.4.3 (1)	Sections 5 & 6
2.4.3 (2)	Section 2
2.4.3 (3)	Sections 6.7
2.4.3 (4)	Section 5 & 6
2.4.3 (5) (a) , (b)	Section 4
2.4.3 (6)	Section 6
2.4.3 (7)	Section 6
2.4.3 (8)	Section 11
2.4.4 (1-3)	N/A
2.4.5 (1) (a) to (c)	Section 8
2.4.5 (2) (a) & (b)	Section 8
2.4.5 (3) (a) & (b)	Section 9

## 12. LINE CHARGE TABLES

### 12.1 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	10000	\$745,307	\$489,296	\$4,131	\$95.18	\$1,238,829.72	\$619,414.86	\$20.68
800107TP-390	200	\$8,942	\$5,501	\$2,876	\$95.18	\$17,414.43	\$8,707.22	\$19.56
800116TP-578	3000	\$47,107	\$39,216	\$954	\$95.18	\$87,372.68	\$43,686.34	\$19.08
800117TP-93D	750	\$35	\$39	\$239	\$95.18	\$407.88	\$203.94	\$494.35
8001275TP-A4C	75	\$3,565	\$5,745	\$1,270	\$95.18	\$10,675.33	\$5,337.66	\$49.30
800127TP-EC5	300	\$2,276	\$1,272	\$2,664	\$95.18	\$6,307.84	\$3,153.92	\$54.17
800128TP-11B	100	\$91	\$207	\$2,205	\$95.18	\$2,598.83	\$2,598.83	\$0.00
800134TP-8A8	5000	\$246,656	\$147,882	\$2,507	\$95.18	\$397,140.42	\$198,570.21	\$24.19
8001365TP-9E5	750	\$35,078	\$18,838	\$330	\$95.18	\$54,340.94	\$27,170.47	\$18.84
800139TP-7F3	300	\$11,574	\$4,409	\$2,407	\$95.18	\$18,485.06	\$9,242.53	\$40.21
118447TP-ECC	150	\$5,555	\$2,774	\$2,216	\$95.18	\$10,640.34	\$1,785.36	\$84.28
800146TP-D70	30200	\$940,541	\$392,170	\$0	\$0.00	\$1,332,711.46	\$0.00	\$0.00
615297TP-AA3	50	\$1,590	\$2,461	\$1,505	\$95.18	\$5,652.26	\$2,826.13	\$20.43
502013TP-4D1	200	\$1,203	\$412	\$2,230	\$95.18	\$3,940.36	\$195.91	\$84.28
4031015TP-9AA	200	\$18,281	\$33,311	\$1,394	\$95.18	\$53,081.02	\$53,081.02	\$0.00
382896TP-29B	200	\$430	\$4,659	\$2,963	\$95.18	\$8,147.22	\$8,147.22	\$0.00
800186TP-A9F	1250	\$17,254	\$28,998	\$13,005	\$95.18	\$59,352.28	\$29,676.14	\$22.60

244381TP-3EE	75	\$72	\$479	\$1,398	\$95.18	\$2,044.07	\$2,044.07	\$0.00
1419275TP-57D	100	\$121	\$402	\$2,466	\$95.18	\$3,084.01	(\$1,267.59)	\$84.28
1819183TP-528	150	\$1,963	\$321	\$4,863	\$95.18	\$7,241.92	\$3,620.96	\$70.70
333040TP-1F2	200	\$1,129	\$11,427	\$3,435	\$95.18	\$16,087.44	\$16,087.44	\$0.00
482021TP-8E5	150	\$4,160	\$2,531	\$2,515	\$95.18	\$9,300.61	\$4,650.31	\$39.79
437081TP-9D3	200	\$24	\$81	\$2,399	\$95.18	\$2,599.48	\$1,299.74	\$790.72
643886TP-0F5	200	\$4,999	\$3,482	\$2,504	\$95.18	\$11,078.93	\$5,539.47	\$81.81
329419TP-D0B	300	\$588	\$866	\$3,843	\$95.18	\$5,393.11	\$2,696.55	\$72.97
100109TP-F16	100	\$5,022	\$4,458	\$3,137	\$95.18	\$12,713.26	\$6,356.63	\$59.65
800158TP-446	500	\$4,109	\$11,729	\$452	\$95.18	\$16,385.38	\$8,192.69	\$82.41
8001315TP-CB8	2250	\$102,781	\$66,260	\$20,127	\$95.18	\$189,263.34	\$94,631.67	\$22.76
391396TP-B94	100	\$1,424	\$1,685	\$3,230	\$95.18	\$6,434.02	\$1,867.80	\$84.28
437074TP-48B	1000	\$14,332	\$26,764	\$8,434	\$95.18	\$49,624.98	\$24,812.49	\$60.70
4370715TP-029	500	\$4,881	\$8,100	\$5,538	\$95.18	\$18,614.81	\$9,307.40	\$101.52
437078TP-795	1000	\$18,320	\$15,606	\$10,190	\$95.18	\$44,211.70	\$22,105.85	\$61.01
800155TP-B1D	300	\$10,376	\$2,174	\$4,973	\$95.18	\$17,617.74	\$8,808.87	\$19.75
1421365TP-AF8	150	\$1,890	\$5,510	\$3,867	\$95.18	\$11,362.14	\$11,362.14	\$0.00
5020273TP-22A	300	\$20,962	\$4,527	\$2,375	\$95.18	\$27,959.29	\$13,979.64	\$27.19
482027TP-96A	200	\$4,360	\$3,443	\$2,732	\$95.18	\$10,629.45	\$5,314.72	\$26.22
185015TP-7A4	200	\$2,102	\$842	\$2,807	\$95.18	\$5,845.45	\$2,922.72	\$55.92
543645TP-165	30	\$1,044	\$1,199	\$1,244	\$95.18	\$3,581.73	(\$1,314.22)	\$84.28
5678995TP-502	200	\$8,628	\$2,537	\$2,178	\$95.18	\$13,438.28	\$6,719.14	\$27.09
800133TP-562	4500	\$4,428	\$1,796	\$1,505	\$95.18	\$7,824.30	\$3,912.15	\$102.86
3193295TP-E03	200	\$806	\$3,336	\$3,497	\$95.18	\$7,734.31	\$3,867.15	\$57.10
141326TP-DAF	200	\$9,646	\$12,135	\$2,961	\$95.18	\$24,837.22	\$12,418.61	\$30.63
800163TP-D6A	300	\$8,733	\$21,205	\$3,590	\$95.18	\$33,623.85	\$16,811.93	\$58.08
444030TP-F7D	200	\$10,089	\$4,876	\$2,665	\$95.18	\$17,725.45	\$8,862.72	\$35.97

448899TP-2BE	100	\$1,016	\$1,148	\$1,568	\$95.18	\$3,826.37	\$2,872.96	\$84.28
427512TP-710	150	\$1,359	\$1,083	\$2,560	\$95.18	\$5,097.64	\$2,548.82	\$71.81
549615TP-72D	300	\$11,926	\$3,649	\$2,792	\$95.18	\$18,462.73	\$9,231.36	\$40.67
333049TP-FA3	150	\$858	\$9,545	\$2,926	\$95.18	\$13,424.16	\$13,424.16	\$0.00
3330513TP-914	150	\$629	\$8,688	\$3,017	\$95.18	\$12,429.92	\$12,429.92	\$0.00
240526TP-6BD	150	\$6,220	\$2,065	\$4,819	\$95.18	\$13,199.01	(\$9,634.76)	\$84.28
8001505TP-013	300	\$8,566	\$2,978	\$6,807	\$95.18	\$18,446.12	(\$16,646.95)	\$84.28
221318TP-720	150	\$5,049	\$1,772	\$3,348	\$95.18	\$10,264.90	\$1,885.04	\$84.28
8001801TP-411	1000	\$96,131	\$52,184	\$7,457	\$95.18	\$155,868.11	\$77,934.05	\$21.57
8001815TP-FB6	1000	\$110,733	\$50,171	\$7,457	\$95.18	\$168,456.40	\$86,671.20	\$30.07
800181TP-755	500	\$22,321	\$11,257	\$4,779	\$95.18	\$38,451.45	\$19,225.72	\$32.42
410873TP-4E1	200	\$6,264	\$2,224	\$3,132	\$95.18	\$11,714.96	\$5,857.48	\$33.89
612680TP-5A5	100	\$2,293	\$1,738	\$3,284	\$95.18	\$7,410.29	\$3,705.15	\$41.47
175065TP-765	75	\$700	\$792	\$1,677	\$95.18	\$3,264.16	\$1,632.08	\$55.55
4004001TP-401	150	\$989	\$2,937	\$2,287	\$95.18	\$6,308.12	\$886.56	\$84.28
5290993TP-D4F	150	\$2,486	\$1,162	\$2,042	\$95.18	\$5,784.49	(\$1,644.90)	\$84.28
166730TP-721	150	\$1,020	\$514	\$1,746	\$95.18	\$3,375.55	\$1,687.77	\$136.23
632751TP-46B	150	\$1,067	\$720	\$2,384	\$95.18	\$4,265.94	(\$1,680.71)	\$84.28
318907TP-1B9	100	\$222	\$1,959	\$2,437	\$95.18	\$4,712.94	\$4,712.94	\$0.00
3193735TP-319	200	\$1,078	\$16,378	\$3,049	\$95.18	\$20,600.45	\$20,600.45	\$0.00
3336978TP-1FC	100	\$868	\$2,188	\$3,258	\$95.18	\$6,409.17	\$6,409.17	\$0.00
141806TP-3F4	150	\$104	\$1,015	\$2,507	\$95.18	\$3,720.49	\$3,720.49	\$0.00
313732TP-2E5	200	\$6,770	\$10,114	\$2,764	\$95.18	\$19,742.98	\$3,580.98	\$84.28
249946TP-9E1	150	\$1,938	\$3,112	\$2,368	\$95.18	\$7,512.22	\$3,756.11	\$24.35
249967TP-8F1	100	\$64	\$306	\$2,275	\$95.18	\$2,740.72	\$2,740.72	\$0.00
249945TP-521	150	\$1,952	\$3,274	\$2,485	\$95.18	\$7,806.54	\$3,903.27	\$26.33
362484TP-9C2	200	\$13,633	\$7,593	\$1,567	\$95.18	\$22,887.76	\$11,443.88	\$26.00

404955TP-F5E	100	\$2,575	\$2,672	\$1,906	\$95.18	\$7,248.12	(\$673.97)	\$84.28
405350TP-9BB	150	\$4,415	\$14,371	\$2,210	\$95.18	\$21,090.58	(\$3,289.95)	\$84.28
405508TP-5A1	200	\$4,357	\$14,600	\$2,698	\$95.18	\$21,750.61	(\$5,953.32)	\$84.28
800153TP-A92	500	\$11,915	\$4,420	\$7,685	\$95.18	\$24,115.36	\$12,057.68	\$34.65
116195TP-ECE	150	\$6,387	\$2,291	\$3,902	\$95.18	\$12,675.73	(\$1,331.79)	\$84.28
172559TP-2E6	150	\$2,522	\$8,792	\$4,232	\$95.18	\$15,640.72	\$13,688.80	\$84.28
162713TP-034	150	\$4,514	\$5,783	\$6,782	\$95.18	\$17,173.37	\$9,851.13	\$84.28
5791985TP-A1E	150	\$4,820	\$2,480	\$2,233	\$95.18	\$9,628.53	\$2,387.85	\$84.28
690202TP-00E	50	\$5,014	\$4,628	\$571	\$95.18	\$10,308.25	\$5,154.13	\$36.61
6902235TP-F5B	50	\$3,614	\$2,347	\$936	\$95.18	\$6,992.85	\$3,496.43	\$39.60
690247TP-FE4	50	\$5,281	\$4,505	\$1,281	\$95.18	\$11,162.58	\$5,581.29	\$25.93
690237TP-AB9	50	\$4,418	\$6,960	\$1,252	\$95.18	\$12,724.21	\$6,362.10	\$54.08
318943TP-216	200	\$814	\$4,744	\$2,926	\$95.18	\$8,580.23	\$4,290.12	\$84.81
243366TP-0FE	200	\$1,067	\$1,283	\$4,353	\$95.18	\$6,798.36	\$3,399.18	\$54.62
3312316TP-8D0	200	\$3,161	\$17,697	\$3,999	\$95.18	\$24,952.19	\$15,699.93	\$84.28
166724TP-C86	500	\$54,211	\$12,212	\$3,316	\$95.18	\$69,833.28	\$34,916.64	\$18.08
166727TP-046	200	\$2,034	\$333	\$2,287	\$95.18	\$4,749.20	\$2,374.60	\$44.61
241126TP-B1C	150	\$5,860	\$965	\$3,411	\$95.18	\$10,330.45	\$5,165.23	\$52.72
690224TP-CD4	150	\$2,901	\$581	\$2,031	\$95.18	\$5,608.22	\$2,804.11	\$32.12
6902265TP-753	100	\$2,495	\$1,771	\$2,024	\$95.18	\$6,385.91	\$3,192.96	\$35.70
250351TP-0CD	300	\$12,990	\$3,145	\$4,773	\$95.18	\$21,003.65	\$10,501.82	\$30.32
177096TP-8F2	200	\$12,173	\$3,069	\$2,971	\$95.18	\$18,308.28	\$9,154.14	\$34.76
800151TP-A17	100	\$673	\$727	\$2,338	\$95.18	\$3,832.30	\$815.76	\$84.28
240375TP-473	150	\$7,627	\$2,274	\$2,667	\$95.18	\$12,662.46	(\$8,386.81)	\$84.28
517704TP-375	150	\$4,820	\$2,504	\$2,288	\$95.18	\$9,706.55	\$1,422.35	\$84.28
1819179TP-7AE	150	\$6,273	\$1,671	\$4,835	\$95.18	\$12,873.52	\$6,436.76	\$30.61
637250TP-A0B	750	\$2,857	\$4,011	\$5,545	\$95.18	\$12,507.81	\$6,253.91	\$24.09

3193724TP-5F1	300	\$981	\$13,464	\$3,784	\$95.18	\$18,324.29	\$18,324.29	\$0.00
162358TP-044	150	\$886	\$2,144	\$2,774	\$95.18	\$5,898.63	\$2,949.31	\$72.26
141929TP-87B	200	\$3,878	\$5,906	\$3,214	\$95.18	\$13,092.68	(\$1,160.92)	\$84.28
6222490TP-205	500	\$1,423	\$1,494	\$5,830	\$95.18	\$8,842.03	\$4,421.02	\$26.36
482074TP-DA2	200	\$4,925	\$3,511	\$3,086	\$95.18	\$11,617.48	\$5,808.74	\$38.80
8001245TP-DB4	500	\$4,308	\$20,411	\$4,475	\$95.18	\$29,288.10	\$14,644.05	\$52.69
8001876TP-C86	300	\$816	\$340	\$3,840	\$95.18	\$5,091.34	\$1,808.26	\$84.28
8001235TP-8E9	200	\$4,069	\$2,126	\$3,124	\$95.18	\$9,414.23	\$7,032.29	\$84.28
625837TP-99A	500	\$20,642	\$6,689	\$3,132	\$95.18	\$30,558.70	\$15,279.35	\$36.84
555205TP-2E0	100	\$1,871	\$2,363	\$2,155	\$95.18	\$6,483.82	\$3,241.91	\$22.72
556467TP-973	1000	\$15,647	\$5,940	\$4,153	\$95.18	\$25,834.72	\$12,917.36	\$20.36
569640TP-BA7	300	\$3,095	\$2,492	\$3,004	\$95.18	\$8,686.26	\$4,343.13	\$56.14
800103TP-29A	300	\$10,490	\$5,118	\$2,537	\$95.18	\$18,239.62	\$9,119.81	\$24.38
800114TP-5FD	750	\$23,290	\$16,653	\$4,549	\$95.18	\$44,587.00	\$22,293.50	\$22.61
521000TP-991	50	\$2,098	\$1,599	\$618	\$95.18	\$4,410.61	\$2,205.31	\$23.70
5210031TP-3F9	100	\$4,292	\$3,582	\$1,677	\$95.18	\$9,646.72	\$4,823.36	\$25.54
564570TP-57C	50	\$2,109	\$1,640	\$554	\$95.18	\$4,397.93	\$2,198.97	\$26.59
568791TP-204	100	\$4,546	\$3,560	\$1,245	\$95.18	\$9,446.29	\$4,723.14	\$25.93
5791016TP-030	50	\$2,663	\$1,954	\$510	\$95.18	\$5,221.81	\$2,610.91	\$27.38
800130TP-9A2	300	\$32,176	\$6,967	\$2,511	\$95.18	\$41,749.02	\$20,874.51	\$17.47
569999TP-7BB	150	\$531	\$264	\$1,804	\$95.18	\$2,694.73	\$1,950.48	\$84.28
181975TP-7DD	150	\$9,934	\$2,312	\$2,845	\$95.18	\$15,186.32	\$7,593.16	\$20.77
4182832TP-1BD	200	\$9,089	\$24,332	\$3,044	\$95.18	\$36,560.22	\$8,617.84	\$84.28
4182836TP-0B7	150	\$2,865	\$7,824	\$2,805	\$95.18	\$13,590.34	\$3,238.00	\$84.28
418284TP-E36	500	\$19,506	\$37,791	\$5,210	\$95.18	\$62,602.37	\$31,301.19	\$98.91
176257TP-8FF	200	\$3,860	\$1,193	\$2,118	\$95.18	\$7,266.74	\$5,016.46	\$84.28
800164TP-0A0	500	\$16,234	\$38,524	\$4,958	\$95.18	\$59,811.16	\$29,905.58	\$49.77

319736TP-DAF	200	\$531	\$6,621	\$4,135	\$95.18	\$11,381.84	\$11,381.84	\$0.00
180710TP-2C9	150	\$4,679	\$1,503	\$2,203	\$95.18	\$8,480.25	\$4,295.07	\$84.28
8001695TP-CF7	750	\$40,773	\$17,364	\$3,246	\$95.18	\$61,477.80	\$30,738.90	\$18.72
208362TP-581	150	\$543	\$2,027	\$2,549	\$95.18	\$5,213.70	(\$506.10)	\$84.28
800147TP-135	150	\$12,035	\$2,735	\$1,967	\$95.18	\$16,832.51	\$8,416.26	\$24.01
800150TP-652	100	\$3,867	\$4,419	\$2,198	\$95.18	\$10,578.89	\$2,770.60	\$84.28
142817TP-7FC	150	\$2,888	\$1,395	\$2,441	\$95.18	\$6,819.00	\$4,247.33	\$84.28
181750TP-1CC	200	\$10,570	\$2,404	\$2,892	\$95.18	\$15,961.62	\$7,980.81	\$19.55
6204314TP-54A	100	\$2,531	\$2,559	\$2,123	\$95.18	\$7,307.86	(\$763.66)	\$84.28
589190TP-49A	150	\$5,120	\$2,372	\$2,314	\$95.18	\$9,901.02	\$4,950.51	\$34.42
116167TP-E5C	150	\$3,702	\$642	\$2,104	\$95.18	\$6,543.41	\$3,271.70	\$36.66
118468TP-C47	100	\$4,078	\$4,282	\$1,828	\$95.18	\$10,282.69	(\$5,006.31)	\$84.28
1015827TP-5C5	150	\$3,984	\$5,639	\$2,882	\$95.18	\$12,599.47	\$3,073.30	\$84.28
190101TP-AC6	150	\$5,006	\$1,763	\$3,317	\$95.18	\$10,181.48	\$1,896.49	\$84.28
800169TP-FFB	150	\$4,958	\$2,033	\$2,090	\$95.18	\$9,176.60	\$4,588.30	\$18.69
400440TP-B34	100	\$1,699	\$1,901	\$1,619	\$95.18	\$5,313.66	(\$2,448.18)	\$84.28
157641TP-7B1	150	\$4,256	\$1,350	\$2,537	\$95.18	\$8,238.03	\$4,905.06	\$84.28
364828TP-B0F	150	\$626	\$336	\$2,790	\$95.18	\$3,847.35	\$1,923.68	\$71.55
192544TP-A6D	300	\$34,952	\$8,215	\$4,600	\$95.18	\$47,862.22	\$23,931.11	\$19.22
426599TP-D2E	500	\$24,256	\$10,817	\$4,793	\$95.18	\$39,961.24	\$19,980.62	\$24.39
304798TP-4EA	300	\$5,823	\$3,664	\$4,188	\$95.18	\$13,769.98	\$6,884.99	\$63.15
192519TP-D3E	150	\$5,778	\$1,780	\$2,986	\$95.18	\$10,638.65	\$924.33	\$84.28
1186118TP-5A2	200	\$6,819	\$2,783	\$2,204	\$95.18	\$11,900.96	\$5,950.48	\$34.90
1186119TP-9E7	200	\$12,309	\$6,133	\$2,204	\$95.18	\$20,740.95	(\$4,209.33)	\$84.28
118615TP-C46	200	\$4,919	\$2,599	\$2,204	\$95.18	\$9,817.42	(\$4,196.29)	\$84.28
6204404TP-0E5	1000	\$52,458	\$22,859	\$3,885	\$95.18	\$79,296.93	\$39,648.46	\$24.92
6204405TP-CA0	300	\$16,303	\$5,773	\$2,390	\$95.18	\$24,561.62	\$12,280.81	\$27.12

6204407TP-C25	500	\$28,498	\$11,957	\$2,992	\$95.18	\$43,542.56	\$21,771.28	\$22.90
6204408TP-3FB	750	\$67,013	\$26,099	\$3,496	\$95.18	\$96,703.06	\$48,351.53	\$20.63
620456TP-103	750	\$36,537	\$12,850	\$3,499	\$95.18	\$52,981.08	\$26,490.54	\$28.87
8001320TP-60F	300	\$7,213	\$2,932	\$2,390	\$95.18	\$12,630.16	\$6,315.08	\$32.71
6204415TP-60D	1000	\$9	\$39	\$3,786	\$95.18	\$3,928.51	\$3,928.51	\$0.00
176630TP-6C4	150	\$4,961	\$1,295	\$2,188	\$95.18	\$8,538.92	\$4,269.46	\$19.59
186250TP-0A9	750	\$11,443	\$3,075	\$4,998	\$95.18	\$19,612.27	\$9,806.14	\$24.01
204735TP-7C2	100	\$4,142	\$2,977	\$4,603	\$95.18	\$11,817.99	\$5,908.99	\$54.02
657599TP-EEF	200	\$10,267	\$2,139	\$301	\$95.18	\$12,802.38	\$12,802.38	\$0.00
525441TP-DF0	150	\$3,409	\$1,731	\$2,156	\$95.18	\$7,390.90	\$4,247.66	\$84.28
633604TP-988	200	\$2,978	\$3,087	\$2,369	\$95.18	\$8,528.77	\$4,264.39	\$19.55
1164012TP-00A	500	\$17,997	\$4,872	\$3,073	\$95.18	\$26,037.88	\$13,018.94	\$34.71
530906TP-856	300	\$8,616	\$10,041	\$2,395	\$95.18	\$21,147.55	\$10,573.77	\$39.76
5552033TP-EA2	6000	\$149,526	\$435,013	\$28,251	\$95.18	\$612,885.44	\$1,200,842.22	\$0.00
5672985TP-1EF	100	\$2,716	\$3,087	\$1,437	\$95.18	\$7,335.90	\$1,621.78	\$84.28
5552249TP-369	300	\$5,090	\$2,080	\$3,656	\$95.18	\$10,920.80	\$5,460.40	\$43.31
615269TP-92F	300	\$14,331	\$13,223	\$3,603	\$95.18	\$31,251.76	\$15,625.88	\$54.40
543979TP-A8C	50	\$2,956	\$1,674	\$0	\$95.18	\$4,725.85	\$2,362.93	\$46.33
1819727TP-A3B	100	\$2,438	\$2,547	\$1,682	\$95.18	\$6,761.99	\$3,380.99	\$30.50
50150092TP-CF2	75	\$197	\$215	\$1,206	\$95.18	\$1,712.95	\$856.48	\$119.04
50150100TP-A94	150	\$5,198	\$1,088	\$2,090	\$95.18	\$8,471.93	\$4,235.97	\$25.43
800152TP-6D7	1250	\$72,615	\$21,782	\$1,786	\$95.18	\$96,277.68	\$48,138.84	\$17.58
800170TP-B07	750	\$16,801	\$96,472	\$3,716	\$95.18	\$117,084.67	\$58,542.33	\$106.17
182010TP-E8B	100	\$7,974	\$6,457	\$2,225	\$95.18	\$16,752.10	\$8,376.05	\$37.67
8001045TP-7B3	500	\$18,102	\$8,096	\$3,327	\$95.18	\$29,619.76	\$14,809.88	\$29.86
800104TP-F50	1000	\$60,082	\$23,618	\$4,524	\$95.18	\$88,318.44	\$44,159.22	\$20.40
5791226TP-DCF	300	\$17,114	\$6,800	\$2,709	\$95.18	\$26,718.10	\$13,359.05	\$19.18

6438465TP-89B	500	\$19,255	\$13,263	\$3,531	\$95.18	\$36,143.31	\$18,071.65	\$29.08
643847TP-B5F	500	\$9,171	\$4,848	\$3,531	\$95.18	\$17,645.13	\$8,822.57	\$35.69
6438485TP-221	200	\$2,220	\$1,965	\$2,373	\$95.18	\$6,653.27	(\$4,497.13)	\$84.28
800132TP-927	100	\$4,069	\$3,248	\$2,828	\$95.18	\$10,240.08	\$5,120.04	\$29.50
8001305TP-615	30	\$1,167	\$1,315	\$1,354	\$95.18	\$3,930.97	\$1,168.77	\$84.28
8001708TP-54F	100	\$1,118	\$1,350	\$2,728	\$95.18	\$5,291.53	\$4,531.81	\$84.28
3149145TP-253	300	\$2,317	\$22,477	\$4,399	\$95.18	\$29,287.59	\$14,643.79	\$75.72
8001312TP-172	150	\$12,495	\$4,164	\$2,154	\$95.18	\$18,908.35	\$9,454.17	\$42.06
800113TP-837	100	\$1,743	\$1,975	\$1,577	\$95.18	\$5,390.53	(\$2,842.16)	\$84.28
331280TP-F5A	200	\$847	\$25,396	\$3,930	\$95.18	\$30,267.60	\$30,267.60	\$0.00
579184TP-AA1	100	\$4,032	\$4,500	\$1,177	\$95.18	\$9,803.91	\$4,901.95	\$51.85
568266TP-ADC	500	\$21,926	\$10,621	\$3,289	\$95.18	\$35,930.49	\$17,965.24	\$22.07
5682737TP-04F	300	\$1,331	\$1,940	\$2,568	\$95.18	\$5,934.16	\$2,967.08	\$72.97
5684239TP-311	150	\$5,494	\$1,668	\$1,766	\$95.18	\$9,023.53	\$4,511.76	\$36.76
396517TP-0FD	50	\$446	\$449	\$1,445	\$95.18	\$2,433.99	\$764.16	\$84.28
482070TP-CA8	300	\$7,325	\$6,974	\$3,784	\$95.18	\$18,177.61	\$1,615.54	\$84.28
308479TP-A96	200	\$2,087	\$2,735	\$9,081	\$95.18	\$13,998.24	\$11,766.49	\$84.28
300360TP-C68	75	\$334	\$372	\$583	\$95.18	\$1,384.30	\$1,193.78	\$84.28
208740TP-450	300	\$8,343	\$17,106	\$3,231	\$95.18	\$28,775.68	\$14,387.84	\$38.96
569639TP-0AB	150	\$4,018	\$1,919	\$2,045	\$95.18	\$8,077.32	\$4,038.66	\$36.32
319705TP-697	150	\$602	\$7,187	\$3,005	\$95.18	\$10,888.77	\$10,888.77	\$0.00
617670TP-292	300	\$8,669	\$8,072	\$3,801	\$95.18	\$20,636.89	\$10,318.44	\$46.72
112267TP-BDF	150	\$3,104	\$1,534	\$2,257	\$95.18	\$6,989.55	\$2,443.54	\$84.28
141924TP-720	200	\$133	\$387	\$3,121	\$95.18	\$3,736.40	\$1,868.20	\$47.47
192534TP-F30	150	\$2,896	\$489	\$2,542	\$95.18	\$6,021.72	\$3,010.86	\$32.50
800171TP-742	1500	\$29,223	\$56,984	\$682	\$95.18	\$86,984.03	\$43,492.01	\$58.68
1101461TP-OEE	200	\$3,614	\$1,388	\$3,361	\$95.18	\$8,457.80	\$4,228.90	\$58.63

1101999TP-7E5	300	\$11,993	\$4,800	\$4,323	\$95.18	\$21,210.32	\$10,605.16	\$33.98
110146TP-A8C	200	\$4,668	\$2,446	\$3,361	\$95.18	\$10,569.53	(\$3,730.13)	\$84.28
632798TP-DD5	100	\$2,102	\$5,232	\$2,185	\$95.18	\$9,613.80	\$4,806.90	\$29.94
634528TP-OA0	30	\$345	\$563	\$1,259	\$95.18	\$2,262.15	\$1,131.08	\$34.95
5552049TP-96E	300	\$6,820	\$7,490	\$3,430	\$95.18	\$17,835.36	\$8,917.68	\$20.70
5552055TP-0DD	2000	\$111,780	\$124,953	\$12,634	\$95.18	\$249,461.53	\$249,461.53	\$0.00
623482TP-FAB	150	\$6,844	\$3,617	\$2,901	\$95.18	\$13,457.57	(\$11,652.31)	\$84.28
800121TP-F4A	2000	\$102,219	\$32,995	\$6,822	\$95.18	\$142,130.84	\$71,065.42	\$17.36
184621TP-6F0	50	\$1,597	\$1,679	\$528	\$95.18	\$3,899.91	\$657.05	\$84.28
800120TP-30F	50	\$141	\$135	\$1,223	\$95.18	\$1,594.29	\$797.14	\$1,735.26
800125TP-E40	2000	\$75,936	\$52,663	\$27,315	\$95.18	\$156,008.90	\$78,004.45	\$21.02
1101005TP-215	500	\$639	\$330	\$5,293	\$95.18	\$6,357.17	\$6,357.17	\$0.00
8001011TP-EB1	50	\$1,426	\$896	\$1,265	\$95.18	\$3,682.35	\$1,841.17	\$52.16
400495TP-B39	200	\$5,707	\$19,240	\$3,360	\$95.18	\$28,402.74	\$14,201.37	\$54.86
800112TP-472	100	\$2,897	\$2,762	\$2,296	\$95.18	\$8,049.86	\$4,024.93	\$32.34
434220TP-56E	50	\$2,816	\$1,822	\$1,240	\$95.18	\$5,973.57	\$2,986.79	\$30.82
416103TP-D75	50	\$1,784	\$1,416	\$1,526	\$95.18	\$4,821.53	\$2,410.76	\$30.46
530380TP-699	50	\$3,234	\$2,997	\$345	\$95.18	\$6,671.34	\$3,335.67	\$22.32
410812TP-754	50	\$3,016	\$2,308	\$796	\$95.18	\$6,214.91	\$3,107.46	\$27.56
5791154TP-B14	150	\$6,589	\$3,326	\$1,907	\$95.18	\$11,917.39	(\$9,791.18)	\$84.28
656382TP-D30	100	\$165	\$167	\$2,149	\$95.18	\$2,576.85	\$2,386.33	\$84.28
800131TP-5E7	300	\$4,217	\$1,688	\$2,290	\$95.18	\$8,290.38	\$4,145.19	\$38.40
520373TP-2AF	1500	\$43,721	\$34,450	\$5,197	\$95.18	\$83,463.33	\$41,731.66	\$44.68
184687TP-F60	150	\$5,427	\$1,578	\$2,169	\$95.18	\$9,269.47	(\$3,341.43)	\$84.28
522002TP-BF4	150	\$10,236	\$2,632	\$2,404	\$95.18	\$15,367.90	\$7,683.95	\$33.51
150925TP-224	150	\$10,527	\$12,234	\$2,455	\$95.18	\$25,310.95	\$12,655.47	\$39.45
150931TP-983	500	\$15,638	\$17,225	\$4,043	\$95.18	\$37,001.28	\$18,500.64	\$47.90

3764605TP-D7E	300	\$6,288	\$14,658	\$3,763	\$95.18	\$24,804.55	\$12,402.27	\$54.61
405386TP-576	150	\$1,134	\$4,221	\$2,583	\$95.18	\$8,033.09	\$4,016.55	\$140.39
405190TP-453	150	\$2,767	\$9,224	\$2,442	\$95.18	\$14,528.16	\$159.10	\$84.28
389990TP-5F0	150	\$2,958	\$9,598	\$2,499	\$95.18	\$15,150.86	\$1,086.17	\$84.28
389997TP-83A	200	\$2,128	\$7,559	\$2,674	\$95.18	\$12,456.62	\$1,348.84	\$84.28
389999TP-BA1	300	\$2,627	\$6,718	\$3,594	\$95.18	\$13,033.82	\$6,516.91	\$62.92
401815TP-3DF	300	\$15,666	\$32,734	\$3,934	\$95.18	\$52,429.30	\$26,214.65	\$42.10
8001611TP-8B7	50	\$2,938	\$2,912	\$595	\$95.18	\$6,539.87	(\$1,088.99)	\$84.28
800161TP-DEF	500	\$18,860	\$37,408	\$4,673	\$95.18	\$61,035.85	\$30,517.93	\$49.99
181911TP-927	75	\$5,570	\$4,523	\$1,133	\$95.18	\$11,321.67	\$5,660.84	\$24.90
235545TP-814	200	\$14,931	\$3,266	\$3,644	\$95.18	\$21,936.03	\$10,968.01	\$23.54
6375055TP-7DC	500	\$7,341	\$7,949	\$4,567	\$95.18	\$19,952.78	\$9,976.39	\$14.07
150910TP-893	50	\$197	\$170	\$1,340	\$95.18	\$1,801.89	\$900.94	\$226.85
3204065TP-B03	150	\$494	\$3,211	\$2,326	\$95.18	\$6,126.67	\$3,663.34	\$104.52
624649TP-8F7	500	\$5,850	\$4,384	\$3,899	\$95.18	\$14,227.77	\$7,113.89	\$19.85
800166TP-025	200	\$6,368	\$20,342	\$2,753	\$95.18	\$29,558.16	\$14,779.08	\$59.42
416731TP-C0E	150	\$1,934	\$5,474	\$2,805	\$95.18	\$10,308.65	\$3,939.98	\$84.28
549325TP-5D0	500	\$10,975	\$4,727	\$3,530	\$95.18	\$19,326.67	\$9,663.34	\$22.61
624606TP-58C	150	\$5,711	\$2,886	\$2,236	\$95.18	\$10,927.63	(\$2,788.46)	\$84.28
141845TP-D91	200	\$3,774	\$5,679	\$3,422	\$95.18	\$12,970.27	\$3,318.60	\$84.28
333060TP-CA7	150	\$3,794	\$11,129	\$3,096	\$95.18	\$18,113.62	\$18,113.62	\$0.00
3330508TP-D6D	300	\$742	\$9,122	\$3,844	\$95.18	\$13,802.97	\$13,802.97	\$0.00
405769TP-C13	200	\$2,877	\$10,274	\$7,884	\$95.18	\$21,130.48	\$13,240.79	\$84.28
373002TP-847	200	\$3,678	\$9,526	\$2,505	\$95.18	\$15,804.22	\$8,862.40	\$84.28
141990TP-498	150	\$4,129	\$6,063	\$3,884	\$95.18	\$14,171.44	\$3,257.93	\$84.28
1419725TP-870	200	\$3,981	\$6,364	\$3,423	\$95.18	\$13,861.96	\$9,563.68	\$84.28
315340TP-EFC	500	\$18,597	\$1,270,872	\$0	\$0.00	\$1,289,468.67	\$0.00	\$0.00

4245295TP-206	150	\$4,174	\$1,783	\$2,717	\$95.18	\$8,769.08	\$4,384.54	\$53.07
301586TP-0FB	100	\$1,221	\$1,483	\$2,262	\$95.18	\$5,060.86	\$3,444.18	\$84.28
424510TP-575	500	\$10,464	\$7,253	\$5,126	\$95.18	\$22,938.57	\$11,469.29	\$30.35
338411TP-65E	300	\$13,693	\$11,099	\$3,058	\$95.18	\$27,945.38	\$13,972.69	\$134.35
613920TP-315	100	\$786	\$653	\$2,896	\$95.18	\$4,430.02	\$2,215.01	\$97.18
8001015TP-FBB	300	\$28,937	\$9,987	\$2,668	\$95.18	\$41,687.50	\$20,843.75	\$20.04
800149TP-2AE	300	\$30,232	\$7,418	\$4,770	\$95.18	\$42,515.69	\$21,257.84	\$19.83

## 12.2 Line Charge Breakdown for Group Customers

Consumer Capacity	Code	Number of Connections	TransPower Charge	Sub transmission Charge	Distribution Charge	PowerNet Overheads	Fixed Charge per Day	Variable Charge per Day MWh
<b>TPC Urban</b>								
<b>Residential Standard</b>								
Small Residential (8kVA 1 Phase) - All Peak	UD08P	68	\$7,256	\$7,732	\$7,679	\$6,473	\$0.9227	\$84.28
Small Residential (8kVA 1 Phase) - With Off Peak	UD08Q	237	\$20,988	\$23,011	\$22,804	\$22,559	\$0.6035	\$84.28
Residential (20kVA 1 Phase) - All Peak	UD20P	1,248	\$332,925	\$354,749	\$352,336	\$118,791	\$1.6598	\$84.28
Residential (20kVA 1 Phase) - With Off Peak	UD20Q	8,982	\$1,988,537	\$2,180,184	\$2,160,604	\$854,950	\$1.1578	\$84.28
Residential Low Fixed Charge Option (20kVA 1 Phase) - All Peak	UDL20P	836	\$180,188	\$200,108	\$214,125	\$79,575	\$0.1500	\$135.85
Residential Low Fixed Charge Option (20kVA 1 Phase) - With Off Peak	UDL20Q	4,471	\$805,796	\$912,429	\$974,813	\$425,571	\$0.1000	\$135.85
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	38	\$3,610	\$4,010	\$4,108	\$3,617	\$0.1500	\$108.83
Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	139	\$11,737	\$12,958	\$13,061	\$13,231	\$0.1000	\$108.83
<b>General Single Phase</b>								
Street Lights (1 Phase)	US001L	4,343	\$124,129	\$143,918	\$82,549	\$8,268	\$0.1340	\$84.28
1 kVA 1 Phase - All Peak	US001P	43	\$8,422	\$9,462	\$5,153	\$4,093	\$0.6538	\$84.28
8 kVA 1 Phase - All Peak	US008P	213	\$22,729	\$24,218	\$24,054	\$20,274	\$0.9227	\$84.28
8 kVA 1 Phase - With Off Peak	US008Q	15	\$1,328	\$1,456	\$1,443	\$1,428	\$0.6035	\$84.28

20 kVA 1 Phase - All Peak	US020P	353	\$94,169	\$100,342	\$99,659	\$33,600	\$1.6597	\$84.28
20 kVA 1 Phase - With Off Peak	US020Q	115	\$25,460	\$27,914	\$27,663	\$10,946	\$1.1578	\$84.28
<b>General Three Phase</b>								
15 kVA 3 Phase - All Peak	UT015P	100	\$20,007.54	\$23,040	\$22,176	\$9,518	\$1.3751	\$84.28
15 kVA 3 Phase - With Off Peak	UT015Q	12	\$1,992.52	\$2,391	\$2,285	\$1,142	\$0.9055	\$84.28
30 kVA 3 Phase - All Peak	UT030P	538	\$226,672.37	\$263,497	\$263,989	\$51,209	\$2.3305	\$84.28
30 kVA 3 Phase - With Off Peak	UT030Q	112	\$39,339.56	\$47,281	\$47,084	\$10,661	\$1.5594	\$84.28
50 kVA 3 Phase - All Peak	UT050P	306	\$312,650.00	\$361,243	\$346,130	\$29,127	\$4.7283	\$84.28
50 kVA 3 Phase - With Off Peak	UT050Q	90	\$76,437.11	\$91,777	\$87,363	\$8,567	\$3.2193	\$84.28
75 kVA 3 Phase - All Peak	UT075P	87	\$161,250.46	\$187,447	\$183,545	\$8,281	\$11.4685	\$84.28
75 kVA 3 Phase - With Off Peak	UT075Q	22	\$33,993.79	\$40,856	\$39,772	\$2,094	\$7.7297	\$84.28
100 kVA 3 Phase - All Peak	UT100P	16	\$49,023.52	\$56,988	\$55,473	\$1,523	\$21.2434	\$84.28
100 kVA 3 Phase - With Off Peak	UT100Q	2	\$5,108.69	\$6,140	\$5,942	\$190	\$14.7547	\$84.28
<b>TPC Rural Residential</b>								
Small Residential (8kVA 1 Phase) - All Peak	RD08P	96	\$10,243.86	\$10,915.35	\$33,485.02	\$9,137.74	\$1.0398	\$84.28
Small Residential (8kVA 1 Phase) - With Off Peak	RD08Q	109	\$9,652.66	\$10,582.95	\$32,658.97	\$10,375.14	\$0.7044	\$84.28
Residential (20kVA 1 Phase) - All Peak	RD20P	1,303	\$347,597.62	\$370,383	\$1,136,223	\$124,026	\$1.9114	\$84.28
Residential (20kVA 1 Phase) - With Off Peak	RD20Q	6,497	\$1,438,379.64	\$1,577,005	\$4,866,636	\$618,416	\$1.3080	\$84.28
Residential Low Fixed Charge Option (20kVA 1 Phase) - All Peak	RDL20P	451	\$97,206.69	\$107,953	\$339,487	\$42,928	\$0.1500	\$135.85
Residential Low Fixed Charge Option (20kVA 1 Phase) - With Off Peak	RDL20Q	1,564	\$281,875.54	\$319,177	\$1,007,519	\$148,869	\$0.1000	\$135.85
Residential Low Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	33	\$3,134.72	\$3,482	\$10,837	\$3,141	\$0.1500	\$108.83

Residential Low Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	21	\$1,773.24	\$1,958	\$6,072	\$1,999	\$0.1000	\$108.83
<b>General Single Phase</b>								
Street Lights (1 Phase)	RS001L	517	\$14,776.63	\$17,132	\$38,624	\$984	\$0.1508	\$84.28
1 kVA 1 Phase - All Peak	RS001P	126	\$24,678.82	\$27,725	\$66,430	\$11,993	\$0.6538	\$84.28
8 kVA 1 Phase - All Peak	RS008P	1,022	\$109,054.42	\$116,202.95	\$356,475.91	\$97,278.88	\$1.0398	\$84.28
8 kVA 1 Phase - With Off Peak	RS008Q	24	\$2,125.36	\$2,330.19	\$7,190.97	\$2,284.44	\$0.7044	\$84.28
20 kVA 1 Phase - All Peak	RS020P	1,722	\$459,373.06	\$489,485	\$1,501,594	\$163,908	\$1.9114	\$84.28
20 kVA 1 Phase - With Off Peak	RS020Q	323	\$71,509.41	\$78,401	\$241,946	\$30,745	\$1.3080	\$84.28
<b>General Three Phase</b>								
15 kVA 3 Phase - All Peak	RT015P	300	\$60,022.61	\$69,121	\$215,937	\$28,555	\$1.5594	\$84.28
15 kVA 3 Phase - With Off Peak	RT015Q	14	\$2,324.61	\$2,790	\$8,786	\$1,333	\$1.0565	\$84.28
30 kVA 3 Phase - All Peak	RT030P	1,903	\$801,779.79	\$932,033	\$2,915,786	\$181,137	\$2.6657	\$84.28
30 kVA 3 Phase - With Off Peak	RT030Q	439	\$154,197.02	\$185,324	\$583,580	\$41,786	\$1.8107	\$84.28
50 kVA 3 Phase - All Peak	RT050P	439	\$448,540.36	\$518,254	\$1,594,181	\$41,786	\$5.4157	\$84.28
50 kVA 3 Phase - With Off Peak	RT050Q	714	\$606,401.06	\$728,096	\$2,257,543	\$67,962	\$3.7054	\$84.28
75 kVA 3 Phase - All Peak	RT075P	75	\$139,009.02	\$161,592	\$495,623	\$7,139	\$13.7652	\$84.28
75 kVA 3 Phase - With Off Peak	RT075Q	49	\$75,713.43	\$90,997	\$281,048	\$4,664	\$9.2720	\$84.28
100 kVA 3 Phase - All Peak	RT100P	23	\$70,471.31	\$81,920	\$249,980	\$2,189	\$25.5189	\$84.28
100 kVA 3 Phase - With Off Peak	RT100Q	11	\$28,097.80	\$33,770	\$103,779	\$1,047	\$17.7056	\$84.28

