



**THEPOWERCOMPANYLTD**

**POWERNET LIMITED LINE PRICING METHODOLOGY**

**FOR THE POWER COMPANY LIMITED NETWORK  
AS AT 1 APRIL 2013**

**METHODOLOGY APPLICABLE FROM 1 APRIL 2013**

**PRICES APPLICABLE FROM 1 APRIL 2013**

## TABLE OF CONTENTS

1. Pricing Methodology .....	3
2. Changes to Pricing Methodology .....	4
3. Cost Allocation .....	5
4. Consumer Groups .....	13
5. Fixed and Variable Charges .....	16
6. Distributed Generation .....	17
7. Customer Consultation .....	18
8. Revenue Allocation to Capacity Groups .....	20
9. Line Charge Tables .....	44
10. Electricity Authority Pricing Principles Comparison .....	57
11. Electricity Authority information disclosure guidelines .....	62
12. Commerce Commission information disclosure requirements .....	63

## **1. Pricing Methodology**

### **1.1 Background**

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

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

### **1.2 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. At the end of this document we include a summary demonstrating how each principle has been incorporated into our methodology.

## **2. Changes to Pricing Methodology**

There have been no material changes to the pricing methodology from the previous edition. Additional information has been added to comply with the Electricity Distribution Information Disclosure Determination 2012.

### 3. Cost Allocation

#### 3.1 PowerNet / The Power Company Ltd (TPCL) Structure

PowerNet Ltd is jointly owned by TPCL and Electricity Invercargill Ltd (EIL) and is contracted to manage the network assets of its two shareholders in accordance with the respective Service Level Agreement (Agreement).

The Agreement allows PowerNet to source its revenue from the line charges paid by the retailers or end use customers. In turn PowerNet pays TPCL a "Use Charge". This is fundamentally a lease charge to TPCL and includes an allowance for depreciation of the assets, costs directly attributed to TPCL and the gross return required by TPCL. This is the return on assets before expenses and tax.

With respect to the management of TPCL's assets, PowerNet's objective is to break even and revenues and expenditures are projected to achieve that result.

The Use Charge can be varied at the end of the year to allow for significant variations in line charge revenue maintaining a relatively break even result for PowerNet.

#### 3.2 Allocations

PowerNet 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 (Use Charge) 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 (Use Charge) and a "maintenance" component - 11,000, 400V networks and distribution Substations.
- (d) PowerNet overhead non asset related direct costs.
- (e) TPCL use charge 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 2013 – 2014 year, which equates to our total target revenue.

### Total Costs

<b>Transmission</b>		<b>\$13,626,993</b>
Transpower Connection and Interconnection charges Avoided transmission costs to Distributed Generators		
<b>PowerNet overheads Administration</b>		<b>\$2,639,284</b>
Administration - non asset related direct costs. Maintenance - costs directly related to network assets		
<b>Operation and Maintenance</b>		<b>\$7,099,152</b>
Field services operation and maintenance costs		
<b>Ownership and Governance</b>		<b>\$60,755,592</b>
Asset Value (average carrying value of regulatory investment asset) - (\$346,348,582 + \$350,504,393) / 2	\$348,426,487	
TPCL applicable WACC (after tax) 8.77%		\$30,557,003
Taxation		\$11,883,279
Depreciation and write offs		\$ 18,315,310
<b>Costs to be Recovered</b>		<b>\$84,121,021</b>
<b>Implicit Discount</b>		<b>(\$30,936,891)</b>
<b>Total Target Revenue</b>		<b>\$53,184,130</b>

### 3.3 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.

### 3.4 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.

### **3.5 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.

### **3.6 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.



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

Contract Capacity kVA	Number of Connections	Coincident Peak Demand Reading kVA	Peak Demand Reading kVA	Total Energy Reading MWh	Peak Reading MWh	Winter Day Reading MWh	Summer Day Reading MWh
30	4	9	224	488	75	148	199
50	11	227	508	1658	202	550	695
75	4	125	319	927	105	243	299
100	29	386	2339	4755	708	1553	2044
150	67	998	9994	15212	2415	5325	6608
200	38	937	6204	11816	1624	3596	5554
300	31	2511	6440	19067	2501	6005	7880
500	24	2825	7281	17743	2357	5372	7468
750	10	1878	3563	11204	1308	2995	4903
1000	8	3015	4734	16422	2192	5125	6377
1250	2	1205	1889	6111	555	1371	3222
1500	2	585	1089	1457	238	492	657
2000	3	3002	4213	18409	1980	4895	8533
2250	1	734	1460	5522	1018	1166	2793
2500	1	558	986	2845	461	968	1056
3000	2	2124	2865	15016	1184	3184	6859
4500	1	10	72	73	4	11	38
5000	1	2269	3552	17277	2047	5051	7261
10000	1	3272	10214	38286	3379	8500	18195
22000	1	15160	20511	106960	6119	17029	54064

The profile parameters for determining the line charges for the Group 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 Domestic</b>							
Small Domestic (8kVA 1 Phase) - All Peak	UD08P	58	55	272	41	91	104
Small Domestic (8kVA 1 Phase) - With Off Peak	UD08Q	272	220	1275	143	383	480
Standard Domestic (20kVA 1 Phase) - All Peak	UD20P	1,114	2654	13058	1954	4357	5018
Standard Domestic (20kVA 1 Phase) - With Off Peak	UD20Q	10,238	20736	120004	13466	36039	45191
10% Fixed Charge Option - All Peak	UDL20P	497	1184	3236	484	1080	1244
10% Fixed Charge Option - With Off Peak	UDL20Q	3,319	6722	21613	2425	6491	8139
10% Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	29	28	121	14	40	46
10% Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	101	82	421	47	126	159
<b>Non-Domestic Single Phase</b>							
Street Lights (1 Phase)	US001L	3,143	801	3092	463	1032	1188
1 kVA 1 Phase - All Peak	US001P	43	43	498	74	166	191
8 kVA 1 Phase - All Peak	US008P	204	194	956	143	319	368
8 kVA 1 Phase - With Off Peak	US008Q	18	15	84	9	25	32
20 kVA 1 Phase - All Peak	US020P	375	894	4396	658	1467	1689
20 kVA 1 Phase - With Off Peak	US020Q	126	255	1477	166	444	556
<b>Non-Domestic Three Phase</b>							

15 kVA 3 Phase - All Peak	UT015P	89	159	782	117	261	301
15 kVA 3 Phase - With Off Peak	UT015Q	10	15	88	10	26	33
30 kVA 3 Phase - All Peak	UT030P	596	2563	8965	1341	2991	3445
30 kVA 3 Phase - With Off Peak	UT030Q	106	387	1594	179	479	600
50 kVA 3 Phase - All Peak	UT050P	296	2838	12408	1856	4140	4768
50 kVA 3 Phase - With Off Peak	UT050Q	92	750	3856	433	1158	1452
75 kVA 3 Phase - All Peak	UT075P	95	1797	6286	941	2098	2416
75 kVA 3 Phase - With Off Peak	UT075Q	21	338	1390	156	417	523
100 kVA 3 Phase - All Peak	UT100P	15	469	1641	245	548	631
100 kVA 3 Phase - With Off Peak	UT100Q	2	53	219	25	66	82
<b>TPC Rural</b>							
<b>Domestic</b>							
Small Domestic (8kVA 1 Phase) - All Peak	RD08P	96	91	450	67	150	173
Small Domestic (8kVA 1 Phase) - With Off Peak	RD08Q	120	97	563	63	169	212
Standard Domestic (20kVA 1 Phase) - All Peak	RD20P	1,214	2893	14230	2129	4748	5468
Standard Domestic (20kVA 1 Phase) - With Off Peak	RD20Q	6,835	13843	80116	8990	24060	30170
10% Fixed Charge Option - All Peak	RDL20P	273	651	1778	266	593	683
10% Fixed Charge Option - With Off Peak	RDL20Q	1,064	2155	6929	777	2081	2609
10% Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	23	22	96	11	32	37
10% Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	16	13	67	7	20	25
<b>Non-Domestic Single Phase</b>							
Street Lights (1 Phase)	RS001L	517	132	509	76	170	195
1 kVA 1 Phase - All Peak	RS001P	130	130	1505	225	502	578

8 kVA 1 Phase - All Peak	RS008P	961	916	4506	674	1503	1731
8 kVA 1 Phase - With Off Peak	RS008Q	22	18	103	12	31	39
20 kVA 1 Phase - All Peak	RS020P	1,952	4651	22880	3423	7635	8792
20 kVA 1 Phase - With Off Peak	RS020Q	239	484	2801	314	841	1055
<b>Non-Domestic Three Phase</b>							
15 kVA 3 Phase - All Peak	RT015P	266	475	2338	350	780	899
15 kVA 3 Phase - With Off Peak	RT015Q	10	15	88	10	26	33
30 kVA 3 Phase - All Peak	RT030P	2,150	9245	32341	4839	10791	12427
30 kVA 3 Phase - With Off Peak	RT030Q	337	1232	5069	569	1522	1909
50 kVA 3 Phase - All Peak	RT050P	412	3950	17270	2584	5763	6636
50 kVA 3 Phase - With Off Peak	RT050Q	661	5386	27708	3109	8321	10434
75 kVA 3 Phase - All Peak	RT075P	64	1211	4235	634	1413	1627
75 kVA 3 Phase - With Off Peak	RT075Q	25	402	1654	186	497	623
100 kVA 3 Phase - All Peak	RT100P	24	751	2625	393	876	1009
100 kVA 3 Phase - With Off Peak	RT100Q	8	213	875	98	263	330

### **3.7 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. The Power Company Limited requires a “Use Charge (lease charge) for its assets from PowerNet (the asset manager). This Use Charge includes the allowance for depreciation for its assets and its required gross return. This is not the net return on investment but the gross return before expenses and tax. 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.

## **4. 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. This also provides a signal for future investment and through the correct pricing discourages network by-pass. 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 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.

### **(b) Group Consumers**

For Group consumers, their individual meter readings or locations do not determine the initial line charges.

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.

All domestic 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 domestic installations. All old domestic consumer installations are classed as "historic domestic".

The 8kVA domestic 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, domestic customers consuming less than 9000 kWh per annum are able to transfer to the Domestic Low User option tariffs. 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 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 areas within Southland including all the small townships and city areas.

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

## **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 three 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 2013/2014 year is \$2.385m.

## 5. Fixed and Variable Charges

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 domestic 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 group consumers 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.

## 6. 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 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 three Distributed Generators receiving this payment.

## 7. 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.

## 8. Revenue Allocation to Capacity Groups

### 8.1 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 Pioneer Generation point of supply at Monowai Power Station in Western Southland, the Meridian Wind Farm at White Hill and the Mataura Industrial Park Hydro generation at Mataura.

The five points of supply are:

- (a) Gore
- (b) Edendale
- (c) Invercargill
- (d) North Makarewa
- (e) Monowai, White Hill, Mataura

Transpower transmission charges have two components:

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

#### 8.1.1 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	\$593,891
(b)	Edendale	\$255,218
(c)	Invercargill	\$383,095
(d)	North Makarewa	\$769,625

The total connection charge for Invercargill is \$1,069,260. The Power Company's share is \$383,095.

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	\$12.49	\$5.73	\$1.91
Edendale	\$7.96	\$5.47	\$1.66
Invercargill	\$7.50	\$3.35	\$1.32
North Makarewa	\$9.42	\$4.71	\$1.56

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	\$9.75	\$4.68	\$1.58

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.

### 8.1.2 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	\$2,574,402
(b)	Edendale	\$1,994,269
(c)	Invercargill	\$2,813,150
(d)	North Makarewa	\$2,725,352
(e)	Monowai, White Hill, Matura	\$1,517,991

The Power Company's share of the Invercargill interconnection charge of \$7,222,200 is \$2,813,150.

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

#### Half Hour Metered:

Coincident peak with lower south island region top 100 peaks - 100%

#### Non Half Hour Metered:

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

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

Point of Supply	Per kVA Peak Demand	Per Peak MWh	Per Winter Day MWh
Gore	\$46.40	\$37.28	\$8.27
Edendale	\$53.30	\$64.08	\$12.93
Invercargill (TPCL)	\$47.18	\$36.87	\$9.72
North Makarewa	\$44.51	\$25.00	\$5.53

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

Point of Supply	Per kVA Coincident Peak Demand
Gore	\$99.44
Edendale	\$99.44
Invercargill (TPCL)	\$99.44
North Makarewa	\$99.44

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

All Points of Supply	Per kVA Peak Demand	Per Winter Peak MWh	Per Winter Day MWh
	\$46.96	\$39.48	\$8.87

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

### 8.1.3 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	4	\$4,064	\$1,016
50	11	\$26,614	\$2,419
75	4	\$10,517	\$2,629
100	29	\$65,309	\$2,252
150	67	\$241,733	\$3,608
200	38	\$165,494	\$4,355
300	31	\$328,041	\$10,582
500	24	\$331,111	\$13,796
750	10	\$210,950	\$21,095
1,000	8	\$336,403	\$42,050
1,250	2	\$136,540	\$68,270
1,500	2	\$63,870	\$31,935
2,000	3	\$330,437	\$110,146
2,250	1	\$86,888	\$86,888
2,500	1	\$62,099	\$62,099
3,000	2	\$234,712	\$117,356
3,500	0	\$0	\$0
4,500	1	\$1,288	\$1,288
5,000	1	\$290,678	\$290,678
10,000	1	\$441,579	\$441,579
22,000	1	\$1,722,552	\$1,722,552

### 8.1.4 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</b>				
<b>Domestic</b>				
Small Domestic (8kVA 1 Phase) - All Peak	UD08P	57	\$94	\$5,361
Small Domestic (8kVA 1 Phase) - With Off Peak	UD08Q	250	\$78	\$19,599
Standard Domestic (20kVA 1 Phase) - All Peak	UD20P	1,070	\$235	\$251,588
Standard Domestic (20kVA 1 Phase) - With Off Peak	UD20Q	9,872	\$196	\$1,934,837
10% Fixed Charge Option - All Peak	UDL20P	569	\$191	\$108,499
10% Fixed Charge Option - With Off Peak	UDL20Q	3,680	\$160	\$588,555
10% Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	35	\$84	\$2,952
10% Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	121	\$75	\$9,050
<b>Non-Domestic Single Phase</b>				
Street Lights (1 Phase)	US001L	3,143	\$23	\$71,832
1 kVA 1 Phase - All Peak	US001P	43	\$155	\$6,685
8 kVA 1 Phase - All Peak	US008P	200	\$94	\$18,810
8 kVA 1 Phase - With Off Peak	US008Q	18	\$78	\$1,411
20 kVA 1 Phase - All Peak	US020P	375	\$235	\$88,173



20 kVA 1 Phase - With Off Peak	US020Q	124	\$196	\$24,303
<b>Non-Domestic Three Phase</b>				
15 kVA 3 Phase - All Peak	UT015P	91	\$176	\$16,048
15 kVA 3 Phase - With Off Peak	UT015Q	10	\$147	\$1,470
30 kVA 3 Phase - All Peak	UT030P	587	\$372	\$218,475
30 kVA 3 Phase - With Off Peak	UT030Q	107	\$311	\$33,320
50 kVA 3 Phase - All Peak	UT050P	304	\$901	\$273,986
50 kVA 3 Phase - With Off Peak	UT050Q	92	\$752	\$69,207
75 kVA 3 Phase - All Peak	UT075P	95	\$1,637	\$155,544
75 kVA 3 Phase - With Off Peak	UT075Q	23	\$1,370	\$31,507
100 kVA 3 Phase - All Peak	UT100P	14	\$2,707	\$37,893
100 kVA 3 Phase - With Off Peak	UT100Q	2	\$2,265	\$4,529
<b>TPC Rural</b>				
<b>Domestic</b>				
Small Domestic (8kVA 1 Phase) - All Peak	RD08P	96	\$94	\$9,029
Small Domestic (8kVA 1 Phase) - With Off Peak	RD08Q	118	\$78	\$9,251
Standard Domestic (20kVA 1 Phase) - All Peak	RD20P	1,230	\$235	\$289,208
Standard Domestic (20kVA 1 Phase) - With Off Peak	RD20Q	6,769	\$196	\$1,326,672
10% Fixed Charge Option - All Peak	RDL20P	299	\$191	\$57,015
10% Fixed Charge Option - With Off Peak	RDL20Q	1,191	\$160	\$190,481
10% Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	26	\$84	\$2,193
10% Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	17	\$75	\$1,271

<b>Non-Domestic Single Phase</b>					
Street Lights (1 Phase)	RS001L	517	\$23	\$11,816	
1 kVA 1 Phase - All Peak	RS001P	130	\$155	\$20,209	
8 kVA 1 Phase - All Peak	RS008P	968	\$94	\$91,042	
8 kVA 1 Phase - With Off Peak	RS008Q	22	\$78	\$1,725	
20 kVA 1 Phase - All Peak	RS020P	1,911	\$235	\$449,331	
20 kVA 1 Phase - With Off Peak	RS020Q	245	\$196	\$48,018	
<b>Non-Domestic Three Phase</b>					
15 kVA 3 Phase - All Peak	RT015P	270	\$176	\$47,614	
15 kVA 3 Phase - With Off Peak	RT015Q	10	\$147	\$1,470	
30 kVA 3 Phase - All Peak	RT030P	2,109	\$372	\$784,947	
30 kVA 3 Phase - With Off Peak	RT030Q	341	\$311	\$106,187	
50 kVA 3 Phase - All Peak	RT050P	414	\$901	\$373,126	
50 kVA 3 Phase - With Off Peak	RT050Q	682	\$752	\$513,035	
75 kVA 3 Phase - All Peak	RT075P	65	\$1,637	\$106,425	
75 kVA 3 Phase - With Off Peak	RT075Q	27	\$1,370	\$36,987	
100 kVA 3 Phase - All Peak	RT100P	24	\$2,707	\$64,960	
100 kVA 3 Phase - With Off Peak	RT100Q	9	\$2,265	\$20,381	

## 8.2 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

### 8.2.1 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 \$12,050,541.

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%

### 8.2.2 Maintenance Charge

The sub transmission maintenance charges for TPC total \$2,306,850

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.

### 8.2.3 Total Sub-transmission Charges

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

Zone Substation	Total Supply Charge	Total Maintenance Charge
Awarua	\$245,099	\$46,325
Bluff	\$439,886	\$72,297
Centre Bush	\$317,057	\$59,926
Conical Hills	\$236,871	\$47,126
Dipton	\$206,261	\$38,985
Edendale	\$156,454	\$29,571
Glenham	\$149,795	\$28,312
Gorge Road	\$171,079	\$32,335
Hillside	\$266,213	\$50,316
Kelso	\$372,273	\$70,362
Kennington	\$135,254	\$25,564
Lumsden	\$544,021	\$97,927
Makarewa	\$318,188	\$60,139
Mataura	\$340,296	\$64,318
Monowai	\$137,162	\$25,924
Mossburn	\$438,188	\$165,641
NZMP	\$368,157	\$69,584
North Gore	\$247,369	\$46,754
Ohai	\$576,297	\$78,930
Orawia	\$627,978	\$107,902
Otatara	\$186,068	\$35,168
Otautau	\$487,859	\$92,208
White Hill	\$493,380	\$93,252
Riversdale	\$368,211	\$69,594
Riverton	\$483,013	\$91,293
Seaward Bush	\$351,491	\$66,434
South Gore	\$224,449	\$42,422
Te Anau	\$1,275,368	\$241,053
Tokanui	\$210,496	\$39,785
Underwood	\$405,303	\$76,605
Waikiwi	\$350,258	\$66,201
Waikaka	\$149,051	\$28,172
Winton	\$740,476	\$139,955
ICC46	\$31,221	\$6,470

## 8.2.4 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	Supply Charge per Winter	Supply Charge per Winter	Maintenance Charge per Domestic	Maintenance Charge per Commercial	Maintenance Charge per kVA Winter
	Peak Demand	Peak MWh	Day MWh	Total MWh	Total MWh	Peak Demand
Awarua	\$46.70	\$30.09	\$10.21	\$0.59	\$1.18	\$6.30
Bluff	\$65.80	\$27.54	\$8.41	\$1.03	\$2.05	\$7.73
Centre Bush	\$70.26	\$51.51	\$16.98	\$2.36	\$4.73	\$9.49
Conical Hills	\$110.99	\$22.72	\$7.58	\$1.48	\$2.96	\$15.77
Dipton	\$97.91	\$114.23	\$34.99	\$5.16	\$10.32	\$13.22
Edendale	\$18.01	\$10.96	\$3.61	\$0.38	\$0.76	\$2.43
Glenham	\$99.56	\$53.55	\$17.87	\$2.84	\$5.68	\$13.44
Gorge Road	\$67.05	\$47.02	\$15.57	\$2.16	\$4.31	\$9.05
Hillside	\$310.31	\$124.72	\$40.41	\$6.29	\$12.59	\$41.89
Kelso	\$67.91	\$30.67	\$10.27	\$1.53	\$3.06	\$9.17
Kennington	\$22.97	\$9.88	\$4.90	\$0.38	\$0.76	\$3.10
Lumsden	\$117.82	\$64.21	\$20.74	\$2.69	\$5.37	\$15.15
Makarewa	\$38.05	\$22.09	\$7.29	\$0.82	\$1.64	\$5.14
Mataura	\$30.62	\$22.14	\$7.50	\$0.59	\$1.18	\$4.13
Monowai	\$481.85	\$223.22	\$71.66	\$11.19	\$22.37	\$65.05
Mossburn	\$187.03	\$113.86	\$37.42	\$10.00	\$20.00	\$50.50
NZMP	\$16.83	\$13.08	\$8.06	\$0.20	\$0.40	\$2.27
North Gore	\$23.29	\$8.87	\$2.90	\$0.42	\$0.85	\$3.14
Ohai	\$188.39	\$85.19	\$27.78	\$2.99	\$5.99	\$18.43
Orawia	\$164.17	\$80.74	\$27.13	\$3.75	\$7.50	\$20.15
Otatara	\$35.42	\$17.02	\$5.88	\$1.02	\$2.03	\$4.78
Otautau	\$84.41	\$36.69	\$12.50	\$1.85	\$3.70	\$11.40
White Hill	\$626.86	\$2,408.84	\$479.03	\$26.66	\$53.31	\$84.63
Riversdale	\$63.65	\$35.19	\$11.51	\$1.59	\$3.18	\$8.59
Riverton	\$74.81	\$32.10	\$10.57	\$1.63	\$3.26	\$10.10
Seaward Bush	\$31.34	\$11.04	\$3.50	\$0.47	\$0.94	\$4.23
South Gore	\$20.68	\$8.59	\$2.82	\$0.37	\$0.73	\$2.79
Te Anau	\$180.28	\$69.90	\$22.39	\$3.07	\$6.15	\$24.34
Tokanui	\$148.03	\$103.32	\$31.44	\$5.24	\$10.49	\$19.98
Underwood	\$25.77	\$15.08	\$4.98	\$0.38	\$0.76	\$3.48
Waikiwi	\$20.68	\$8.53	\$2.88	\$0.42	\$0.83	\$2.79
Waikaka	\$189.38	\$67.45	\$32.39	\$4.28	\$8.56	\$25.57
Winton	\$44.34	\$22.26	\$7.16	\$0.91	\$1.82	\$5.99
Awarua	\$46.70	\$30.09	\$10.21	\$0.59	\$1.18	\$6.30

### 8.2.5 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>Group Consumers</b>	\$61.31	\$29.16	\$9.85	\$1.44	\$2.88	\$9.08

### 8.3 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 group 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) Matura
- (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

#### 8.3.1 Supply Charge

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

The total supply charge for TPCL totals \$14,122,706.

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

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

### 8.3.2 Maintenance Charge

The maintenance charges for TPCL total \$3,975,525.

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

Total Energy	50%
Contract Capacity	50%

### 8.3.3 Transformer Charge

The supply and maintenance transformer charges for TPCL total \$4,462,231.

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

Number of transformers and transformer capacity 100%

### 8.3.4 Locational Individual Distribution Charges

(a)	Distribution Supply charge	\$2.71 per kVA km Urban
(b)	Distribution Supply charge	\$0.60 per kVA km Rural
(c)	Distribution Transformer charge	\$380 per Transformer
(d)	Distribution Maintenance charge	\$1,581 per km Urban
(e)	Distribution Maintenance charge	\$653 per km Rural
(f)	Maintenance Transformer charge	\$653 per Transformer for capacity $\geq 75$ kVA
(g)	Maintenance Transformer charge	\$37.16 per Transformer for capacity $< 75$ kVA



The Transformer charge of \$380 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.

### 8.3.5 Distribution 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:

#### *TPC Urban*

(a)	Distribution Supply charge	\$6.32 per kVA Contract Capacity
(b)	Distribution Supply charge	\$18.22 per Winter Peak MWh
(c)	Distribution Supply charge	\$5.96 per Winter Day MWh
(d)	Distribution Maintenance charge	\$0.80 per Domestic Total MWh
(e)	Distribution Maintenance charge	\$1.61 per Commercial Total MWh
(f)	Distribution Maintenance charge	\$0.78 per kVA Contract Capacity
(g)	Distribution Transformer charge	\$13.28 per kVA AD Transformer capacity

#### *TPC Rural*

(a)	Distribution Supply charge	\$40.13 per kVA Contract Capacity
(b)	Distribution Supply charge	\$77.87 per Winter Peak MWh
(c)	Distribution Supply charge	\$26.97 per Winter Day MWh
(d)	Distribution Maintenance charge	\$5.34 per Domestic Total MWh
(e)	Distribution Maintenance charge	\$10.68 per Commercial Total MWh

- (f) Distribution Maintenance charge \$8.65 per kVA Contract Capacity
- (g) Distribution Transformer charge \$13.28 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 domestic 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.

#### **8.4 Powernet 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, rates, etc.

These charges are split equally over the total customer base.

The total overhead costs are \$2,639,284

The charge per customer is \$75.87

#### **8.5 Power Factor Charge.**

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

Non-Domestic customers may have a data logger installed to assess their power factor. If a non-domestic 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.

## 8.6 Powernet Charges

### 8.6.1 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	PowerNet Overhead Charge	Total PowerNet Charge
30	\$4,079.92	\$5,739.50	\$303.50	\$10,122.92
50	\$21,486.45	\$11,451.78	\$834.61	\$33,772.84
75	\$10,113.77	\$4,414.21	\$303.50	\$14,831.48
100	\$67,738.36	\$66,171.95	\$2,200.34	\$136,110.65
150	\$199,957.49	\$180,646.79	\$5,083.54	\$385,687.82
200	\$218,756.82	\$109,828.63	\$2,883.20	\$331,468.66
300	\$227,440.53	\$108,618.39	\$2,352.09	\$338,411.01
500	\$1,594,966.75	\$100,563.05	\$1,820.97	\$1,697,350.77
750	\$180,194.79	\$41,747.61	\$758.74	\$222,701.14
1000	\$208,617.86	\$54,661.03	\$606.99	\$263,885.88
1250	\$55,682.51	\$13,826.78	\$151.75	\$69,661.05
1500	\$82,788.11	\$646.25	\$151.75	\$83,586.11
2000	\$231,970.61	\$30,338.83	\$151.75	\$262,461.19
2250	\$36,589.99	\$19,697.92	\$75.87	\$56,363.77
2500	\$24,447.98	\$12.12	\$75.87	\$24,535.97
3000	\$166,128.31	\$24,212.45	\$151.75	\$190,492.51
3500	\$0.00	\$0.00	\$0.00	\$0.00
4500	\$948.45	\$1,352.69	\$75.87	\$2,377.01
5000	\$222,785.17	\$2,253.31	\$75.87	\$225,114.35
10000	\$393,223.16	\$3,719.67	\$75.87	\$397,018.71
22000	\$168,526.36	\$240.00	\$0.00	\$168,766.36

## 8.6.2 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	PowerNet Overheads	Total PowerNet Revenue
<b>TPC Urban</b>						
<b>Domestic</b>						
Small Domestic (8kVA 1 Phase) - All Peak	UD08P	57	\$5,910.69	\$17,576.49	\$4,324.80	\$27,811.98
Small Domestic (8kVA 1 Phase) - With Off Peak	UD08Q	250	\$22,153.62	\$54,811.99	\$18,968.44	\$95,934.05
Standard Domestic (20kVA 1 Phase) - All Peak	UD20P	1,070	\$277,387.60	\$720,451.89	\$81,184.93	\$1,079,024.41
Standard Domestic (20kVA 1 Phase) - With Off Peak	UD20Q	9,872	\$2,187,005.41	\$5,401,166.84	\$749,025.78	\$8,337,198.03
10% Fixed Charge Option - All Peak	UDL20P	569	\$124,368.42	\$125,504.79	\$43,172.17	\$293,045.39
10% Fixed Charge Option - With Off Peak	UDL20Q	3,680	\$686,114.12	\$708,783.85	\$279,215.45	\$1,674,113.41
10% Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	35	\$3,381.70	\$4,703.91	\$2,655.58	\$10,741.20
10% Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	121	\$10,297.74	\$9,930.65	\$9,180.73	\$29,409.11
<b>Non-Domestic Single Phase</b>						
Street Lights (1 Phase)	US001L	3,143	\$85,004.93	\$161,089.15	\$4,769.42	\$250,863.51
1 kVA 1 Phase - All Peak	US001P	44	\$7,805.29	\$21,876.51	\$3,338.45	\$33,020.24
8 kVA 1 Phase - All Peak	US008P	200	\$20,739.26	\$61,671.89	\$15,174.75	\$97,585.90
8 kVA 1 Phase - With Off Peak	US008Q	18	\$1,595.06	\$3,946.46	\$1,365.73	\$6,907.25
20 kVA 1 Phase - All Peak	US020P	375	\$97,215.28	\$252,494.82	\$28,452.66	\$378,162.76
20 kVA 1 Phase - With Off Peak	US020Q	124	\$27,470.49	\$67,842.86	\$9,408.35	\$104,721.69
<b>Non-Domestic Three Phase</b>						
15 kVA 3 Phase - All Peak	UT015P	91	\$18,843.38	\$46,948.94	\$6,904.51	\$72,696.83

15 kVA 3 Phase - With Off Peak	UT015Q	10	\$1,787.92	\$3,909.14	\$758.74	\$6,455.79
30 kVA 3 Phase - All Peak	UT030P	587	\$259,313.58	\$452,893.32	\$44,537.90	\$756,744.80
30 kVA 3 Phase - With Off Peak	UT030Q	107	\$40,687.51	\$63,341.24	\$8,118.49	\$112,147.24
50 kVA 3 Phase - All Peak	UT050P	304	\$322,953.13	\$611,926.96	\$23,065.62	\$957,945.72
50 kVA 3 Phase - With Off Peak	UT050Q	92	\$84,295.90	\$154,180.32	\$6,980.39	\$245,456.60
75 kVA 3 Phase - All Peak	UT075P	95	\$184,618.90	\$384,716.51	\$7,208.01	\$576,543.42
75 kVA 3 Phase - With Off Peak	UT075Q	23	\$38,474.28	\$72,363.51	\$1,745.10	\$112,582.88
100 kVA 3 Phase - All Peak	UT100P	14	\$44,976.27	\$104,873.09	\$1,062.23	\$150,911.59
100 kVA 3 Phase - With Off Peak	UT100Q	2	\$5,530.64	\$11,793.70	\$151.75	\$17,476.09
<b>TPC Rural</b>						
<b>Domestic</b>						
Small Domestic (8kVA 1 Phase) - All Peak	RD08P	96	\$9,954.84	\$33,278.20	\$7,283.88	\$50,516.93
Small Domestic (8kVA 1 Phase) - With Off Peak	RD08Q	118	\$10,456.51	\$29,764.79	\$8,953.10	\$49,174.40
Standard Domestic (20kVA 1 Phase) - All Peak	RD20P	1,230	\$318,866.12	\$929,331.44	\$93,324.73	\$1,341,522.29
Standard Domestic (20kVA 1 Phase) - With Off Peak	RD20Q	6,769	\$1,499,578.57	\$4,036,255.31	\$513,589.50	\$6,049,423.38
10% Fixed Charge Option - All Peak	RDL20P	299	\$65,353.53	\$65,950.67	\$22,686.25	\$153,990.46
10% Fixed Charge Option - With Off Peak	RDL20Q	1,191	\$222,054.87	\$251,127.48	\$90,365.65	\$563,548.00
10% Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	26	\$2,512.12	\$3,494.34	\$1,972.72	\$7,979.17
10% Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	17	\$1,446.79	\$1,705.46	\$1,289.85	\$4,442.11
<b>Non-Domestic Single Phase</b>						
Street Lights (1 Phase)	RS001L	517	\$13,982.68	\$29,309.67	\$784.53	\$44,076.88
1 kVA 1 Phase - All Peak	RS001P	129	\$22,883.68	\$64,137.95	\$9,787.72	\$96,809.34
8 kVA 1 Phase - All Peak	RS008P	968	\$100,378.02	\$335,555.22	\$73,445.80	\$509,379.03
8 kVA 1 Phase - With Off Peak	RS008Q	22	\$1,949.52	\$5,549.37	\$1,669.22	\$9,168.11

20 kVA 1 Phase - All Peak	RS020P	1,911	\$495,409.06	\$1,443,863.73	\$144,994.76	\$2,084,267.55
20 kVA 1 Phase - With Off Peak	RS020Q	245	\$54,276.37	\$146,089.90	\$18,589.07	\$218,955.34
<b>Non-Domestic Three Phase</b>						
15 kVA 3 Phase - All Peak	RT015P	270	\$55,908.94	\$155,579.50	\$20,485.92	\$231,974.35
15 kVA 3 Phase - With Off Peak	RT015Q	10	\$1,787.92	\$4,402.98	\$758.74	\$6,949.64
30 kVA 3 Phase - All Peak	RT030P	2,109	\$931,673.50	\$1,858,264.94	\$160,017.76	\$2,949,956.21
30 kVA 3 Phase - With Off Peak	RT030Q	341	\$129,667.66	\$229,867.84	\$25,872.95	\$385,408.45
50 kVA 3 Phase - All Peak	RT050P	414	\$439,811.17	\$926,386.33	\$31,411.74	\$1,397,609.24
50 kVA 3 Phase - With Off Peak	RT050Q	682	\$624,889.16	\$1,251,329.53	\$51,745.91	\$1,927,964.60
75 kVA 3 Phase - All Peak	RT075P	65	\$126,318.19	\$312,029.41	\$4,931.79	\$443,279.40
75 kVA 3 Phase - With Off Peak	RT075Q	27	\$45,165.46	\$98,562.16	\$2,048.59	\$145,776.21
100 kVA 3 Phase - All Peak	RT100P	24	\$77,102.17	\$213,327.11	\$1,820.97	\$292,250.26
100 kVA 3 Phase - With Off Peak	RT100Q	9	\$24,887.89	\$61,753.26	\$682.86	\$87,324.01

## **8.7 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.

## **8.8 Total Line Charge Revenue**

### **8.8.1 Fixed, Variable and Metering 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 ½ 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 \$83.72 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 \$83.72. This method of calculating the fixed charge accounts for the fact that some installations have negative fixed charges.

The Variable Charge of \$83.72 per MWh of daytime sales equates to \$75.48 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%.

### 8.8.2 Line Charge Revenue for Individual Customers

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

Consumer Capacity kVA	Number of Connections	Line Charge Revenue per Consumer Group	Average Line Charge
30	4	\$14,199	\$3,550
50	11	\$60,447	\$5,495
75	4	\$25,377	\$6,344
100	29	\$201,625	\$6,953
150	67	\$627,420	\$9,364
200	38	\$496,962	\$13,078
300	31	\$666,452	\$21,498
500	24	\$2,028,461	\$84,519
750	10	\$433,652	\$43,365
1000	8	\$600,289	\$75,036
1250	2	\$206,202	\$103,101
1500	2	\$147,456	\$73,728
2000	3	\$592,899	\$197,633
2250	1	\$143,252	\$143,252
2500	1	\$86,635	\$86,635
3000	2	\$504,804	\$252,402
4500	1	\$3,665	\$3,665
5000	1	\$515,792	\$515,792
10000	1	\$838,598	\$838,598
22000	1	\$1,891,318	\$1,891,318



### 8.8.3 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>Domestic</b>					
Small Domestic (8kVA 1 Phase) - All Peak	UD08P	57	\$0.83	\$75.48	\$33,227
Small Domestic (8kVA 1 Phase) - With Off Peak	UD08Q	250	\$0.54	\$75.48	\$115,749
Standard Domestic (20kVA 1 Phase) - All Peak	UD20P	1,070	\$1.49	\$75.48	\$1,333,172
Standard Domestic (20kVA 1 Phase) - With Off Peak	UD20Q	9,872	\$1.04	\$75.48	\$10,293,290
10% Fixed Charge Option - All Peak	UDL20P	569	\$0.15	\$126.00	\$402,301
10% Fixed Charge Option - With Off Peak	UDL20Q	3,680	\$0.00	\$126.00	\$2,267,070
10% Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	35	\$0.15	\$101.82	\$13,723
10% Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	121	\$0.00	\$101.82	\$38,551
<b>Non-Domestic Single Phase</b>					
Street Lights (1 Phase)	US001L	3,143	\$0.12	\$75.48	\$323,327
1 kVA 1 Phase - All Peak	US001P	44	\$0.59	\$75.48	\$39,964
8 kVA 1 Phase - All Peak	US008P	200	\$0.83	\$75.48	\$116,588
8 kVA 1 Phase - With Off Peak	US008Q	18	\$0.54	\$75.48	\$8,334
20 kVA 1 Phase - All Peak	US020P	375	\$1.49	\$75.48	\$467,233
20 kVA 1 Phase - With Off Peak	US020Q	124	\$1.04	\$75.48	\$129,292

<b>Non-Domestic Three Phase</b>						
15 kVA 3 Phase - All Peak	UT015P	91	\$1.23	\$75.48	\$88,907.65	
15 kVA 3 Phase - With Off Peak	UT015Q	10	\$0.81	\$75.48	\$7,941.88	
30 kVA 3 Phase - All Peak	UT030P	587	\$2.09	\$75.48	\$977,022.10	
30 kVA 3 Phase - With Off Peak	UT030Q	107	\$1.40	\$75.48	\$145,762.51	
50 kVA 3 Phase - All Peak	UT050P	304	\$4.23	\$75.48	\$1,234,532.79	
50 kVA 3 Phase - With Off Peak	UT050Q	92	\$2.88	\$75.48	\$315,372.03	
75 kVA 3 Phase - All Peak	UT075P	95	\$10.27	\$75.48	\$733,370.35	
75 kVA 3 Phase - With Off Peak	UT075Q	23	\$6.92	\$75.48	\$144,369.63	
100 kVA 3 Phase - All Peak	UT100P	14	\$19.03	\$75.48	\$189,117.27	
100 kVA 3 Phase - With Off Peak	UT100Q	2	\$13.21	\$75.48	\$22,045.40	
<b>TPC Rural</b>						
<b>Domestic</b>						
Small Domestic (8kVA 1 Phase) - All Peak	RD08P	96	\$0.93	\$75.48	\$59,637.74	
Small Domestic (8kVA 1 Phase) - With Off Peak	RD08Q	118	\$0.63	\$75.48	\$58,526.87	
Standard Domestic (20kVA 1 Phase) - All Peak	RD20P	1,230	\$1.71	\$75.48	\$1,633,673.27	
Standard Domestic (20kVA 1 Phase) - With Off Peak	RD20Q	6,769	\$1.17	\$75.48	\$7,390,670.04	
10% Fixed Charge Option - All Peak	RDL20P	299	\$0.15	\$126.00	\$211,402.51	
10% Fixed Charge Option - With Off Peak	RDL20Q	1,191	\$0.05	\$126.00	\$755,453.33	
10% Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	26	\$0.15	\$101.82	\$10,194.45	
10% Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	17	\$0.05	\$101.82	\$5,726.57	
<b>Non-Domestic Single Phase</b>						
Street Lights (1 Phase)	RS001L	517	\$0.14	\$75.48	\$55,996.56	
1 kVA 1 Phase - All Peak	RS001P	129	\$0.59	\$75.48	\$117,168.12	

8 kVA 1 Phase - All Peak	RS008P	968	\$0.93	\$75.48	\$601,347.21
8 kVA 1 Phase - With Off Peak	RS008Q	22	\$0.63	\$75.48	\$10,911.79
20 kVA 1 Phase - All Peak	RS020P	1,911	\$1.71	\$75.48	\$2,538,170.42
20 kVA 1 Phase - With Off Peak	RS020Q	245	\$1.17	\$75.48	\$267,500.98
<b>Non-Domestic Three Phase</b>					
15 kVA 3 Phase - All Peak	RT015P	270	\$1.40	\$75.48	\$280,072.38
15 kVA 3 Phase - With Off Peak	RT015Q	10	\$0.95	\$75.48	\$8,435.73
30 kVA 3 Phase - All Peak	RT030P	2,109	\$2.39	\$75.48	\$3,741,378.40
30 kVA 3 Phase - With Off Peak	RT030Q	341	\$1.62	\$75.48	\$492,537.48
50 kVA 3 Phase - All Peak	RT050P	414	\$4.85	\$75.48	\$1,774,277.16
50 kVA 3 Phase - With Off Peak	RT050Q	682	\$3.32	\$75.48	\$2,446,250.71
75 kVA 3 Phase - All Peak	RT075P	65	\$12.33	\$75.48	\$550,582.04
75 kVA 3 Phase - With Off Peak	RT075Q	27	\$8.30	\$75.48	\$183,091.09
100 kVA 3 Phase - All Peak	RT100P	24	\$22.86	\$75.48	\$357,745.70
100 kVA 3 Phase - With Off Peak	RT100Q	9	\$15.86	\$75.48	\$107,885.92

## 9. Line Charge Tables

### 9.1 Line Charge Breakdown for Individual Customers

ICP Number	Contract Capacity kVA	Trans Power Charge	Subtransmission Charge	Distribution Charge	PowerNet Charge	Total Line Charge	Fixed Charge per annum	Variable Charge per Day MWh
800105TP-315	10000	\$441,579	\$393,223	\$3,720	\$75.87	\$838,597.62	\$419,298.81	\$15.71
800107TP-390	200	\$4,042	\$3,774	\$2,947	\$75.87	\$10,839.17	\$5,419.58	\$14.04
800116TP-578	3000	\$84,206	\$59,085	\$824	\$75.87	\$144,191.34	\$72,095.67	\$18.17
800117TP-93D	750	\$30,072	\$17,157	\$206	\$75.87	\$47,511.06	\$23,755.53	\$32.54
800118TP-6E3	150	\$3,378	\$2,724	\$2,434	\$75.87	\$8,611.84	\$7,844.36	\$75.48
8001275TP-A4C	75	\$2,451	\$2,877	\$1,757	\$75.87	\$7,160.40	(\$1,056.47)	\$75.48
800127TP-EC5	300	\$2,907	\$2,970	\$2,899	\$75.87	\$8,851.40	\$4,425.70	\$34.08
800128TP-11B	100	\$2,223	\$1,244	\$2,412	\$75.87	\$5,954.53	\$5,954.53	\$0.00
800134TP-8A8	5000	\$290,678	\$222,785	\$2,253	\$75.87	\$515,792.20	\$257,896.10	\$20.95
8001365TP-9E5	750	\$35,262	\$20,933	\$286	\$75.87	\$56,557.73	\$28,278.86	\$17.14
800139TP-7F3	300	\$11,214	\$4,871	\$2,715	\$75.87	\$18,874.63	\$9,437.32	\$29.50
118447TP-ECC	150	\$4,401	\$2,738	\$2,321	\$75.87	\$9,536.11	\$1,008.86	\$75.48
800146TP-D70	22000	\$1,722,552	\$168,526	\$240	\$0.00	\$1,891,318.45	\$0.00	\$0.00
502013TP-4D1	150	\$3,740	\$1,363	\$2,415	\$75.87	\$7,593.87	\$4,097.73	\$75.48
4031015TP-9AA	150	\$9,299	\$26,398	\$1,344	\$75.87	\$37,117.62	\$37,117.62	\$0.00
382896TP-29B	200	\$1,111	\$682	\$3,078	\$75.87	\$4,947.43	\$4,947.43	\$0.00
800186TP-A9F	1250	\$38,949	\$32,973	\$12,338	\$75.87	\$84,335.63	\$42,167.81	\$26.15
244381TP-3EE	50	\$870	\$339	\$1,816	\$75.87	\$3,100.97	\$3,100.97	\$0.00

1419275TP-57D	100	\$786	\$1,109	\$2,652	\$75.87	\$4,623.10	\$4,623.10	\$0.00
1819183TP-528	150	\$1,640	\$430	\$4,308	\$75.87	\$6,453.84	\$3,226.92	\$54.09
333040TP-1F2	200	\$2,372	\$7,436	\$3,487	\$75.87	\$13,370.05	\$13,370.05	\$0.00
482021TP-8E5	150	\$2,618	\$1,228	\$2,656	\$75.87	\$6,577.46	\$3,288.73	\$32.13
437081TP-9D3	200	\$17	\$74	\$2,585	\$75.87	\$2,752.22	\$1,376.11	\$2,127.76
643886TP-0F5	200	\$2,597	\$2,591	\$2,684	\$75.87	\$7,947.81	\$3,973.91	\$137.94
100109TP-F16	100	\$4,691	\$5,261	\$3,005	\$75.87	\$13,033.26	\$6,516.63	\$51.65
800158TP-446	500	\$6,847	\$10,850	\$340	\$75.87	\$18,113.12	\$9,056.56	\$37.71
8001315TP-CB8	2250	\$86,888	\$36,590	\$19,698	\$75.87	\$143,251.87	\$71,625.94	\$18.09
391396TP-B94	150	\$1,156	\$4,042	\$3,548	\$75.87	\$8,821.74	\$3,610.02	\$75.48
437074TP-48B	1000	\$14,593	\$20,254	\$8,809	\$75.87	\$43,732.29	\$21,866.15	\$64.51
4370715TP-029	500	\$4,874	\$8,381	\$5,817	\$75.87	\$19,147.51	\$9,573.76	\$84.75
437078TP-795	1000	\$10,360	\$19,858	\$10,382	\$75.87	\$40,675.28	\$20,337.64	\$55.27
800155TP-B1D	300	\$28,952	\$7,703	\$4,965	\$75.87	\$41,695.94	\$20,847.97	\$14.37
1421365TP-AF8	150	\$3,706	\$3,963	\$3,767	\$75.87	\$11,511.67	\$11,511.67	\$0.00
482027TP-96A	200	\$4,844	\$3,062	\$2,837	\$75.87	\$10,817.83	\$5,408.92	\$21.45
185015TP-7A4	200	\$1,239	\$734	\$2,963	\$75.87	\$5,012.05	\$2,506.03	\$47.34
543645TP-165	30	\$665	\$722	\$1,736	\$75.87	\$3,198.43	\$895.98	\$75.48
5678995TP-502	200	\$6,397	\$2,575	\$2,403	\$75.87	\$11,451.12	\$5,725.56	\$19.16
800133TP-562	4500	\$1,288	\$948	\$1,353	\$75.87	\$3,664.56	\$1,832.28	\$37.54
141326TP-DAF	200	\$8,021	\$7,816	\$3,092	\$75.87	\$19,004.08	\$9,502.04	\$26.77
800163TP-D6A	300	\$6,490	\$17,819	\$3,776	\$75.87	\$28,160.62	\$14,080.31	\$54.91
444030TP-F7D	200	\$6,880	\$6,558	\$2,841	\$75.87	\$16,354.16	\$8,177.08	\$30.96
448899TP-2BE	100	\$838	\$979	\$1,626	\$75.87	\$3,518.55	\$2,323.43	\$75.48
427512TP-710	150	\$565	\$1,181	\$2,625	\$75.87	\$4,446.84	\$2,223.42	\$63.75
549615TP-72D	150	\$4,567	\$1,516	\$2,069	\$75.87	\$8,227.82	(\$9,180.00)	\$75.48
333049TP-FA3	150	\$1,261	\$4,324	\$3,046	\$75.87	\$8,707.59	\$8,707.59	\$0.00

3330513TP-914	150	\$776	\$5,919	\$3,125	\$75.87	\$9,895.59	\$9,895.59	\$0.00
240526TP-6BD	150	\$6,556	\$2,463	\$4,274	\$75.87	\$13,367.90	(\$9,223.91)	\$75.48
8001505TP-013	300	\$6,324	\$2,485	\$6,129	\$75.87	\$15,013.44	(\$7,057.26)	\$75.48
221318TP-720	150	\$4,651	\$1,886	\$3,129	\$75.87	\$9,741.78	\$439.25	\$75.48
8001801TP-411	1000	\$81,290	\$58,432	\$7,951	\$75.87	\$147,749.07	\$73,874.54	\$21.16
8001815TP-FB6	1000	\$107,901	\$67,351	\$7,951	\$75.87	\$183,278.76	\$94,082.38	\$32.36
800181TP-755	500	\$19,353	\$10,073	\$5,145	\$75.87	\$34,646.52	\$17,323.26	\$35.20
410873TP-4E1	200	\$6,361	\$2,296	\$3,261	\$75.87	\$11,994.44	\$5,997.22	\$46.19
612680TP-5A5	100	\$2,786	\$1,658	\$3,336	\$75.87	\$7,855.81	\$3,927.90	\$40.25
314914TP-C54	200	\$6,752	\$20,424	\$3,490	\$75.87	\$30,742.12	\$9,867.25	\$75.48
4004001TP-401	150	\$958	\$3,253	\$2,386	\$75.87	\$6,673.35	\$1,553.02	\$75.48
5290993TP-D4F	150	\$1,923	\$669	\$2,166	\$75.87	\$4,834.36	(\$969.19)	\$75.48
166730TP-721	150	\$344	\$503	\$1,902	\$75.87	\$2,824.90	\$1,412.45	\$117.41
632751TP-46B	150	\$1,565	\$360	\$2,568	\$75.87	\$4,569.49	\$812.79	\$75.48
318907TP-1B9	100	\$527	\$1,086	\$2,613	\$75.87	\$4,301.93	\$4,301.93	\$0.00
3193735TP-319	200	\$2,216	\$9,108	\$3,117	\$75.87	\$14,516.99	\$14,516.99	\$0.00
141806TP-3F4	150	\$800	\$384	\$2,688	\$75.87	\$3,947.48	\$3,947.48	\$0.00
313732TP-2E5	200	\$5,934	\$10,687	\$2,906	\$75.87	\$19,603.59	\$17.31	\$75.48
249946TP-9E1	150	\$4,398	\$2,523	\$2,566	\$75.87	\$9,563.47	\$4,781.74	\$30.13
249967TP-8F1	100	\$670	\$641	\$2,485	\$75.87	\$3,871.66	\$3,871.66	\$0.00
249945TP-521	150	\$2,866	\$2,037	\$2,645	\$75.87	\$7,623.81	\$3,811.91	\$31.06
362484TP-9C2	200	\$13,234	\$9,106	\$1,394	\$75.87	\$23,809.42	\$11,904.71	\$30.17
404955TP-F5E	100	\$2,425	\$2,547	\$1,906	\$75.87	\$6,954.19	(\$811.25)	\$75.48
405350TP-9BB	150	\$3,589	\$13,076	\$2,321	\$75.87	\$19,061.20	\$137.58	\$75.48
405508TP-5A1	200	\$4,855	\$17,844	\$2,849	\$75.87	\$25,623.65	(\$2,505.48)	\$75.48
800153TP-A92	500	\$14,327	\$4,862	\$7,171	\$75.87	\$26,435.33	\$13,217.66	\$31.13
116195TP-ECE	150	\$6,356	\$2,610	\$3,602	\$75.87	\$12,643.33	(\$5,760.60)	\$75.48

5791985TP-A1E	150	\$4,798	\$1,876	\$2,347	\$75.87	\$9,097.68	\$137.83	\$75.48
690202TP-00E	50	\$3,479	\$3,700	\$673	\$75.87	\$7,927.82	\$3,963.91	\$29.68
6902235TP-F5B	50	\$2,518	\$1,956	\$921	\$75.87	\$5,470.68	\$2,735.34	\$29.45
690247TP-FE4	50	\$6,578	\$5,236	\$1,773	\$75.87	\$13,663.50	\$6,831.75	\$24.43
690237TP-AB9	50	\$4,752	\$3,016	\$1,746	\$75.87	\$9,589.06	\$4,794.53	\$24.25
166724TP-C86	500	\$30,032	\$8,356	\$3,834	\$75.87	\$42,297.11	\$21,148.56	\$18.10
166727TP-046	200	\$1,597	\$1,873	\$2,502	\$75.87	\$6,048.25	\$3,024.13	\$57.69
241126TP-B1C	150	\$4,376	\$1,197	\$3,417	\$75.87	\$9,065.53	\$4,532.77	\$45.52
690224TP-CD4	150	\$2,523	\$605	\$2,167	\$75.87	\$5,370.73	\$2,685.37	\$28.30
6902265TP-753	100	\$251	\$853	\$1,924	\$75.87	\$3,103.47	\$1,551.74	\$28.07
250351TP-0CD	300	\$9,282	\$2,893	\$4,546	\$75.87	\$16,796.75	\$8,398.37	\$26.17
177096TP-8F2	150	\$9,015	\$3,231	\$2,586	\$75.87	\$14,908.11	\$7,454.05	\$24.88
800151TP-A17	100	\$1,182	\$1,270	\$2,168	\$75.87	\$4,696.81	(\$928.31)	\$75.48
240375TP-473	150	\$7,466	\$2,529	\$2,741	\$75.87	\$12,812.58	(\$12,350.04)	\$75.48
517704TP-375	150	\$4,434	\$1,725	\$2,397	\$75.87	\$8,630.92	(\$583.82)	\$75.48
1819179TP-7AE	150	\$5,918	\$1,722	\$4,286	\$75.87	\$12,002.14	\$6,001.07	\$26.23
637250TP-A0B	750	\$1,845	\$1,993	\$5,931	\$75.87	\$9,845.20	\$4,922.60	\$22.52
482074TP-DA2	200	\$3,094	\$1,670	\$3,103	\$75.87	\$7,943.32	\$3,971.66	\$40.19
8001245TP-DB4	500	\$16,568	\$21,850	\$4,790	\$75.87	\$43,283.98	\$21,641.99	\$65.10
8001876TP-C86	300	\$2,801	\$1,659	\$4,018	\$75.87	\$8,554.27	\$3,442.46	\$75.48
625837TP-99A	150	\$5,305	\$3,083	\$2,402	\$75.87	\$10,865.21	(\$6,878.90)	\$75.48
555205TP-2E0	100	\$3,022	\$1,989	\$2,358	\$75.87	\$7,444.75	\$3,722.38	\$31.95
556467TP-973	1000	\$20,807	\$9,308	\$4,948	\$75.87	\$35,138.91	\$17,569.45	\$18.43
569640TP-BA7	200	\$2,584	\$2,025	\$433	\$75.87	\$5,118.53	\$2,559.26	\$34.29
800103TP-29A	300	\$9,659	\$3,444	\$226	\$75.87	\$13,404.47	\$6,702.23	\$17.71
800114TP-5FD	500	\$21,170	\$13,404	\$718	\$75.87	\$35,367.69	\$17,683.85	\$16.19
521000TP-991	50	\$2,031	\$1,586	\$712	\$75.87	\$4,405.03	\$2,202.52	\$19.61

5210031TP-3F9	100	\$3,430	\$3,550	\$1,730	\$75.87	\$8,785.93	\$4,392.97	\$20.46
564570TP-57C	50	\$1,696	\$1,451	\$651	\$75.87	\$3,873.61	\$1,936.81	\$21.10
568791TP-204	100	\$3,858	\$3,475	\$1,341	\$75.87	\$8,749.64	\$4,374.82	\$19.60
5791016TP-030	50	\$2,075	\$1,575	\$616	\$75.87	\$4,341.59	\$2,170.79	\$20.17
800130TP-9A2	300	\$27,462	\$6,987	\$2,806	\$75.87	\$37,330.99	\$18,665.49	\$14.91
569999TP-7BB	150	\$2,886	\$1,086	\$1,957	\$75.87	\$6,005.08	\$1,912.79	\$75.48
595728TP-15B	500	\$233	\$210	\$4,963	\$75.87	\$5,481.56	\$4,627.70	\$75.48
181975TP-7DD	150	\$6,781	\$2,288	\$2,903	\$75.87	\$12,047.10	\$6,023.55	\$17.95
4182832TP-1BD	200	\$7,967	\$28,895	\$3,141	\$75.87	\$40,079.52	\$12,184.70	\$75.48
4182836TP-0B7	150	\$667	\$2,471	\$2,937	\$75.87	\$6,150.41	\$3,076.23	\$75.48
418284TP-E36	500	\$19,549	\$44,800	\$5,431	\$75.87	\$69,856.29	\$34,928.14	\$125.35
800164TP-0A0	500	\$13,884	\$33,567	\$5,308	\$75.87	\$52,834.65	\$26,417.32	\$48.73
319736TP-DAF	200	\$1,529	\$4,682	\$4,015	\$75.87	\$10,302.29	\$10,302.29	\$0.00
180710TP-2C9	150	\$4,520	\$1,695	\$2,418	\$75.87	\$8,708.23	\$3,673.58	\$75.48
8001695TP-CF7	750	\$36,171	\$8,628	\$3,997	\$75.87	\$48,871.91	\$24,435.95	\$20.78
208362TP-581	150	\$829	\$2,350	\$2,704	\$75.87	\$5,957.97	\$5,957.97	\$0.00
800147TP-135	150	\$7,848	\$2,493	\$2,101	\$75.87	\$12,518.18	\$6,259.09	\$18.53
800150TP-652	100	\$3,237	\$3,624	\$2,418	\$75.87	\$9,354.83	(\$454.63)	\$75.48
142817TP-7FC	150	\$3,717	\$2,236	\$2,479	\$75.87	\$8,507.93	\$5,437.29	\$75.48
181750TP-1CC	200	\$7,269	\$2,531	\$3,052	\$75.87	\$12,928.03	\$6,464.02	\$15.46
6204314TP-54A	100	\$2,183	\$2,282	\$2,350	\$75.87	\$6,891.22	(\$134.08)	\$75.48
589190TP-49A	150	\$3,475	\$1,289	\$2,395	\$75.87	\$7,235.25	\$3,617.63	\$25.30
116167TP-E5C	150	\$2,166	\$576	\$2,224	\$75.87	\$5,041.44	\$2,520.72	\$29.71
118468TP-C47	100	\$3,624	\$3,746	\$1,822	\$75.87	\$9,268.83	(\$4,888.50)	\$75.48
1015827TP-5C5	150	\$3,755	\$4,550	\$2,900	\$75.87	\$11,281.72	\$1,043.92	\$75.48
190101TP-AC6	150	\$4,522	\$1,859	\$3,105	\$75.87	\$9,561.34	\$1,456.06	\$75.48
800169TP-FFB	150	\$7,519	\$2,410	\$2,324	\$75.87	\$12,328.34	\$6,164.17	\$18.82



400440TP-B34	100	\$1,276	\$1,396	\$1,678	\$75.87	\$4,426.42	(\$1,208.69)	\$75.48
157641TP-7B1	150	\$3,676	\$1,424	\$2,623	\$75.87	\$7,800.07	\$4,389.59	\$75.48
364828TP-B0F	150	\$660	\$450	\$2,946	\$75.87	\$4,132.48	\$2,066.24	\$87.79
192544TP-A6D	300	\$25,583	\$8,292	\$4,411	\$75.87	\$38,362.75	\$19,181.37	\$16.27
426599TP-D2E	500	\$17,719	\$11,324	\$5,158	\$75.87	\$34,276.67	\$17,138.34	\$22.19
304798TP-4EA	300	\$9,604	\$6,151	\$4,301	\$75.87	\$20,131.83	\$10,065.92	\$42.01
192519TP-D3E	150	\$5,533	\$1,982	\$3,031	\$75.87	\$10,622.30	(\$472.21)	\$75.48
1186118TP-5A2	200	\$6,758	\$2,975	\$2,423	\$75.87	\$12,231.52	\$6,115.76	\$29.25
1186119TP-9E7	200	\$9,564	\$5,875	\$2,423	\$75.87	\$17,938.09	(\$1,510.90)	\$75.48
118615TP-C46	200	\$5,145	\$3,151	\$2,423	\$75.87	\$10,794.16	\$974.07	\$75.48
6204404TP-0E5	1000	\$37,937	\$14,828	\$4,707	\$75.87	\$57,548.08	\$28,774.04	\$21.08
6204405TP-CA0	300	\$11,681	\$4,087	\$2,694	\$75.87	\$18,537.40	\$9,268.70	\$23.25
6204407TP-C25	500	\$29,188	\$11,497	\$3,523	\$75.87	\$44,283.35	\$22,141.67	\$16.10
6204408TP-3FB	750	\$42,800	\$15,343	\$4,198	\$75.87	\$62,417.65	\$31,208.83	\$16.75
620456TP-103	750	\$27,026	\$8,609	\$4,200	\$75.87	\$39,911.79	\$19,955.90	\$26.89
8001320TP-60F	300	\$3,847	\$1,054	\$2,694	\$75.87	\$7,669.96	\$3,834.98	\$33.81
6204415TP-60D	1000	\$10,781	\$2,926	\$4,627	\$75.87	\$18,410.64	\$9,205.32	\$416.31
620455TP-DC3	300	\$5,700	\$2,437	\$2,756	\$75.87	\$10,968.52	\$3,445.19	\$75.48
176630TP-6C4	150	\$4,168	\$1,654	\$2,307	\$75.87	\$8,204.51	\$4,102.26	\$28.39
186250TP-0A9	750	\$7,995	\$3,021	\$5,588	\$75.87	\$16,679.96	\$8,339.98	\$30.64
204735TP-7C2	100	\$4,037	\$4,135	\$3,637	\$75.87	\$11,884.62	\$5,942.31	\$51.00
657599TP-EEF	200	\$4,070	\$1,373	\$263	\$75.87	\$5,781.65	\$5,781.65	\$0.00
525441TP-DF0	150	\$3,454	\$2,121	\$2,380	\$75.87	\$8,030.75	\$5,300.67	\$75.48
633604TP-988	200	\$3,347	\$1,920	\$2,566	\$75.87	\$7,909.72	\$3,954.86	\$22.87
1164012TP-00A	300	\$7,589	\$3,567	\$2,743	\$75.87	\$13,975.62	\$6,987.81	\$19.83
530906TP-856	300	\$7,885	\$11,529	\$2,707	\$75.87	\$22,196.15	\$11,098.07	\$38.40
5552033TP-EA2	3000	\$150,506	\$186,642	\$23,389	\$75.87	\$360,612.42	\$360,612.42	\$0.00

5672985TP-1EF	100	\$2,118	\$2,401	\$1,475	\$75.87	\$6,070.27	\$780.03	\$75.48
5552249TP-369	300	\$3,487	\$1,322	\$3,711	\$75.87	\$8,595.94	\$4,297.97	\$26.50
615269TP-92F	300	\$9,126	\$14,281	\$3,746	\$75.87	\$27,229.93	\$1,469.76	\$75.48
391339TP-C55	50	\$791	\$662	\$3	\$75.87	\$1,532.10	\$766.05	\$17.63
1819727TP-A3B	100	\$1,040	\$1,832	\$1,740	\$75.87	\$4,687.61	\$2,343.81	\$24.54
50150092TP-CF2	75	\$3,095	\$2,310	\$643	\$75.87	\$6,124.03	\$3,062.01	\$28.60
800152TP-6D7	1250	\$97,592	\$22,710	\$1,488	\$75.87	\$121,865.88	\$60,932.94	\$20.45
800170TP-B07	750	\$13,510	\$87,380	\$4,352	\$75.87	\$105,317.83	\$52,658.92	\$70.56
182010TP-E8B	100	\$6,688	\$6,337	\$2,437	\$75.87	\$15,536.52	\$7,768.26	\$31.90
8001045TP-7B3	500	\$23,653	\$6,143	\$3,824	\$75.87	\$33,696.51	\$16,848.26	\$28.60
800104TP-F50	1000	\$52,734	\$15,661	\$5,284	\$75.87	\$73,755.58	\$36,877.79	\$17.30
5791226TP-DCF	300	\$14,845	\$4,145	\$2,987	\$75.87	\$22,053.14	\$11,026.57	\$16.52
6438465TP-89B	500	\$15,154	\$12,775	\$4,008	\$75.87	\$32,012.18	\$16,006.09	\$27.03
643847TP-B5F	500	\$7,638	\$3,768	\$4,008	\$75.87	\$15,489.72	\$7,744.86	\$32.73
6438485TP-221	200	\$1,762	\$1,699	\$2,572	\$75.87	\$6,108.41	(\$3,611.83)	\$75.48
800132TP-927	100	\$3,773	\$2,829	\$2,965	\$75.87	\$9,643.41	\$4,821.70	\$26.20
8001305TP-615	30	\$1,025	\$1,186	\$1,835	\$75.87	\$4,121.56	\$199.90	\$75.48
8001708TP-54F	100	\$795	\$937	\$2,876	\$75.87	\$4,682.98	\$3,829.12	\$75.48
800113TP-837	100	\$1,782	\$1,820	\$1,638	\$75.87	\$5,315.84	(\$2,363.22)	\$75.48
331280TP-F5A	150	\$844	\$2,852	\$3,442	\$75.87	\$7,213.24	\$7,213.24	\$0.00
579184TP-AA1	100	\$2,453	\$4,136	\$1,282	\$75.87	\$7,947.01	\$3,973.50	\$43.41
568266TP-ADC	500	\$17,865	\$9,932	\$3,809	\$75.87	\$31,682.47	\$15,841.23	\$16.13
5682737TP-04F	300	\$1,445	\$1,207	\$2,866	\$75.87	\$5,593.70	\$2,796.85	\$49.11
5684239TP-311	150	\$3,397	\$1,084	\$1,923	\$75.87	\$6,480.33	\$3,240.17	\$27.74
396517TP-0FD	50	\$437	\$449	\$1,912	\$75.87	\$2,873.85	\$1,252.51	\$75.48
482070TP-CA8	300	\$8,856	\$6,381	\$3,782	\$75.87	\$19,094.22	\$8,454.09	\$75.48
300360TP-C68	75	\$465	\$464	\$756	\$75.87	\$1,761.40	\$1,289.15	\$75.48

208740TP-450	300	\$5,055	\$14,824	\$3,392	\$75.87	\$23,346.70	(\$5,718.41)	\$75.48
569639TP-0AB	150	\$2,840	\$1,337	\$2,177	\$75.87	\$6,429.60	\$3,214.80	\$35.26
319705TP-697	150	\$784	\$3,042	\$3,114	\$75.87	\$7,016.59	\$7,016.59	\$0.00
617670TP-292	750	\$14,607	\$11,901	\$7,214	\$75.87	\$33,798.80	\$16,899.40	\$51.64
112267TP-BDF	150	\$2,780	\$1,695	\$2,468	\$75.87	\$7,019.05	\$2,660.53	\$75.48
141924TP-720	200	\$80	\$725	\$3,225	\$75.87	\$4,106.21	\$2,053.10	\$35.68
192534TP-F30	150	\$2,759	\$726	\$2,628	\$75.87	\$6,189.35	\$3,094.68	\$23.92
800171TP-742	1500	\$23,080	\$58,795	\$553	\$75.87	\$82,503.57	\$41,251.78	\$83.07
1101461TP-OEE	200	\$5,719	\$1,408	\$3,427	\$75.87	\$10,629.84	\$5,314.92	\$83.63
1101999TP-7E5	300	\$14,691	\$7,034	\$4,378	\$75.87	\$26,179.00	\$13,089.50	\$34.23
110146TP-A8C	200	\$3,701	\$2,327	\$3,427	\$75.87	\$9,530.90	(\$1,041.83)	\$75.48
632798TP-DD5	100	\$2,971	\$4,004	\$2,402	\$75.87	\$9,453.15	\$4,726.57	\$38.63
634528TP-0A0	30	\$926	\$597	\$1,754	\$75.87	\$3,352.45	\$1,676.23	\$38.79
5552049TP-96E	300	\$10,522	\$5,579	\$3,636	\$75.87	\$19,811.58	\$9,905.79	\$22.58
5552055TP-ODD	2000	\$114,105	\$133,527	\$0	\$0.00	\$247,631.47	\$247,631.47	\$0.00
800121TP-F4A	2000	\$89,753	\$38,692	\$6,130	\$75.87	\$134,650.64	\$67,325.32	\$16.50
184621TP-6F0	50	\$1,447	\$1,516	\$629	\$75.87	\$3,668.54	(\$432.26)	\$75.48
800120TP-30F	200	\$2,062	\$4,068	\$2,382	\$75.87	\$8,587.31	\$4,293.65	\$43.45
800125TP-E40	2000	\$126,580	\$59,752	\$24,209	\$75.87	\$210,616.57	\$105,308.28	\$24.36
8001011TP-EB1	150	\$745	\$311	\$2,478	\$75.87	\$3,609.43	\$1,804.71	\$90.33
400495TP-B39	200	\$3,218	\$11,877	\$3,467	\$75.87	\$18,637.47	(\$4,113.62)	\$75.48
5791154TP-B14	150	\$7,362	\$2,607	\$2,046	\$75.87	\$12,091.40	(\$9,669.26)	\$75.48
656382TP-D30	100	\$579	\$462	\$2,372	\$75.87	\$3,488.66	\$1,782.36	\$75.48
800131TP-5E7	2500	\$62,099	\$24,448	\$12	\$75.87	\$86,634.66	\$43,317.33	\$21.40
520373TP-2AF	1500	\$40,790	\$23,993	\$93	\$75.87	\$64,952.41	\$32,476.21	\$49.80
184687TP-F60	150	\$4,289	\$1,423	\$2,280	\$75.87	\$8,068.23	(\$3,804.38)	\$75.48
522002TP-BF4	150	\$9,073	\$2,677	\$2,576	\$75.87	\$14,401.50	\$7,200.75	\$35.31

150925TP-224	150	\$5,628	\$5,987	\$2,647	\$75.87	\$14,337.99	\$7,169.00	\$25.46
150931TP-983	500	\$15,925	\$14,156	\$4,466	\$75.87	\$34,623.84	\$17,311.92	\$50.55
3764605TP-D7E	300	\$7,512	\$14,735	\$3,858	\$75.87	\$26,181.17	\$13,090.59	\$80.93
405386TP-576	150	\$1,375	\$8,091	\$2,651	\$75.87	\$12,193.50	\$6,096.75	\$125.13
405190TP-453	150	\$1,903	\$7,089	\$2,530	\$75.87	\$11,598.40	\$181.08	\$75.48
389990TP-5F0	150	\$1,831	\$6,733	\$2,576	\$75.87	\$11,216.15	\$2,865.21	\$75.48
389997TP-83A	200	\$1,855	\$6,756	\$2,846	\$75.87	\$11,532.44	\$1,389.53	\$75.48
389999TP-BA1	300	\$657	\$2,047	\$3,779	\$75.87	\$6,558.80	\$3,279.40	\$63.94
401815TP-3DF	300	\$16,211	\$31,790	\$4,093	\$75.87	\$52,169.88	\$26,084.94	\$38.84
8001611TP-8B7	30	\$1,461	\$1,575	\$415	\$75.87	\$3,526.88	(\$3,209.82)	\$75.48
800161TP-DEF	500	\$13,473	\$36,093	\$5,051	\$75.87	\$54,692.57	\$27,346.29	\$51.74
181911TP-927	75	\$4,534	\$4,463	\$1,259	\$75.87	\$10,330.91	\$5,165.46	\$22.38
235545TP-814	200	\$9,092	\$2,815	\$3,533	\$75.87	\$15,516.19	\$7,758.09	\$19.23
6375055TP-7DC	500	\$4,223	\$6,159	\$4,854	\$75.87	\$15,311.88	\$7,655.94	\$11.73
150910TP-893	500	\$616	\$2,006	\$4,573	\$75.87	\$7,270.15	\$3,635.08	\$16.18
150912TP-816	750	\$1,662	\$5,228	\$5,774	\$75.87	\$12,739.61	\$6,369.81	\$37.06
624649TP-8F7	500	\$2,234	\$2,642	\$4,322	\$75.87	\$9,273.22	\$4,636.61	\$15.19
800166TP-025	200	\$3,509	\$7,551	\$2,917	\$75.87	\$14,052.50	\$7,026.25	\$41.40
416731TP-C0E	150	\$2,230	\$8,442	\$2,937	\$75.87	\$13,684.39	\$4,728.08	\$75.48
549325TP-5D0	500	\$9,862	\$3,401	\$4,018	\$75.87	\$17,356.65	(\$18,052.29)	\$75.48
624606TP-58C	150	\$4,381	\$1,786	\$2,451	\$75.87	\$8,694.01	\$0.94	\$75.48
333060TP-CA7	150	\$1,639	\$2,903	\$3,193	\$75.87	\$7,811.45	\$7,811.45	\$0.00
3330508TP-D6D	300	\$1,826	\$7,353	\$3,957	\$75.87	\$13,210.76	\$13,210.76	\$0.00
405769TP-C13	200	\$2,379	\$9,131	\$7,080	\$75.87	\$18,665.79	\$10,491.16	\$75.48
373002TP-847	200	\$2,323	\$8,661	\$2,674	\$75.87	\$13,733.99	\$6,244.71	\$75.48
141990TP-498	150	\$3,677	\$4,546	\$3,781	\$75.87	\$12,080.08	\$12,080.08	\$0.00
315340TP-EFC	500	\$9,584	\$1,308,986	\$0	\$75.87	\$1,318,646.37	\$0.00	\$0.00

4245295TP-206	150	\$3,070	\$2,137	\$2,764	\$75.87	\$8,046.64	\$4,023.32	\$49.90
301586TP-0FB	100	\$1,027	\$1,251	\$2,475	\$75.87	\$4,828.55	\$3,209.34	\$75.48
424510TP-575	500	\$17,141	\$9,734	\$5,432	\$75.87	\$32,382.07	\$16,191.03	\$40.98
613920TP-315	100	\$1,243	\$884	\$3,049	\$75.87	\$24,476.23	\$2,625.81	\$82.67
8001015TP-FBB	300	\$23,537	\$6,862	\$2,951	\$75.87	\$5,251.63	\$16,713.05	\$16.40
800149TP-2AE	300	\$25,529	\$7,852	\$4,544	\$75.87	\$33,426.11	\$19,000.29	\$17.18
338411TP-65E	300	\$7,764	\$14,081	\$2,555	\$75.87	\$38,000.59	\$9,048.75	\$75.48

## 9.2 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 Domestic</b>								
Small Domestic (8kVA 1 Phase) - All Peak	UD08P	57	\$5,415	\$5,911	\$17,576	\$4,325	\$0.8263	\$75.48
Small Domestic (8kVA 1 Phase) - With Off Peak	UD08Q	250	\$19,815	\$22,154	\$54,812	\$18,968	\$0.5405	\$75.48
Standard Domestic (20kVA 1 Phase) - All Peak	UD20P	1,070	\$254,148	\$277,388	\$720,452	\$81,185	\$1.4866	\$75.48

Standard Domestic (20kVA 1 Phase) - With Off Peak	UD20Q	9,872	\$1,956,092	\$2,187,005	\$5,401,167	\$749,026	\$1.0367	\$75.48
10% Fixed Charge Option - All Peak	UDL20P	569	\$109,256	\$124,368	\$125,505	\$43,172	\$0.1500	\$126.00
10% Fixed Charge Option - With Off Peak	UDL20Q	3,680	\$592,957	\$686,114	\$708,784	\$279,215	\$0.0000	\$126.00
10% Fixed Charge Option (8kVA 1 Phase) - All Peak	UDL08P	35	\$2,982	\$3,382	\$4,704	\$2,656	\$0.1500	\$101.82
10% Fixed Charge Option (8kVA 1 Phase) - With Off Peak	UDL08Q	121	\$9,142	\$10,298	\$9,931	\$9,181	\$0.0000	\$101.82
<b>Non-Domestic Single Phase</b>								
Street Lights (1 Phase)	US001L	3,143	\$72,463	\$85,005	\$161,089	\$4,769	\$0.1201	\$75.48
1 kVA 1 Phase - All Peak	US001P	44	\$6,944	\$7,805	\$21,877	\$3,338	\$0.5856	\$75.48
8 kVA 1 Phase - All Peak	US008P	200	\$19,002	\$20,739	\$61,672	\$15,175	\$0.8263	\$75.48
8 kVA 1 Phase - With Off Peak	US008Q	18	\$1,427	\$1,595	\$3,946	\$1,366	\$0.5405	\$75.48
20 kVA 1 Phase - All Peak	US020P	375	\$89,070	\$97,215	\$252,495	\$28,453	\$1.4866	\$75.48
20 kVA 1 Phase - With Off Peak	US020Q	124	\$24,570	\$27,470	\$67,843	\$9,408	\$1.0367	\$75.48
<b>Non-Domestic Three Phase</b>								
15 kVA 3 Phase - All Peak	UT015P	91	\$16,210.82	\$18,843	\$46,949	\$6,905	\$1.2315	\$75.48
15 kVA 3 Phase - With Off Peak	UT015Q	10	\$1,486.09	\$1,788	\$3,909	\$759	\$0.8109	\$75.48
30 kVA 3 Phase - All Peak	UT030P	587	\$220,277.30	\$259,314	\$452,893	\$44,538	\$2.0872	\$75.48
30 kVA 3 Phase - With Off Peak	UT030Q	107	\$33,615.27	\$40,688	\$63,341	\$8,118	\$1.3967	\$75.48
50 kVA 3 Phase - All Peak	UT050P	304	\$276,587.08	\$322,953	\$611,927	\$23,066	\$4.2347	\$75.48
50 kVA 3 Phase - With Off Peak	UT050Q	92	\$69,915.43	\$84,296	\$154,180	\$6,980	\$2.8832	\$75.48
75 kVA 3 Phase - All Peak	UT075P	95	\$156,826.93	\$184,619	\$384,717	\$7,208	\$10.2713	\$75.48
75 kVA 3 Phase - With Off Peak	UT075Q	23	\$31,786.74	\$38,474	\$72,364	\$1,745	\$6.9228	\$75.48
100 kVA 3 Phase - All Peak	UT100P	14	\$38,205.68	\$44,976	\$104,873	\$1,062	\$19.0258	\$75.48
100 kVA 3 Phase - With Off Peak	UT100Q	2	\$4,569.31	\$5,531	\$11,794	\$152	\$13.2146	\$75.48

<b>TPC Rural</b>								
<b>Domestic</b>								
Small Domestic (8kVA 1 Phase) - All Peak	RD08P	96	\$9,120.81	\$9,954.84	\$33,278.20	\$7,283.88	\$0.9312	\$75.48
Small Domestic (8kVA 1 Phase) - With Off Peak	RD08Q	118	\$9,352.47	\$10,456.51	\$29,764.79	\$8,953.10	\$0.6309	\$75.48
Standard Domestic (20kVA 1 Phase) - All Peak	RD20P	1,230	\$292,150.98	\$318,866	\$929,331	\$93,325	\$1.7119	\$75.48
Standard Domestic (20kVA 1 Phase) - With Off Peak	RD20Q	6,769	\$1,341,246.66	\$1,499,579	\$4,036,255	\$513,589	\$1.1714	\$75.48
10% Fixed Charge Option - All Peak	RDL20P	299	\$57,412.05	\$65,354	\$65,951	\$22,686	\$0.1500	\$126.00
10% Fixed Charge Option - With Off Peak	RDL20Q	1,191	\$191,905.33	\$222,055	\$251,127	\$90,366	\$0.0500	\$126.00
10% Fixed Charge Option (8kVA 1 Phase) - All Peak	RDL08P	26	\$2,215.28	\$2,512	\$3,494	\$1,973	\$0.1500	\$101.82
10% Fixed Charge Option (8kVA 1 Phase) - With Off Peak	RDL08Q	17	\$1,284.46	\$1,447	\$1,705	\$1,290	\$0.0500	\$101.82
<b>Non-Domestic Single Phase</b>								
Street Lights (1 Phase)	RS001L	517	\$11,919.68	\$13,983	\$29,310	\$785	\$0.1350	\$75.48
1 kVA 1 Phase - All Peak	RS001P	129	\$20,358.77	\$22,884	\$64,138	\$9,788	\$0.5856	\$75.48
8 kVA 1 Phase - All Peak	RS008P	968	\$91,968.18	\$100,378.02	\$335,555.22	\$73,445.80	\$0.9312	\$75.48
8 kVA 1 Phase - With Off Peak	RS008Q	22	\$1,743.68	\$1,949.52	\$5,549.37	\$1,669.22	\$0.6309	\$75.48
20 kVA 1 Phase - All Peak	RS020P	1,911	\$453,902.86	\$495,409	\$1,443,864	\$144,995	\$1.7119	\$75.48
20 kVA 1 Phase - With Off Peak	RS020Q	245	\$48,545.64	\$54,276	\$146,090	\$18,589	\$1.1714	\$75.48
<b>Non-Domestic Three Phase</b>								
15 kVA 3 Phase - All Peak	RT015P	270	\$48,098.03	\$55,909	\$155,579	\$20,486	\$1.3967	\$75.48
15 kVA 3 Phase - With Off Peak	RT015Q	10	\$1,486.09	\$1,788	\$4,403	\$759	\$0.9462	\$75.48
30 kVA 3 Phase - All Peak	RT030P	2,109	\$791,422.19	\$931,674	\$1,858,265	\$160,018	\$2.3874	\$75.48
30 kVA 3 Phase - With Off Peak	RT030Q	341	\$107,129.03	\$129,668	\$229,868	\$25,873	\$1.6217	\$75.48
50 kVA 3 Phase - All Peak	RT050P	414	\$376,667.93	\$439,811	\$926,386	\$31,412	\$4.8504	\$75.48
50 kVA 3 Phase - With Off Peak	RT050Q	682	\$518,286.11	\$624,889	\$1,251,330	\$51,746	\$3.3186	\$75.48
75 kVA 3 Phase - All Peak	RT075P	65	\$107,302.64	\$126,318	\$312,029	\$4,932	\$12.3283	\$75.48
75 kVA 3 Phase - With Off Peak	RT075Q	27	\$37,314.87	\$45,165	\$98,562	\$2,049	\$8.3042	\$75.48

100 kVA 3 Phase - All Peak	RT100P	24	\$65,495.44	\$77,102	\$213,327	\$1,821	\$22.8551	\$75.48
100 kVA 3 Phase - With Off Peak	RT100Q	9	\$20,561.91	\$24,888	\$61,753	\$683	\$15.8574	\$75.48



### 9.3 Target Revenue Requirement Summary

The below is a summary of our projected revenue for both Transmission costs and PowerNet distribution price components broken down by the two customer group categories for the 2013 -14 year. We also outline the change in revenue compared with the previous year:

<b>Year 2013-14</b>	<b>Group Customers</b>	<b>Individual</b>	<b>Total</b>
PowerNet Distribution	\$34,562,818	\$4,994,319	\$39,557,137
Transmission	\$ 8,535,808	\$5,091,185	\$13,626,993
<b>Total</b>	<b>\$43,015,053</b>	<b>\$10,085,504</b>	<b>\$53,184,130</b>

#### **Revenue from previous year,**

PowerNet Distribution	\$33,759,042	\$5,070,988	\$38,830,030
Transmission	\$7,736,056	\$3,550,064	\$11,268,120
<b>Total</b>	<b>\$41,495,098</b>	<b>\$8,546,976</b>	<b>\$50,098,150</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 prices and a shift in the interconnection charges top 100 peaks from the winter months to the spring and summer period, this has resulted in an increase to the average co-incident demand for the interconnection charges, the majority of this increase has been borne by the individual customers.

PowerNet distribution revenue changes reflect changes in operation and maintenance costs and a CPI adjustment.

## 10. Electricity Authority Pricing Principles Comparison

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

### **10.1 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 stand alone 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.

**10.2 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.

**10.3 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 (eg: 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.

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

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

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

The use of individual capacity and demands also ensures that the price is cost reflective. By these processes, 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 domestic 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. Domestic 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. PowerNets peak demand component of the line charge provides a large reward to customers who invest in distribution alternatives.

**10.4 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.**

PowerNets 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.

#### **10.5 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 domestic 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 group customer 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.

## 11. Electricity Authority information disclosure guidelines

The Electricity Authority information disclosure guidelines state:

- (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:

Guideline	Methodology section addressing guideline
(a).	This entire document is written to meet these standards.
(b)i.	Section 10
(b)ii	Section 4
(b)iii	Section 3

(b)iv	Section 8
(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

## 12. 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 3 - 8
2.4.1 (2)	Section 9.3
2.4.1 (3)	Sections 4 & 6
2.4.1 (4)	Section 7
2.4.2	No changes to the methodology
2.4.3 (1)	Sections 3 & 8
2.4.3 (2)	Section 10
2.4.3 (3)	Sections 3, 8 & 9
2.4.3 (4)	Section 3 & 8
2.4.3 (5) (a) , (b)	Section 4
2.4.3 (6)	Section 9.3
2.4.3 (7)	Section 8
2.4.3 (8)	Section 9
2.4.4 (1-3)	N/A
2.4.5 (1) (a) to (c)	Section 4
2.4.5 (2) (a) & (b)	Section 4
2.4.5 (3) (a) & (b)	Section 6