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## Revision History

Version Number	Reviewed By	Review Date	Changes Made to Methodology	Adjustment to Distribution Prices (Domestic)	Adjustment to Transmission Prices (Domestic)
0	R Griffiths	April 2004	First issue	First issue	First issue
1	R Griffiths	April 2005	Nil	2.6%	5.0%
2	R Griffiths	April 2006	Nil	0.0%	16.6%
3	R Griffiths	April 2007	Nil	2.0%	(4.8%) Previous Transmission increases reversed
4	R Griffiths	April 2008	Nil	3.0%	0.0%
5	R Griffiths	April 2009	Nil	4.0%	0.0%
6	R Griffiths	April 2010	Nil	5.0%	0.0%
7	R Griffiths	April 2011	Nil	5.5%	4.6%
8	R Griffiths	April 2012	<b>Nil</b> but more description and clarity added to comply with the Guidelines	4.3%	0.0% Except for the 44 large industrial consumers where the increase was 4.7%

## Glossary

<b>AMD</b>	Anytime Maximum Demand
<b>CMD</b>	Coincident Maximum Demand
<b>CPI</b>	Consumer Price Index
<b>Grid</b>	Transpower's National Transmission System
<b>GXP</b>	Grid Exit Point
<b>ICP</b>	Installation Control Points for each consumer
<b>Kilowatt</b>	Measurement of electricity demand at any time (volts x amps)
<b>Kilowatt hour</b>	Measurement of electrical energy delivered each hour
<b>ODV</b>	Optimised Depreciated Value
<b>TOU</b>	Time of Use (measurements every half hour)

## 1 INTRODUCTION

Westpower owns and operates the electricity distribution assets throughout the 18,017 sq kms of the West Coast of the South Island, comprising 2,085 kms of lines and cables supplying 13,000 consumers of electricity. Westpower is one of fourteen distribution companies in the South Island as shown in the cover page graphic.

This document explains the methodology that has been developed by Westpower to charge for its electricity delivery services to electricity retailers with whom all consumers hold supply contracts. Included is the information required by the Electricity Distribution (Information Disclosure) Requirements 2008 along with requirements 22 and 23 of the Electricity Information Disclosure Requirements issued 31 March 2004 (Original Requirements), which continue to apply.

Requirement 22 of the Original Requirements requires electricity distribution businesses (distributors) to publicly disclose the methodology used as at the beginning of each financial year to determine the line charges payable or to be payable by consumers connected to the distribution network.

It should be noted these charges are not transparent on consumer's invoices for electricity as electricity retailers re-bundle Westpower's charges to best meet their needs.

The tariff is based upon charges applied at each premise Installation Control Point (ICP) as measured by the electricity meters installed there.

For small and medium sized consumers, transmission charges are averaged and recovered in proportion to the consumer's use of electricity. On the other hand, it has been possible to pass transmission charges through to large electricity consumers in a direct and transparent fashion, which provides an economically efficient pricing signal these consumers can respond to.

Westpower's pricing methodology has been prepared in accordance with the Distribution Pricing Principles and Information Disclosure Guidelines published by the Electricity Commission in February 2010.

Comments and suggestions for improvement are welcome at any time addressed to:

*The General Manager, Assets and Engineering Services, Westpower Limited, Greymouth.*

## 2 PRICING PRINCIPLES and OBJECTIVES

Following consultation with the industry in February 2010, the Electricity Commission released the final Pricing Principles and Information Disclosure (Guidelines), which are intended to assist distributors to compile their disclosures. According to the Guidelines, distributors are required to prepare a statement of their pricing alignment with the principles, and disclose this by 31 March 2012. The Authority will then review these disclosures with a view to informing further work in this area.

Westpower sets its prices to recover sufficient revenue to cover all its costs, including the cost of capital, to operate its business and the cost of national transmission charges payable to Transpower. Westpower, like all line companies, is a monopoly business as it is not feasible to replicate the distribution network to provide realistic competition in prices.

To ensure monopoly practices do not occur in pricing, the Government imposes regulations on Westpower to ensure fair tariffs are produced for its services. Westpower complies with these regulations when setting prices.

The structure of our pricing reflects the economic costs of providing our services which allows consumers to make efficient decisions about which forms of energy to use and when to use it. This contributes to the overall economic welfare of the community.

## **2.1 Regulatory Issues**

Westpower is currently exempt from price regulation under Part 4 of the Commerce Act, but continues to apply the general principle that Transpower's transmission charges and levies paid by Westpower to fund the Commission and the Authority are passed through as directly as possible.

Furthermore, Westpower is required to provide particular tariff options to low use consumers, which effectively provides a subsidy to such consumers.

In addition, Westpower is also required to keep changes in rural charges consistent with those paid by urban consumers, reflecting a subsidy between urban and rural consumers. In part this is offset by the lower service level provided to rural consumers, as it takes longer to restore faults to remote locations, and such consumers do not benefit from the meshed network that is available in an urban environment.

## **2.2 Economic Considerations**

To be economically efficient, Westpower must set its prices in such a manner that consumers can weigh up the value of the service compared to other similar alternatives and as a consequence, Westpower can invest in the network at an appropriate level to meet future needs.

Electricity distribution networks are a long term investment with asset lives commonly in excess of 60 years. Such assets require consideration of long term operational costs and if consumers elect to use our services based on pricing, the long term investment is economically efficient.

Our pricing is therefore based on the long term marginal cost of operating the business. This means repairs and replacements required to maintain the existing services are completed to extend the life of the asset as long as practical, which is economically efficient over the long life of the asset but incurs slightly higher costs than the network demand requires in the year the work is completed.

## **2.3 Equitable Considerations**

Westpower strives to treat all consumers equitably when setting prices. Where possible, we only allocate assets to the connections that use them. We recognise consumers all benefit from the utilisation of shared assets so we average prices over large groups of consumers with similar usage patterns. We apply price signals to various tariffs to assist with maximising the efficient utilisation of the assets and re-set pricing criteria on an annual basis to reflect changes in usage patterns of consumers.

## **2.4 Return on Investment**

Westpower considers setting a fair return on capital for the business to be a responsible action. Westpower is exempt from the pricing regulations but generally aligns its pricing with the principles that would apply under those regulations. With prices effectively controlled and costs rising, a consistent return on capital helps drive efficiencies in the business.

### 3 PRICING METHODOLOGY

Westpower, like all other electricity distribution companies, has two distinct costs to recover:

- Transmission charges paid to Transpower for use of the national grid to get electricity from the electricity generators to consumers; and
- Distribution costs to maintain and operate the local distribution assets.

Both of these costs are basically fixed in value each year (with minor annual adjustments in response to pricing signals and inflationary increases). Telecom recover similar fixed costs by applying high fixed line rentals to customers but Government regulation prevents line companies from similar actions.

There are several options available to line companies when setting tariffs.

#### 3.1 Tariff Options

The most common options for pricing are:

- 1) Pricing based on the demand placed on the network (in kilowatts)
- 2) Pricing based on consumer individual usage (in kilowatt hours)

Both options have variations. Kilowatts may be measured directly by meters or assigned by average group demand. Kilowatt hours can be measured by meters or derived from the electricity market using the information provided by electricity retailers.

Westpower uses demand kilowatt measurements for larger consumers where their use of distribution assets is easily defined. Kilowatt hour usage measurements are used for large groups of consumers whose usage within the group are similar.

Kilowatt hour measurements are based on readings from consumer's meters known as ICP pricing. Westpower reconciles kilowatt hours used by electricity retailers for the sale of electricity to quantities measured at the GXP but chooses not to use this method, known as GXP pricing, for calculating line charges as retailers are generally not readily receptive to this approach.

GXP pricing is the simplest and lowest cost method for calculating line charges and has the benefit of reducing loss factors that influence local electricity prices. However, with electricity retailers unwilling to accept this option most line companies, including Westpower, use ICP pricing.

#### 3.2 Overview of Methodology

Westpower's charges relate directly to its costs of delivering electricity to consumers and they include:

- Transpower's transmission costs;
- The cost of operating capital including depreciation, taxation and return on investment;
- Operation and maintenance costs;
- Administration costs; and
- Payments to distributed generators.

These costs are allocated to consumers based on the consumer groups that identify consumers by their usage patterns; see section 3.3 for further details.

Transmission costs, including avoided transmission costs paid to distributed generators, are allocated to each group by our assessment of each group's use of the transmission system, based on coincident peak electricity demand.

Administration costs are allocated per connection and all other distribution costs are allocated by the use of the asset based on the regulatory value of the asset (re-valued optimised depreciated replacement cost).

The costs are recovered by a mixture of fixed and variable charges to consumers.

Fixed charges for domestic consumers are regulated by Government, see:

<http://www.legislation.govt.nz/regulation/public/2004/0272/latest/DLM283614.html>

Recovering all the remaining domestic costs by variable charges would result in unrealistically high variable charges.

The Government realises this and caps the increase in charges by further regulation, see:

<http://www.comcom.govt.nz/electricity-default-price-quality-path/>

While Westpower is exempt from this regulation by way of its Trust ownership, the Commerce Commission keeps a watching brief over exempt line companies to ensure prices are not too far out of line with expectations. The regulations allow the Commission to intervene if prices are considered unacceptable.

The result is Westpower under recovers all costs relating to domestic distribution and domestic charges are therefore subsidised by other consumers. The amount of subsidy is defined in the calculations below.

Charges are further complicated by the Government Policy Statement which expects any changes in rural domestic prices to be in line with urban domestic changes. The cost of supply to rural consumers is considerably higher than to urban consumers and charges do not currently reflect this cost difference. Urban consumers, therefore, subsidise rural consumers and this practice will continue under current legislation.

The variable charges use information collected from meters at consumer's premises. This is known as ICP pricing and is the method of calculation preferred by electricity retailers.

### 3.3 Consumer Groups

Historical consumer groupings have been retained to provide customers with a degree of stability. Consumers are allocated to groups on the basis of their expected load pattern.

<b>Category 1</b>	Consumers with load less than 15 kVA;	12,095 connections
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All domestic consumers and small non-domestic businesses fall into this category. The two are distinguished because each place different demands on the network and hence have different tariff structures.

The tariff is predominately based on consumer usage of electricity (variable charges)

**Category 2** Greater than 15 kVA capacity but not Industrial; 814 connections

Medium size businesses fall into this category as they use less of the network than Category 1 consumers but place a higher demand on the assets they do use.

This high demand is responsible for higher costs and the tariff is therefore demand based with the margins collected by usage charges.

**Category 2 TOU** Greater than 100 kVA and less than 200 kVA; 18 connections

Large businesses with large electrical loads are usually sited not far from zone substations and use less of the network as a result. Their usage is monitored by meters measuring consumption every half hour so the actual demand placed on the network at any given time is easily measure. Specific charges can be applied to demand in consultation with the consumer.

**Street Lighting** Public utility lighting;

Westpower supplies a distribution network for public lighting and recovers costs as part of its community sponsorship through community ownership.

**Bulk** Greater than 200 kVA capacity; 22 connections

Tariffs are based on demand on the network and coincident demand at the source Grid Exit Point.

**Large Bulk** Greater than 2500 kVA capacity; 3 connections

Tariffs are based on demand on network and coincident demand at the source Grid Exit Point.

**Otira** Supply to the Otira Tunnel; 1 connection

Otira constitutes of an isolated GXP that is not interconnected with the rest of Westpower's network, and is dedicated almost solely to the supply of KiwiRail infrastructure. This area has been ring-fenced in terms of costs (both fixed and variable) that can rightly be attributed to the major consumer.



## 4 DISTRIBUTION COST STRUCTURE

### 4.1 Cost Drivers - General

All line companies in New Zealand have different cost drivers. Table 1 below is designed to provide an indication of relevant cost for various types of networks. The names provided are used as a guide only to indicate how costs vary for the conditions placed on each line company purely by their location and type of network.

The common cost driver for all line companies is the electricity demand on the network, known as the "Load Factor". Most companies have very light night time loads. During the day time, some have relatively flat loads and some, like Westpower, have morning and evening peaks with a fall-off of load during the middle of the day.

The higher the load factor, the more efficient the use of the network and the more efficient the recovery of cost. At 64%, Westpower's load factor is slightly below the industry average, despite heavy use of load control and good pricing signals to move load from peak periods to off-peak periods. This means our network is slightly over-built to cope with the peak demands for short periods of time and hence our cost structure is slightly higher than companies with the average load factor.

**Table 1 – Cost Variations due to Location**

	<u>Low Cost</u>	<u>Medium Cost</u>	<u>High Cost</u>	<u>Very High Cost</u>
Urban	Nelson			
Urban/Rural		Orion		
Mainly Rural			Centralines	
<b>Rural Remote</b>				<b>Westpower</b>
Inland		Orion	Centralines	
<b>Coastal</b>	Nelson			<b>Westpower</b>
Predominantly Flat	Nelson	Orion	Centralines	
<b>Rugged</b>				<b>Westpower</b>
Square in Area	Nelson	Orion	Centralines	
<b>Long and Skinny</b>				<b>Westpower</b>
<b>Overhead Construction</b>		Orion	Centralines	<b>Westpower</b>
Underground Construction	Nelson			

### 4.2 Specific Cost Drivers

- **Transmission.** Westpower has one of the highest transmission charges in NZ due to its remote location from the central grid. It is almost twice the national average and constitutes some 22% of Westpower's line charges. The transmission charges are driven by the domestic evening load which is difficult to change with pricing signals.
- **Coastal Terrain.** Salt air corrosion on the West Coast is severe so all our components require additional protection such as double dipped galvanising and marine grade stainless steel. These present higher costs than inland areas. Glass insulators are often used and these are more expensive than the traditional polymer insulators.
- **Rugged Terrain.** Rugged hills combined with high winds necessitate stronger structures than flat land so the strength and size of our components are determined by physical conditions rather than electrical load, with associated higher cost.
- **Long Narrow Coastal Strip of Land.** Westpower's network comprises of one long line from North to South with meshed networks occurring only within the townships. The distance from end to end is similar to Wellington to Auckland and this necessitates subtransmission lines (66kV and 33kV) beyond what could be expected for the size of the electrical load. For example, Scanpower has no subtransmission lines for a similar load.

Subtransmission lines are more expensive than distribution lines and require very expensive zone substations to reduce voltage. Westpower has 338 kilometres of subtransmission line (15% of total lines) and 20 zone substations valued at about \$20M.

### 4.3 Total Operating Costs

Considering the cost drivers that influence our costs, we have forecast the following costs for the year ending 31 March 2013.

<b>Total Costs</b>		\$000
<b>Transmission</b>		
Interconnection Charges (fixed costs)		2,604
Avoided Transmission Charges		1,254
Otira Charges		147
<b>Transmission Subtotal</b>		<b>4,006</b>
<b>Distribution Costs</b>		
Administration Costs		2,933
Operation and Maintenance		5,076
Depreciation		4,486
Asset Value	115,045	
Return on Capital	1.9%	2,173
Taxation		375
<b>Distribution Subtotal</b>		<b>15,043</b>
<b>Total Costs (Revenue Target)</b>		<b>19,049</b>

It should be noted Westpower is required by its Use of Systems Agreements to notify electricity retailers sixty days in advance of new line function charges taking effect. 1 April changes are therefore notified to retailers by 1 February at which time, transmission charges are known but operating budgets are not approved by senior managers or the directors. For this reason, Westpower makes any changes to its line function charges as at 1 August each year, while transmission charges are reset on 1 April each year.

This anomaly was created by an unexpected change in the date of disclosure of pricing methodology being moved from 1 September to 1 April when all other disclosure requirements remained at 1 September.

It is expected any non-alignment will be minor, but nevertheless, unavoidable.

## 5 ALLOCATION OF COSTS

The costs represented in section 4.3 are considered individually and allocated to consumer categories using the pricing principles set out in section 2. Within each category, we apply methods that are economically efficient, equitable and practical.

Costs are allocated based on each category's use of the network so it is necessary to determine network use as a starting point.

### 5.1 Asset Allocation

Assets are allocated based on Westpower's assessment of the use of each asset segment by each category.

As most asset segments are used by most categories we allocate assets based on the Anytime Maximum Demand (AMD) as determined by consumer usage. Pricing schedules attempt to influence this demand as discussed later.

The asset allocation is based on the asset value as determined by the Commerce Commission principles of Optimised Depreciated Value (ODV). The last ODV was completed in 2004 and the asset has been revalued to \$115M as at 31 March 2011 using the Consumer Price Index (CPI) year on year.

The result of asset allocation is:

Distribution Allocation	Lighting	Domestic	Non-Domestic	Commercial	TOU	Bulk	Large Bulk	Otira	Total
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Subtransmission	65	2,913	1,089	3,616	435	5,583	1,600	0	15,301
Substations	93	4,161	1,556	5,166	621	7,975	2,286	0	21,859
Distribution	333	14,911	5,576	18,511	2,226	4,287	410	916	47,168
Equipment	156	6,988	2,613	8,674	1,043	0	0	429	19,903
Low Voltage	0	3,420	1,279	4,245	510	0	0	210	9,664
Street Lighting	805	0	0	0	0	0	0	0	805
Land	1	66	25	82	10	126	36	0	345
<b>Total</b>	<b>1,453</b>	<b>32,458</b>	<b>12,137</b>	<b>40,294</b>	<b>4,845</b>	<b>17,970</b>	<b>4,332</b>	<b>1,555</b>	<b>115,045</b>

### 5.2 Anytime Maximum Demand

Measurements of the maximum demand throughout the year are made at all connections with the exception of Category 1 connections; these being the residual of the total AMD less the measured categories.

The AMD as at 30 December 2011 is provided below.

Anytime Maximum Demand in Kilowatts	Lighting	Domestic	Non-Domestic	Commercial	TOU	Bulk	Large Bulk	Otira	Total
	AMD	212	9,507	3,555	11,802	1,419	18,220	5,223	584

### 5.3 Coincident Maximum Demand

The maximum demand at all connections is measured at the time of maximum demand on the transmission system. This occurs 12 times from May to September each year as per Transpower’s pricing methodology. Transpower’s maximum demand is measured as the sum of the demand of all the Upper South Island line companies and occurs at different times than the local demands; hence these demand amounts are different than Westpower’s maximum demands.

#### Coincident Maximum Demands May to September 2011

	Lighting	Domestic	Non-Domestic	Commercial	TOU	Bulk	Large Bulk	Total
<b>CMD</b>	43	5,044	1,230	3,520	1,200	8,500	3,348	22,886

### 5.4 Allocation of Transmission Costs

All the following transmission costs are allocated by the demand placed on the transmission system as measured by the Coincident Maximum Demand (CMD).

#### Transpower

Transpower costs are those paid directly to Transpower.

#### Avoided Transmission Costs

Avoided transmission costs are payments to distributed electricity generators connected to the Westpower network. These generators provide electricity demand to consumers at time when the demands that generate costs on the transmission system are calculated, thereby reducing the demand and hence the transmission cost. Without distributed generation, Westpower would otherwise pay this amount to Transpower; hence the term “avoided cost”.

#### Otira

Otira charges are paid directly to Transpower but are separated here to allow allocation of this cost to a specific user, KiwiRail, as the sole user.

Costs are allocated as below.

	Lighting	Domestic	Non-Domestic	Commercial	TOU	Bulk	Large Bulk	Otira	Total
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
Transpower Charges	5	574	140	401	137	967	381		2,604
Avoided Transmission	2	276	67	193	66	466	184		1,254
Otira Charges								147	147
<b>Total</b>	<b>7</b>	<b>850</b>	<b>207</b>	<b>593</b>	<b>202</b>	<b>1,433</b>	<b>564</b>	<b>147</b>	<b>4,006</b>

## **5.5 Allocation of Distribution Costs**

### **Administration**

Costs associated with administration and other overheads are not asset related and are allocated according to the number of connections in each category.

### **Operations and Maintenance**

Operation and maintenance costs are asset related and allocated by asset use as determined by asset allocation above.

### **Cost of Capital**

The cost of capital includes depreciation and return on capital and is allocated according to asset use as determined by the asset allocation.

Detail of the allocation of the above costs is given below.

## **5.6 Alignment of Allocated Cost to Revenue**

Westpower attempts to be accurate in aligning costs with revenue but this cannot be exactly achieved due to practical constraints.

Westpower is mindful of the price control regulations and although currently exempt from the requirements, keeps its pricing principles aligned with the regulations.

Increases to prices are generally announced as an overall percentage increase to tariff rates that have been in existence for several years. Where usage patterns change considerably, Westpower may consider an individual change to a particular tariff but, in general, this occurs rarely.

Westpower takes this approach as it provides stability to its pricing and allows consumers to make future decision with some confidence.

Applying this principle means revenues will not be gathered in strict accordance with costs over a period of time.

Westpower accounts for this anomaly by providing adjustments to cost to balance the cost/revenue equation. These adjustments are neutral to revenue and are disclosed as adjustments to the return on asset value for each category.

Due to the regulatory restrictions placed on line companies for charges to domestic consumers, Westpower cannot fully recover its costs as allocated to domestic consumers. The variance is minor as shown by the return on assets from domestic consumers being 0.1% below the average requirement but is highlighted here to indicate that it is of no material effect.

Full revenue requirements based on cost allocation is provided in the table below.

## Cost Allocation/Revenue Requirements

	Lighting	Domestic	Non-Domestic	Commercial	TOU	Bulk	Large Bulk	Otira	Total
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
<b>Transmission</b>	7	850	207	593	202	1,433	564	147	4,006
<b>Cost Adjustment</b>	1	(3)	(1)	3	3	1	(1)	(4)	0
<b>Target Revenue</b>	<b>8</b>	<b>848</b>	<b>207</b>	<b>597</b>	<b>206</b>	<b>1,435</b>	<b>564</b>	<b>143</b>	<b>4,006</b>
<b>Administration</b>	19	2,315	406	183	4	5	1	0	2,933
<b>Operation and Maintenance</b>	64	1,432	536	1,778	214	793	191	69	5,076
<b>Cost of Capital</b>	84	1,879	703	2,332	280	1,040	251	90	6,660
<b>Taxation</b>	5	106	40	131	16	59	14	5	375
<b>Cost Adjustment</b>	0	(11)	(7)	1	8	1	0	8	(0)
<b>Target Revenue</b>	<b>172</b>	<b>5,720</b>	<b>1,676</b>	<b>4,425</b>	<b>522</b>	<b>1,898</b>	<b>457</b>	<b>172</b>	<b>15,043</b>
<b>Total Target Revenue</b>	<b>181</b>	<b>6,568</b>	<b>1,883</b>	<b>5,022</b>	<b>727</b>	<b>3,332</b>	<b>1,020</b>	<b>316</b>	<b>19,049</b>
<b>Resulting Return on Asset Value</b>	2.0%	1.8%	1.8%	1.9%	2.1%	1.9%	1.9%	2.2%	1.9%

## 6 PRICING STRUCTURE

Westpower has an economically efficient delivery pricing structure with three components:

- Fixed Charges;
- Variable Charges; and
- Peak Charges.

Economically efficient means a pricing basis that signals network costs.

To minimise the costs of charging, Westpower applies the prices to quantities that are readily available and meaningful. For the mass of general connections prices are applied to kilowatt hour quantities metered at each ICP, as recorded or reconciled per retailer. For the relatively small number of major customer connections, Westpower's prices are applied to Time of Use quantities, also measured at the individual connections.

### 6.1 Fixed Charges

Westpower provides electricity reticulation to all premises regardless of kilowatt hour consumption which, for the like of electric fences and holiday homes, can be very low and usage charges would not recover the full cost of supply. To overcome this problem, Westpower uses fixed charges to be assured of a minimum income regardless of use. Traditionally this charge has been significant but is now recognised, by the Government in particular, as not supporting energy efficiency. Regulation has therefore capped this charge at 15 cents per day for low consumption consumers. Westpower applies this regulated charge to all domestic consumers to avoid price segregation and be assured of some form of minimum income to recover costs.

### 6.2 Variable Charges

The remainder of the revenue requirement for each category is recovered by a usage or variable charge. This encourages energy efficiency as the more you use; the more you pay.

The variable charge is calculated using the data estimated for the coming year. The Domestic Category is used in the example below, showing a single tariff without pricing signals.

#### Category 1 - Loads less than 15kVA

Domestic	Chargeable Quantity	Distribution Price	Transmission Price	Distribution Revenue	Transmission Revenue	Total Revenue
				\$000	\$000	\$000
Fixed Charges	10,291	\$54.72		563		563
Variable Charges	64,662,093	7.976	1.311	5,157	848	6,005
<b>Total Revenue</b>				<b>5,720</b>	<b>848</b>	<b>6,568</b>

Street lighting, for example, uses this simplified tariff.

Street Lighting	Chargeable Quantity	Distribution Price	Transmission Price	Distribution Revenue	Transmission Revenue	Total Revenue
				\$000	\$000	\$000
Fixed Charges	3,150	\$20.77		65		65
Variable Charges	2,084,457	5.133	0.401	107	8	115
<b>Total Revenue</b>				<b>172</b>	<b>8</b>	<b>181</b>

However, overall efficiency is further enhanced if variable charges within each category contain pricing signals designed to affect consumption patterns. Westpower incorporates a variety of tariffs, as described below, designed to signal the time zones that drive higher network costs.

- Load Control Tariffs.** Westpower's costs are greatly reduced if the peak demands on its network are minimised. For example, controlling the electrical heating of hot water at peak loading times goes unnoticed by consumers due to the storage capacity of hot water cylinders but greatly decreases the demand on the network. Westpower passes on these savings to consumers who have hot water control by separately metering the hot water supply and charging a low tariff for the reduced service (even though the lack of service is unnoticed).
- Day/Night Tariffs.** Night time network loads are light so Westpower encourages consumers to transfer load (such as dish and clothes washing and drying) to the night period and provides a low tariff for this service. Further encouragement for this night service is provided by slightly higher day time tariffs when this option is chosen.
- 24 hour Supply.** If load transfer tariffs do not suit consumers they have the choice of a 24 hour tariff. This tariff is slightly higher than average to cover network costs when usage occurs due the peak load time.

A balanced marketing approach must be taken when designing the above tariffs to produce pricing signals that are attractive to consumers and, at the same time, maintain revenue. The percentage variation between the tariffs presented is derived from years of experience operating in this market.

Using the previous example, the category 1 tariffs are provided below.

#### Category 1 - Loads less than 15kVA

Domestic						
	Chargeable Quantity	Distribution Price	Transmission Price	Distribution Revenue	Transmission Revenue	Total Revenue
				\$000	\$000	\$000
Fixed Charges	10,291	\$54.72		563		563
Variable Charges						
24hr	38,876,542	9.325	1.546	3,625	601	4,226
Controlled	14,253,658	5.550	0.920	791	131	922
Day	6,393,309	10.878	1.804	695	115	811
Night	4,237,310	0.510		22		22
Night only	901,274	2.642		24		24
<b>Total Revenue</b>	<b>64,662,093</b>			<b>5,720</b>	<b>848</b>	<b>6,568</b>



**Non-Domestic**

	Chargeable Quantity	Distribution Price	Transmission Price	Distribution Revenue \$000	Transmission Revenue \$000	Total Revenue \$000
<b>Fixed Charges</b>	1,804	\$241.60		436		436
<b>Variable Charges</b>						
24hr	10,886,158	9.231	1.546	1,005	168	1,173
Controlled	645,271	5.494	0.920	35	6	41
Day	1,801,927	10.768	1.804	194	33	227
Night	989,885	0.505		5		5
Night only	39,779	2.615		1		1
<b>Total Revenue</b>	14,363,020			1,676	207	<b>1,883</b>

**6.3 Peak Charges**

For Category 2 consumers, this charge partially recovers costs incurred on a connection basis, including costs for distribution substations and low voltage reticulation. As the cost is determined to a large extent by the capacity of equipment required to supply the consumer, this charge is based on the assessed capacity required for the coming year and remains fixed throughout the year.

**Category2**

	Chargeable Quantity	Distribution Price	Transmission Price	Distribution Revenue \$000	Transmission Revenue \$000	Total Revenue \$000
<b>Fixed Charges</b>	34,696	\$27.25		945		945
<b>Variable Charges</b>						
24hr	25,939,299	7.938	1.368	2,059	355	2,414
Controlled	2,899,387	2.661	0.459	77	13	90
Day	15,374,129	8.621	1.486	1,325	228	1,554
Night	8,030,213	0.225		18		18
Night only	11,911	1.001		0		0
<b>Total Revenue</b>	52,254,939			4,425	597	<b>5,022</b>

**TOU**

	Chargeable Quantity kW	Distribution Price	Transmission Price	Distribution Revenue \$000	Transmission Revenue \$000	Total Revenue \$000
<b>Fixed Charges</b>	2,851	\$27.25		78		78
<b>Variable Charges</b>	2,274	\$195.20	\$90.44	444	206	650
<b>Total Revenue</b>				522	206	<b>727</b>

For Bulk and Large Bulk consumers, the Transpower Charge is recovered in a Coincident Peak Charge. Because these consumers all have half-hour Time of Use (TOU) metering, it is possible to calculate the exact contribution each consumer makes to the Transpower Charge. That is, the coincident peak kW demand for each customer at the time of the twelve highest GXP demands

over the last twelve months is known and the contribution towards Westpower's costs can be allocated.

<b>Bulk</b>	<b>Chargeable Quantity</b> kW	<b>Distribution Price</b>	<b>Transmission Price</b>	<b>Distribution Revenue</b> \$000	<b>Transmission Revenue</b> \$000	<b>Total Revenue</b> \$000
<b>Fixed Charges</b>	25,272	\$45.03	\$21.96	1,138	555	1,693
<b>Variable Charges</b>	16,872	\$45.03		760		760
	9,725		\$90.44		880	880
<b>Total Revenue</b>				1,898	1,435	<b>3,332</b>

<b>Large Bulk</b>	<b>Chargeable Quantity</b> kW	<b>Distribution Price</b>	<b>Transmission Price</b>	<b>Distribution Revenue</b> \$000	<b>Transmission Revenue</b> \$000	<b>Total Revenue</b> \$000
<b>Fixed Charges</b>	6,762	\$33.78	\$21.96	228	148	377
<b>Variable Charges</b>	6,762	\$33.78		228		228
	4,589		\$90.44		415	415
<b>Total Revenue</b>				457	564	<b>1,020</b>

<b>KiwiRail</b>	<b>Chargeable Quantity</b> kW	<b>Distribution Price</b>	<b>Transmission Price</b>	<b>Distribution Revenue</b> \$000	<b>Transmission Revenue</b> \$000	<b>Total Revenue</b> \$000
<b>Fixed Charges</b>	610	\$239.80	\$210.00	146	128	274
<b>Variable Charges</b>	577	\$45.03		26		26
	170		\$90.44		15	15
<b>Total Revenue</b>				172	143	<b>316</b>

## 6.4 Revenue Summary

The table below summarises the total projected revenue from both transmission and distribution charges from all consumer categories.

	<b>Lighting</b>	<b>Domestic</b>	<b>Non-Domestic</b>	<b>Medium</b>	<b>TOU</b>	<b>Bulk</b>	<b>Large Bulk</b>	<b>Otira</b>	<b>Total</b>
<b>No Consumers</b>	85	10,291	1,804	814	18	22	3	1	13,038
<b>AMD (kW)</b>	212	9,507	3,555	11,802	1,419	18,220	5,223	584	50,522
<b>CMD (kW)</b>	43	5,044	1,230	3,520	1,200	8,500	3,348	0	22,886
<b>Consumption (GWh)</b>	2,084	64,662	14,364	52,261	13,411	72,588	63,286	1,457	284,114
	<b>Lighting</b>	<b>Domestic</b>	<b>Non-Domestic</b>	<b>Medium</b>	<b>TOU</b>	<b>Bulk</b>	<b>Large Bulk</b>	<b>Otira</b>	<b>Total</b>
	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000	\$000
<b>Transmission</b>	8	848	207	597	206	1,435	564	143	4,006
<b>Distribution</b>	172	5,720	1,676	4,425	522	1,898	457	172	15,043
<b>Target Revenue</b>	181	6,568	1,883	5,022	727	3,332	1,020	316	<b>19,049</b>

## 6.5 Results of Westpower's Pricing Methodology

The effects of Government regulation and the location of Westpower on the West Coast of the South Island (which drives higher costs) place Westpower's prices in the upper regions of prices throughout New Zealand as depicted by the Ministry of Economic Development's summary of national prices which uses an average consumption of 8,000kWhrs for its calculations.

The West Coast has mild summers and winters and much of the domestic hot water is heated by wood/coal fires so Westpower's average domestic annual consumption is 6,000kWhrs compared with the East Coast where the average load is 9,000kWhrs.

This shows up in the kilowatt hour usage figures for domestic consumers where 60% of the load is for 24 hour supply (no load control).

The average operational costs for Westpower are higher than say, Orion on the East Coast, and Westpower distributes less kilowatt hours over which to recover those costs. Hence our price per kilowatt hour is much higher to recovery the same relative revenue.

A more accurate and meaningful comparison of prices is provided using the revenue gathered per kilowatt of electricity used. The table below illustrates this point which shows consumers on the West Coast pay less per household than those on the East Coast when maintenance costs on the West Coast are higher.

	<u>East Coast</u>			<u>West Coast</u>		
<b>Fixed Charge</b>	\$1/day	365days	\$365	15c/day	365days	\$55
<b>Variable Charge</b>	6.546c/kWh	9,000kWh	\$589	10.383c/day	6,000kWh	\$623
<b>Total</b>			\$954			\$678
<b>Equivalent c/kWh</b>			<b>10.60c/kWh</b>			<b>11.30c/kWh</b>
<b>Revenue c/kWh</b>			<b>5.45c/kWh</b>			<b>4.96c/kWh</b>

While the equivalent tariff published for the West Coast at 11.3 cents per kWh is higher than the 10.6 cents per kWh on the East Coast the amount people on the West Coast pay at 4.96 cents per kWh is less than on the East Coast at 5.54 cents per kWh.

## 6.6 Interaction with Electricity Retailers

Westpower notifies all electricity retailers trading on the network sixty days in advance of prices and methodologies taking effect. Retailers are able to discuss any aspect of pricing that may be of concern but the terms and conditions of trading are set out in the Use of System Agreement between the two parties. If agreement cannot be reached between the parties on any particular matter, the contract allows for arbitration.

Westpower has not had objection from retailers about its tariff options. Retailers are always on the lookout for simpler forms of pricing options but this is more an industry matter rather than an individual line company issue.

Conformance to the Electricity Authority's Pricing Principles is the industry response to retailers concerns. Westpower conforms to these principles.

All retailers using the network repackage Westpower's delivery prices hence the need for line companies to publically disclose their pricing in such a manner the delivery costs can be easily calculated from the retailer's electricity invoices to consumers.

## **7 CHANGES TO METHODOLOGY AND PRICES**

Westpower has used the same pricing methodology for several years now and has applied increases to tariff rates to recover cost increases.

Prior to calculating the new prices, changes to chargeable quantities (kW and kWhrs) are applied each year using the previous year's consumption as a guide and estimating the quantities for the coming year.

Westpower has applied an increase of 4.3% to all its variable distribution tariff rates over the previous year's prices. The transmission tariffs have remained unchanged for all but 44 large users where the transmission variable charge has increased 18.8% due to the demand these consumers place on the transmission system, thereby increasing those costs for the year.

This translates to a 4.3% increase in line charges for all but the 44 large users and 4.7% increase for those large users.

For domestic consumers the line charge increase is approximately 1.6% of their total electricity invoice.

## **8 FUTURE PRICING**

To the extent practical, this pricing methodology complies with the Electricity Authority's Pricing Principles and Westpower intends to use these principles for the foreseeable future.

Transmission charges will continue to be passed through at cost.

When and if "smart meters" are introduced to the Westpower network, we will take a circumspect approach to developing and implementing TOU tariffs.

## 9 ELECTRICITY AUTHORITY PRICING PRINCIPLES CONFORMANCE

In this section Westpower sets out how it considers it meets the Electricity Authority's pricing principles. Each principle is stated, followed by Westpower's commentary.

### Signal economic costs

*(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 standalone costs), except where subsidies arise from compliance with legislation and/or other regulation;*

Westpower considers that, as far as reasonably practical, its prices are subsidy-free as it applies a cost allocation model to allocate costs across the consumer base to determine the revenue requirement, which is then used as a basis for establishing prices for each consumer group.

However, the uncoordinated application of the regulations means subsidies cannot be avoided. The application of low fixed charges means consumers must subsidise very low use connections; long distance rural consumers impose higher costs but they must pay no more than urban consumers; tariff increases kept within the CPI means costs above CPI (oil, copper, aluminium etc) cannot be recovered.

- 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.*

Westpower's pricing structure is based on capacity-usage. Westpower relies on differentials between controlled and uncontrolled usage (domestic consumers), and its TOU charges to signal the value of consuming outside of peak periods (when capacity is less constrained). The impact of such price signals lessens the need to invest in additional network capacity.

As consumers increase their use of network capacity, where practicable they pay increased line charges:

- For Category 1 consumers there is emphasis on the variable tariff so as their volumes increase their use of network charges increases. Additionally, because Westpower offers different tariff rates for controlled and uncontrolled use, there are incentives for consumers to have controllable loads (e.g., water heating, which makes up a material proportion of consumers consumption, normally around 40% of their usage). In future, as smart meters become available, Westpower will enhance its tariff structures to further encourage consumers to shift discretionary loads outside of peak periods;

- For consumers in the commercial group, Westpower signals the costs of additional capacity usage through increasing fixed charges as consumers increase their nominated capacity. For those consumers that have TOU metering, charges are based on on-peak demands, providing a direct price signal to reduce demands in peak periods;
- For large industrial consumers, where they require increases in capacity to serve their needs or additional equipment to meet their security of supply objectives, Westpower prices such requests individually. Therefore consumers face the costs of their additional requirements directly.

*(b) Where prices 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.*

Such pricing occurs in our domestic supply where efficient incremental costs exceed allowable revenue. This requirement appears to suggest the pricing structure be changed to signal the higher costs involved so, over time, the costs can be reduced to the level of the allowable revenue.

However, it is not practicable to assess domestic consumers demand responsiveness and set charges accordingly. Westpower, like all distributors, is forced to use tariff structures which use high proportions of variable charges to recover predominantly fixed charges as the only practical means of differentiating different consumers' elasticity or willingness to pay. If demand is reduced, the cost to maintain the existing infrastructure is not reduced accordingly.

*(c) Provided that prices satisfy (a) above, prices should be responsive to the requirements 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 arrangement for services; and*
- iii. where network economics warrant, and to the extent practicable, encourage investment in transmission and distribution alternatives (e.g. distributed generation or demand response) and technology innovation.*

Westpower's compliance under these guidelines is achieved as follows:

1. Uneconomic bypass is achieved through Westpower's cost allocation approach to setting tariffs, whereby (by the use of a proportional cost allocation approach) pricing is set below stand-alone costs.
2. Westpower sets specific charges for large industrial consumers to ensure that charges reflect the economic costs of service provision (thereby discouraging uneconomic

bypass and allowing such consumers to negotiate their specific needs). Two years ago, Westpower installed a new zone sub-station at short-notice for a large industrial consumer, providing an enhanced security of supply for that consumer at an increased charge.

3. Westpower pays out avoided transmission charge benefits to embedded generators to encourage such generators to reliably generate during transmission peak periods. Westpower also allows smaller generators to connect to Westpower's network and utilise the distribution network for delivering their generation to other connections without incurring network charges. Connection costs are applicable, as per Westpower's distributed generation policy. For further details on connection of distributed generation and charges please refer to Westpower's public website.
4. Because of Westpower's peak/control-period prices, consumers have a clear value against which to assess network alternatives or behaviour changes. Many consumers, particularly major consumers, have the opportunity to turn on generators, reduce demand, or both in response to our pricing. Westpower's residential consumers heat their hot water through controlled meters in response to Westpower's very low controlled pricing rate.

### **Stability and transparency**

*(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.*

Westpower's development of prices:

1. Is transparent:
  - (i) through this disclosure statement, Westpower provides information on the costs it allocates to different consumer groups;
  - (ii) in addition to this disclosure Westpower publishes a pricing schedule which details the different charges between tariffs and price categories. Consumers can review charges and weigh up costs for changing capacity requirements or load profile and the resulting benefits. Every other year there is formal consultation between retailers and Westpower on pricing strategy, price category and tariff development.
2. Promotes price stability: Westpower updates its cost of service model annually. To ensure price stability to consumers, any price changes made attempt to limit price shocks to any particular consumer group to less than 10%. As distribution charges make up around 37% of a typical consumer's bill, this ensures no consumer would face significant price increase due to changes in distribution charges.

3. Promotes certainty: Westpower endeavours to maintain its tariff structures and differentials between tariffs, so that consumers who make investments (for example in controllable loads) due to the savings between controlled and uncontrolled rates are able to realise the savings expected when the original investment was made. With the introduction of smart meters, Westpower intends to take a circumspect approach to developing and implementing TOU tariffs. This is so that consumers are not unduly disadvantaged by the introduction of smart meters. Consumers will have time to consider behavioural changes and investments to avoid adverse bill impacts.

## **Complexity**

*(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.*

Westpower recognises the need to minimise undue complexity for retailers, subject to its legitimate business needs to signal costs to consumers and ensure equity between consumers. 99.68% of connections (and hence retailer invoices) have the same pricing structure and the remaining 0.32% have the same structure, thereby minimising cost for retailers.

All retailers are subject to the same tariff schedules from Westpower. Therefore, Westpower considers that its prices are economically equivalent across all retailers.



## 10 COMMERCE COMMISSION INFORMATION DISCLOSURE CONFORMANCE

In this section Westpower sets out how it considers it meets the Commerce Commission's Information Disclosure Requirements. Each disclosure requirement is stated, followed by Westpower's commentary.

The Electricity Authority and the Commerce Commission have very similar disclosure requirements so this section guides the reader to the relevant sections of this methodology to confirm the conformance requirements.

*(a) Prices should be based on a well-defined, clearly explained and published methodology, with any material revisions to the methodology notified and clearly marked.*

This pricing methodology is based on a well-defined methodology that is clearly explained and published on the company's website. There have been no material changes in methodology since the information disclosure requirements were founded in 2004 but this 2012 disclosure has expanded on its explanations and details to better inform the readers.

*(b) The pricing methodology disclosed should demonstrate:*

*(i) How the methodology links to the pricing principles and any non-compliance;*

See Section 9

*(ii) The rationale for consumer groupings and the method for determining the allocation of consumers to the consumer groups;*

See Section 3.3

*(iii) Quantification of key components of costs and revenues;*

See Section 4

*(iv) An explanation of the cost allocation methodology and the rationale for the allocation to each consumer grouping;*

See Section 5

*(v) An explanation of the derivation of tariffs to be charged to each consumer group and the rationale for the tariff design;*

See Section 6

*(vi) Pricing arrangements that will be 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.*

See Sections 5.4 & 6.3

*(c) The pricing methodology should:*

*(i) Employ industry standard terminology, where possible;*

See Glossary

*(ii) Where a change to the previous pricing methodology is implemented, describe the impact on consumer classes and the transition arrangements implemented to introduce the new methodology.*

See Section 7

# APPENDIX A Westpower Pricing Schedule

## DISTRIBUTION AND TRANSMISSION CHARGES

**APPLICABLE 01 APRIL 2012**

ALL CHARGES ARE EXCLUSIVE OF GST

CATEGORY 1 DOMESTIC		CONSUMERS	CODES	TARIFF APRIL 2012		
FIXED CHARGES:						
DISTRIBUTION CHARGE- per 12 month period			WP1D	<b>\$54.72</b>		
UNIT CHARGES (VARIABLE):						
Tariff Name			Tariff code	Westpower Distribution (cents per unit)	Trans Power Transmission (cents per unit)	Total Variable Line Charges (cents per unit)
Domestic 24hr	8990	D		9.325	1.546	10.871
Controlled 17hr	7007	DC		5.550	0.920	6.470
Economy, day	1805	DD		10.878	1.804	12.682
Economy, night	1805	DE		0.510	0.000	0.510
Night only	642	DN		2.642	0.000	2.642
<b>CATEGORY 1 NON-DOMESTIC ( For loads less than 15 kVA )</b>						
DISTRIBUTION CHARGE - per 12 month period			WP1N	\$241.60		
UNIT CHARGES (VARIABLE):						
Tariff Name				Westpower Distribution (cents per unit)	Trans Power Transmission (cents per unit)	Total Variable Line Charges (cents per unit)
24 HR	8990	N		9.231	1.546	10.777
Controlled 17hr	7007	NC		5.494	0.920	6.414
Economy, day	1805	ND		10.768	1.804	12.572
Economy, night	1805	NE		0.505	0.000	0.505
Night only	642	NN		2.615	0.000	2.615
<b>STREET LIGHTING:</b>						
FIXED CHARGES:						
DISTRIBUTION CHARGE per 12 month period per light			WPSL	\$20.77		
UNIT CHARGES (VARIABLE):						
Tariff Name				Westpower Distribution (cents per unit)	Trans Power Transmission (cents per unit)	Total Variable Line Charges (cents per unit)
Public Lighting	63	SL		5.133	0.401	5.534
Under Verandah Lighting		UV		5.133	0.401	5.534
<b>CATEGORY 2</b>						
<b>FOR LOAD GREATER THAN 15 KVA and UP TO 200 KVA</b>						
FIXED CHARGES:						
DISTRIBUTION CHARGE - per 12 month period per Notional Unit of Demand			WP2N	\$27.25		

UNIT CHARGES (VARIABLE):

Tariff Name			Westpower Distribution (cents per unit)	Trans Power Transmission (cents per unit)	Total Variable Line Charges (cents per unit)
Non Domestic 24hr	502	U1	7.938	1.368	9.305
Non Domestic Controlled	247	U2	2.661	0.459	3.120
Non Domestic Economy, day	348	U3N	8.621	1.486	10.106
Non Domestic Economy, night	348	U3L	0.225	0.000	0.225
Non Domestic Night	25	U5	1.001	0.000	1.001
	7				

**CATEGORY 2 (TIME OF USE METERING )**

**FOR LOAD GREATER THAN 100 KVA and UP TO 200 KVA**

Fixed Annual Capacity Charge. (per kW per year)	17	C2F	\$27.25		\$27.25
Peak charge. (per kW per year)		C2P	\$195.20	\$90.66	\$285.86

**CATEGORY 3**

**BULK (loads over 200kVA)**

Fixed Annual Capacity Charge. (per kVA per year)	22	C3F	\$45.03	\$21.96	\$66.99
Peak charge. (per kW per year)		C3P	\$45.03		\$45.03
Transpower Coincident peak demand per kW per year		C3CP		\$90.66	90.66

**CATEGORY 4**

**Large Bulk (loads over 2500kVA)**

Fixed Annual Capacity Charge:	3	C4F	\$33.78	\$21.96	\$55.74
Peak charge. (per kW per year)		C4P	\$33.78		\$33.78
Transpower Coincident peak demand per kW per year		C4CP		\$90.66	\$90.66

**CATEGORY 5**

**Tranzrail Otira**

Fixed Annual Capacity Charge:	1	C5F	\$239.80	\$210.00	\$449.80
Peak charge, per kW per year:		C5P	\$45.03		\$45.03
Transpower Coincident peak demand per kW per year		C5CP		\$90.66	\$90.66

**Power Factor Charge**

Annual charge per kVA of assessed correction required to bring PF up to 0.95		C2PF			
			\$109.02		\$109.02

