



Line Charge Pricing Methodology

Effective 1 April 2013

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1 Purpose

The purpose of this lines charge methodology is to provide to interested persons information required to understand our approach to setting prices.

The lines charge methodology is broken into the following sections:

Section 2—key components of our revenue requirement

Section 3—customer groups

Section 4—allocation of revenue required to customer groups

Section 5—proportion of fixed to variable charges for each customer group

Section 6—breakdown of prices for each customer group effective 1 April 2013

Section 7—applicable loss factors.

The charges apply to the network connected to the Transpower grid via Grid Exit Points at:

- Bells Pond
- Temuka
- Timaru
- Studholme
- Albury
- Tekapo
- Twizel.

Charges are averaged over our entire service area with a distinction between low cost and high cost areas. The allocation to lower cost and high cost areas are determined by the location of each customer as identified in the Alpine Energy geographic information system (GIS) asset database.

2 Key components of revenue required

Revenue requirement is based on the recovery of business costs including the cost of capital. The revenue requirement from which line charges are calculated in 2013/14 is made up of the following¹:

• Operations and Maintenance and Administration/Overheads	\$15.5M
• Depreciation	\$5.3M
• Cost of Capital (before tax)	\$13.7M
• Transpower Transmission Costs	\$11.5M
• Total revenue requirement	<u>\$46.0M</u>

In addition to the lines charge revenue we receive from our customer groups we also receive capital contributions from customers that require new or upgraded power supply to their properties. These upgrades or extensions under standard line charges would be uneconomic without a capital contribution.

¹ Please note, the forecast business costs are in 2012/13 dollar terms and meter/relay revenue requirements is excluded from the total revenue requirement as metering services are a non-regulated service.

As a regulated supplier under Part 4 of the Commerce Act 1986 our return on assets is the determined by the input methodologies set by the Commerce Commission. The applicable post tax WACC for Alpine Energy is 8.77%². However, our return on investment for the year ended 31 March 2012, reported under the information disclosure requirements was 6.19%³ and our expected return on investment for 2013/14 is 7.82%.

Alpine Energy's asset base, as at 31 March 2013, is approximately \$158.3 million.

Pricing strategy

Our approach to pricing and method for calculating target revenue has remained unchanged since 2010 when the current pricing structure was introduced. The uncertainty around the regulatory framework has resulted in our approach to pricing being necessarily reactive rather than proactive as we have had to wait for pricing under the default price-quality path (DPP) to be finalised by the Commerce Commission.

We intend to use the time available to us before the next reset of the DPP (1 April 2015) to create a pricing strategy that aligns to the new regulatory framework under the Commerce Act. Meanwhile, we have made best endeavours to update our existing lines charge methodology to be consistent with clauses 2.4.1 to 2.4.5 of the Commerce Commission's Decision No. NZCC22, *Electricity Distribution Information Disclosure Determination 2012*, 1 October 2012.

3 Customer groups

Standard customers

In March 2010, we reviewed our pricing methodology to better reflect transmission costs, and the cost of providing additional capacity. As a result we merged a number of our tariffs into seven main customer groups based on fuse size, demand, and consumption.

Our standard customer groups are broken into the load groups shown at Table 1, below.

Table 1: Alpine Energy Load Groups

Load Groups	Description
LOW fixed charge	Primarily domestic sites that would otherwise be in 0-15 kVA.
0 - 15 kVA	Up to 60 amp fuse.
45 kVA	3x60 amp fuse
400V Assessed Demand	Based on fuse size, motor nameplate, measured or connected load.
400V TOU	Half hour metering required.
11kV TOU	Half hour metering required.
33/11kV Major New Investments	Annual charges of more than \$500,000. New investments with 30 year contracts.

² Commerce Commission, *Determination of the Cost of Capital for Services Regulated under Part 4 of the Commerce Act 1986*, Pursuant to Decisions 709, 710, 711 and 713, Decision Number 718, 3 March 2011.

³ A copy of our information disclosures for the year ended 31 March 2012 can be found on our website at <http://www.alpineenergy.co.nz/disclosures.html>.

Our customer load groups generally follow New Zealand industry practice and have been chosen to align with fuse capacity for the large number of <45kVA customers and demand for the smaller number of generally larger customers.

Customers are aligned to a customer group based on the fuse size at the customers premise, demand, future capacity requirements, and meter type (e.g. half hour metering is mandatory for customer within the time of use (TOU) group).

Our lines charge pricing methodology is demonstrably consistent with the Electricity Authority's pricing principles insofar as Alpine Energy raises prices uniformly wherever possible and always does so transparently. Due regard is always given to the impact on stakeholders of any changes in prices and/or transaction costs.

Table 2 below, shows forecast customer numbers and group after diversity maximum demand, as at 31 March 2013, for our customers by load group.

Table 2: Alpine Energy customer group statistics

Customer Group	Forecast Customer numbers as at 31 March 2013	Forecast Group ADMD as at 31 March 2013 (in MW)
LOW fixed charge	7,057	6.4
0 - 15 kVA	21,556	40.1
45 kVA	985	6.3
400V Assessed Demand	1,416	20.7
400V TOU	133	15.5
11kV TOU	10	5.6
33/11kV Major New Investments	3	25.1
Total	31,160	119.6

Non-standard customers

We consider 'non-standard customers' to be those customers that we bill directly and with which we have an individual contract. These are customers who have a significant load profile that is not suited to our standard customer load groups.

Alpine Energy currently has three non-standard customers with target revenue of approximately \$4 million for the 2013/14 year.

We use a standard use of system agreement, which takes account of the Electricity Authority's principles under its model use of system agreement, when we enter an individual contract with large customers. The decision to enter into an individual contract with a customer is made on a case-by-case basis.

We have not formalised our approach to pricing non-standard customers as we have found that each customer has sufficiently unique needs which having a formalised pricing approach would provide little or no benefit to addressing.

Distributed generation

Our network provides the means for distributed generators of all types and sizes to convey electricity through our network to end users. We have approximately 25 small distributed generators, with a combined capacity of 80.9 kW, that are less than 10kw (installed at

residential or small business premises) and two distribution generators that are greater than 10kw connected to our network.

Fees payable by distributed generators to us are set by the Electricity Authority under the Electricity Industry Participation Code 2010.⁴ We do not currently 'pay' distributed generators for the electricity that they convey down our lines. Payment for distributed generation is made by retailers. Rates payable to distributed generators can be found on the respective retailer websites.

We encourage generators of solar energy (photo voltaic cells), wind, water (hydro electric) or fossil fuels such as diesel or natural gas that have energy that is surplus their requirements to sell into the network. Information about connection to our network and our application process for connection and operation of distributed generation by both small and large distributed generators is available on our website.⁵

Customer Survey

Alpine Energy conducted a 'mass market' customer survey (random selection of 500 customers, the top 25, and top 26 to 125 customers) in November 2012.

Customers rated the most important aspect of electricity supply as being continuity of supply, with restoration of supply being rated the second most important aspect of electricity supply.

No flicker was rated as being third most important to industrial consumers. This is a shift since the 2009 survey when timely shutdown notices was rated as third most important. Domestic consumer choices for third most important were too widely spread to come to a conclusion on any one supply issue.

Overall, mass market consumers rate our performance in the most important aspect of continuity as excellent with a skew towards very good. The large consumer segments perceive Alpine's performance as being very good with a skew towards excellent.

Consumers in all segments expressed a strong preference for continuing to pay about the same line charges to receive about the same reliability and about the same flicker.

We put the option of improving reliability at a high price to our customers. Industrial consumers were split on the choice between having higher reliability at the same price or the same reliability at a lower price. Domestic consumers in all segments, with the exception of Albury, were of the opinion that they would prefer to pay a bit less but have the same reliability.

Consumers were asked to express a preference for allowing interruption to non-critical heat pumps (air conditioners) if it meant avoiding long-term price increases. Top 25 consumers indicating that they were indifferent to interruptions occurring in both winter and summer if it meant avoiding price increases, whereas the Top 26 to 125 consumers indicated a preference for interruptible load in summer only, and domestic consumers indicated that they did not support interruptible load even if it avoided long-term price increases.

⁴ Schedule 6.5, Electricity Participation Code 2010, Part 6, Connection of distributed generation.

⁵ http://www.alpineenergy.co.nz/our_network/distributed_generation.html

4 Allocation of revenue required to customer groups

The following costs are allocated to customer groups based on the following:

Costs are allocated to customer groups based on:

- customer numbers
 - corporate overhead costs, approximately 5% of total revenue
- group after diversity maximum demand (ADMD)
 - approximately half of revenues after overhead costs
 - covers Transpower charges related to interconnection rates
 - demand charges for provision of distribution capacity
- energy consumption for customers without kW metering
 - approximately half of revenues after overhead costs
 - Transpower charges related to connection costs
 - charges for provision of distribution.

All other costs are allocated to the customer groups on the basis of group ADMD except for the major new investment customers where there are 30-year contracts based on recovering the real cost of capital of the new investment.

The capital replacement cost of network assets is in general directly related to group ADMD and as revenue requirements relate to network replacement costs, customers pay for capacity provided.

To provide consistency for customers the overall tariff levels are generally adjusted evenly across all customer groups.

5 Fixed to variable proportions

The Ministry of Commerce guidelines suggest 100% fixed line charges are appropriate as the cost structures are almost 100% fixed. However, historically it was agreed to recover allocated line charges on an arbitrary 50/50 fixed and variable basis for all customers who do not have TOU metering.

With the underlying change to tariff structures we expect this ratio will change over time to reflect the changing mix of customers on our network. For 2013/14 the forecast ratio for non-TOU metered customers is 59% variable and 41% fixed.

Variable charges are allocated to the retailer (not individual customers) through the national reconciliation manager purchase allocations i.e. retail volumes are calculated from GXP volumes less losses.

6 Pricing schedule

On average 2013/14 prices have increased by 7% when compared to 2012/13 lines charges. The increase is consistent with the CPI+10% cap applied to us by the Commerce Commission under its reset of the default price-quality path⁶.

⁶ Commerce Commission, Electricity Distribution Services Default Price-Quality Path Determination 2012, NZCC 35, 30 November 2012.

Table 3 below, lists our lines charges effective 1 April 2013 and target revenue by customer group.

Table 3: Alpine Energy lines charges effective 1 April 2013

Code	Load Group	Line Charges (excl GST)		Target revenue (in \$ millions)
LOWHCA	Low user group controlled – high cost area	\$54.75 p.a.	8.32 c/kWh day time 4.36 c/kWh night time	0.33
LOWLCA	Low user group controlled – low cost area	\$54.75 p.a.	7.74 c/kWh day time 3.78 c/kWh night time	2.41
015HCA	Under 15kVa controlled – high cost area	\$332.89 p.a.	5.25 c/kWh day time 1.29 c/kWh night time	5.07
015LCA	Under 15kVa controlled – low cost area	\$280.19 p.a.	5.25 c/kWh day time 1.29 c/kWh night time	11.16
360HCA	3 x 60 Amp fuses – high cost area	\$1,217.33 p.a.	5.25 c/kWh day time 1.29 c/kWh night time	0.88
360LCA	3 x 60 Amp fuses – low cost area	\$1,041.47 p.a.	5.25 c/kWh day time 1.29 c/kWh night time	1.49
ASSHCA	Assessed demand over 15kVa – high cost area	\$110.80 p.a. \$51.66/kW	5.25 c/kWh day time 1.29 c/kWh night time	8.71
ASSLCA	Assessed demand over 15kVa – low cost area	\$94.61 p.a. \$49.13/kW	5.25 c/kWh day time 1.29 c/kWh night time	2.88
TOU400HCA	Time of use 400 volt supply – high cost area	\$110.86 p.a. \$131.26/kW	1.58 c/kWh day time 0.38 c/kWh night time	0.84
TOU400LCA	Time of use 400 volt supply – low cost area	\$95.38 p.a. \$124.13/kW	1.58 c/kWh day time 0.38 c/kWh night time	3.89
TOU11HCA	Time of use 11kV supply – high cost area	\$110.86 p.a. \$117.70/kW	1.58 c/kWh day time 0.38 c/kWh night time	0.94
TOU11LCA	Time of use 11kV supply – low cost area	\$95.38 p.a. \$111.60/kW	1.58 c/kWh day time 0.38 c/kWh night time	0.70
IND	Individually assessed sites	Individually assessed charges		3.98
SSC	Special Service Charge	\$273.88 p.a.		0.02
Total target revenue				43.30

Day time—in respect of all units used is between 7am and 11pm.

Night time—in respect of all units used is between 11pm and 7am.

Special Service Charge—is an additional charge for electric water heating that cannot be controlled by us via a ripple relay.

The low user groups pay an additional variable charge of 3.05 cents per kWh (for both day and night variable charges) for uncontrollable load. 015 and 360 consumers pay an additional fixed charge of \$273.88 per annum (there is no difference in variable charges for these load groups) for uncontrollable load.

Demand Charge—applies to sites with a demand (kW) charge. The demand level at these sites is assessed and set by Alpine Energy. A customer’s assessed demand level can be obtained by that customer on request.

LCA and HCA—sites are defined as either a lower cost area (LCA) or a high cost area (HCA) by the Alpine Energy’s geographical information system (GIS).

Line Charges—are shown at The above table shows Distribution and Transmission charges combined. GST is payable in addition to the charges.

Our lines charges can also be found on our website in Excel format at www.alpineenergy.co.nz.

7 Loss factors

Losses represent the percentage of electricity entering the network that is consumed during the delivery to consumers’ installations. The quantity of electricity metered at consumer installations reported is net of losses. To determine each retailer’s purchase responsibilities the electricity measured at the consumer’s meter is multiplied by a ‘loss factor’. There are two main components to losses:

- (a) fixed component due to the standing losses of the zone substation and distribution transformers
- (b) variable components arising from the heating effects of the resistive losses in the delivery conductors.⁷

The loss ratio reported under the information disclosure requirements for the year ended 31 March 2012 was 4.4%.

A single year’s data however is considered to be insufficient as it has in the past been unduly influenced by a poor calculation by the retailers for the accrual value of kWh.

The Clandeboye Dairy Factory has one dedicated double circuit 33kV line and two dedicated 33kV cables providing N-1 security to meet reliability of supply requirements, resulting in effective losses of less than 2% for loads around 15MW.

Losses for 11kV customers will be some 2% less than 400V customers because there are no transformer losses. With the Dairy Factory now taking approximately 18% of the energy delivered by the network and 11kV customers another 7% the following loss factors have been calculated:

33kV dedicated	1.02
11kV general	1.05
400V general	1.07
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⁷ The resistive losses are proportional to the square of the load current and occur in all network conductors and in the zone substations and distribution transformers.