



ALPINE ENERGY LTD

Line Charge Pricing Methodology

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1st April 2009

1 INTRODUCTION

The purpose of this document is to outline for Electricity (Information Disclosure) Regulations 22 & 23 of the line charge pricing methodology used by Alpine Energy Limited.

The charges apply to the network connected to the Transpower grid via Grid Exit Points at Temuka, Timaru, Studholme, Albury, Tekapo and Twizel. At this stage charges are averaged over the whole area except for “remote” customers which are greater than 500kW and further than 5km from a Grid Exit Point, or greater than 100kW and further than 25km from a Grid Exit Point.

The basic methodology is:

- Determine Revenue Requirement
- Determine Customer Groups
- Allocate Revenue Required to Customer Groups
- Derive Line Charges for each Customer Group
- Determine the Fixed/Variable Proportions for each Customer Group

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 2009/2010 is thus made up of the following items:

• Operations and Maintenance and Administration/Overheads	\$7.9M
• Depreciation	\$5.6M
• Cost of Capital (before tax)	\$11.4M
• Transpower Transmission Costs	\$8.9M
• TOTAL REVENUE REQUIREMENT	<u>\$33.8M</u>

The numerical values are 2009/2010 budget values. All meter/relay revenue requirements are excluded. Alpine Energy Limited has elected to not increase the distribution component of its line charges for 2009/10, and has set the revenue budget at \$31.3M. The post tax return on capital will thus be less than 6%.

Return on assets relates to regulatory Depreciated Replacement Cost (DRC) and Weighted Average Cost of Capital (WACC). The appropriate post tax WACC for Alpine Energy is 8.5%, as a distribution lines business. However, as a consequence of the price path threshold imposed on Alpine Energy, the budgeted post-tax WAAC is 7.5%.

The disclosed 31st March 2008 DRC was \$106.6M.

3 CUSTOMER GROUPS

The following load groups have been used and these generally follow New Zealand industry practice. These load groups 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. All Time of Use (TOU) customers have ½ hour metering and demands can be accurately measured. The customer can choose their load group depending on the capacity required by the customer, and whether or not the customer has ½ hour metering.

- LOW fixed charge - Primary domestic sites that would otherwise be in 9-15 kVA.
- LOW under 8 kVA - Primary domestic sites that would otherwise be in 0-8 kVA.
- 0 - 8 kVA - 32 amp fuse
- 9 - 15 kVA - 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
- 11kV TOU <3MW - half hour metering
- 11kV TOU >3MW - half hour metering
- 33/11kV Major New Investments - More than \$500,000 New Investments, 30 year Contracts

In addition to the above revenue load groups we also receive “capital contributions” from customers who require new or upgraded power supplies. These upgrades or extensions with standard line charges would be uneconomic without a capital contribution.

The current pricing schedule is effective from 1 April 2009. Customer group statistics are calculated as:

Customer Group	Customers April 2008	Group ADMD MW April 2008
LOW under 8 kVA	54	0.02
LOW	3,323	1.4
0-8 kVA	421	0.3
9-15kVA	23,929	47.9
45kVA	818	5.4
400V Assessed	1,149	14.8
400V TOU	142	13.6
400V TOU Remote	1	0.1
11kV TOU <3MW	8	4.0
11kV TOU <3MW Remote	1	0.5
New Investment Agreements	6	60.0
TOTAL	29,852	148.02

4 ALLOCATION OF REVENUE REQUIRED TO CUSTOMER GROUPS

Corporate overhead costs are allocated to customer groups on the basis of customer numbers.

All other costs are allocated to the customer groups on the basis of group After Diversity Maximum Demand (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 ADMD and as revenue requirements relate to network replacement cost customers pay for capacity provided.

For the TOU customers, the transmission component has been separated out and based 80% on Winter Day energy consumption over the previous May-September winter - being the best approximation for the relatively complex Transpower tariff. This has been well accepted by TOU customers who have the metering to allow this. The balance of the TOU transmission component is based on capacity which is directly related to Alpine's network line charge.

To provide consistency for customers the tariff structure is not changed on a regular basis - % changes have been "across the board" for some years now.

5 FIXED/VARIABLE PROPORTIONS

The MOC guidelines and Alpine's methodology suggests 100% fixed line charges are appropriate as the cost structures are almost 100% fixed. After representations from the "incumbent retailer" in 1997, it was agreed to recover allocated line charges on an arbitrary 50/50 fixed/variable basis for all customers who do not have TOU metering. This effectively transferred half of the volume risk from the retailer back to the line company.

Alpine has retained this arbitrary and nominal 50/50, fixed/variable ratio.

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

6 PRICE SCHEDULE

The following price schedule is derived from the above principles.

Alpine Energy Limited Line Charges Effective 1 April 2009

Code	Load Group	Line Charges (excl GST)	
LOW08	Low Fixed Charge under 8kVA	\$54.75 pa	+ bulk variable charges + special variable charge
LOW08U	Low Fixed Charge under 8kVA U/C W/H	\$54.75 pa	+ bulk variable charges + special variable charge + special service charge
LOW	Low Fixed Charge under 15kVA	\$54.75 pa	+ bulk variable charges + special variable charge
LOW15U	Low Fixed Charge under 15kVA U/C W/H	\$54.75 pa	+ bulk variable charges + special variable charge + special service charge
008	Under 8 kVA	\$160.94 pa	+ bulk variable charges + special variable charge
008U	Under 8 kVA U/C W/H	\$160.94 pa	+ bulk variable charges + special variable charge + special service charge
015	Under 15 kVA	\$229.45 pa	+ bulk variable charges
015U	Under 15 kVA U/C W/H	\$229.45 pa	+ bulk variable charges + special service charge
360	3 x 60 A	\$836.23 pa	+ bulk variable charges
360U	3 x 60 A U/C W/H	\$836.23 pa	+ bulk variable charges + special service charge
ASS	Over 15 kVA Assessed	\$76.12 pa + \$38.06/kW	+ bulk variable charges
TN1	TOU 400	\$87.84 pa + \$77.98/kW	+ winter day unit charge
TR1	TOU 400 Remote	\$87.84 pa + \$86.80/kW	+ winter day unit charge
TN2	TOU 11kV <3000kW	\$119.69 pa + \$58.20/kW	+ winter day unit charge
TR2	TOU 11kV <3000kW Remote	\$119.69 pa + \$65.95/kW	+ winter day unit charge
TN3	TOU 11 kV >3000kW	\$119.69 pa + \$54.97/kW	+ winter day unit charge
TR3	TOU 11 kV >3000kW Remote	\$119.69 pa + \$65.95/kW	+ winter day unit charge
IND	Individually Assessed Sites	Individually assessed charges	

Bulk Variable Charges Day units are levied at the rate of 4.38 cents/kWh (in respect of all units used between 7am and 11pm) and night units are levied at the rate of 0.30 cents/kWh (in respect of the period 11pm to 7am). Charges are based on metering at the Grid Exit Points supplying the network with a reduction for the declared network loss level to emulate usage metered on site.

Special Variable Charge This is an additional variable charge for consumers in the LOW, LOW08 and 008 load groups and is based on metering information supplied by electricity retailers. The charge is set at the rate of 1.94 cents/kWh for both day and night consumption in the LOW and LOW08 load groups, and 0.76 cents/kWh for the 008 load group.

Special Service Charge This is a charge for provision of electric water heating that cannot be controlled by Alpine Energy Limited via a ripple relay. For the LOW08U and LOW15U load groups this is applied as an additional variable

transmission charge of 2.33 cents/kWh for both day and night consumption. For the 008U, 015U and 360U load groups this is a fixed annual charge of \$210.

- Demand Charge** For sites with a demand (kW) charge, the demand level is assessed and set by the network and is available on request.
- Winter Day Unit Charge** This is a charge for sites in the TOU load groups and is levied at the rate of 5.50 cents/kWh (based on the previous year's winter day kWh usage).
- Remote Sites** TOU sites will fall in the remote category where they are located more than 25 km from a Grid Exit Point for sites in excess of 100 kW or 5 km for sites in excess of 500kW.
- Line Charges** The above table shows Distribution and Transmission charges combined. GST is payable in addition to the charges.

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 is thus after losses and in order to determine each retailer's purchase responsibilities the electricity measured at the consumer's meter has to be multiplied by a "loss factor". There are two main components to the 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. 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.

Overall distribution network losses from 2004-2007 Information Disclosure data is calculated as 6.4%. A single year's data 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

