



Evaluation of Electricity Invercargill 2013 Pricing Methodology

What we have been asked to do

The Electricity Authority engaged Castalia to carry out an independent evaluation of the pricing methodologies published by the 29 electricity distributors in New Zealand. This document provides our evaluation of Electricity Invercargill's 2013 pricing methodology¹ against:

- The **Information Disclosure Guidelines** (Table 1). The guidelines set out the information that should be provided in distributor pricing methodologies.
- The **Pricing Principles** (Table 2). The principles contain economic benchmarks that should be reflected in pricing methodologies to the extent practicable.

The purpose of this review is to understand how distributors interpret the guidelines and principles, and to provide suggestions on how to improve distributor pricing methodologies. This review does not focus on ensuring compliance with the guidelines and principles.

Our understanding of Electricity Invercargill's methodology

The table below summarises our understanding of the methodology that Electricity Invercargill uses to determine prices for its domestic group customers. The purpose of this example is to explain our understanding of Electricity Invercargill's pricing methodology using the example of one consumer group.

	Approach	Rationale
Customer categories	The bases for different consumer groups are contract capacity and whether there is significant controllable load on the premises	No rationale is provided. However, all domestic consumers are classed as single-phase. This is irrespective of whether they are supplied two-phase or three-phase due to the fact that for many of the consumers there was no choice in their method of supply and that there are many older multi-phase domestic installations
Cost allocation	Costs are allocated based on: contract capacity kVA, winter peak demand kVA, winter peak energy MWh, winter day energy MWh, summer day energy MWh, total energy for the 12 month period MWh	The rationale for allocating costs to domestic customers is not provided
Charging basis	All installations without half-hour metering are charged a standard variable charge of \$66.83 per day MWh. The fixed charge is the difference between the total charge and the number of day MWh for the installation times \$66.83	No rationale provided for the charging basis except that the method for calculating fixed charges accounts for negative fixed charges

¹ Electricity Invercargill's 2013 pricing methodology is available online at: <http://www.powernet.co.nz/files/20130328131611-1364429771-0.pdf>

Overview of our evaluation of Electricity Invercargill's methodology

The methodology has well written sections that are easy to understand. However, a main concern identified in our evaluation is that the document does not follow a logical structure. This makes the overall flow of the methodology confusing and difficult to read. Pricing methodologies should not only provide the necessary information, but also be logical and clear to follow. We think that a better structure would clearly categorise consumer groups first, then describe how costs are allocated to those consumer groups, and finally show how allocated costs are recovered from the different consumer groups through prices (fixed, variable, demand). The Electricity Invercargill's methodology would be easier to understand if it follows this structure, even without altering any content.

The methodology does provide good information on the factors that lead to consumer groupings and that are used to allocate costs. However, for both cases the methodology does not provide a rationale for the factors that are used. The methodology should also clearly state the different consumer groups as presented in its tariff tables. The methodology does not make explicit that group consumers includes domestic, non-domestic single phase, and non-domestic three phase categories. This leads to an unclear allocation of costs as well as an unclear derivation of tariffs to these groups.

In terms of comparing this evaluation with the one provided for The Power Company, we believe that Electricity Invercargill is less thorough in its rationale for consumer groupings. We find that The Power Company groups individual consumers due to their higher impact on the network design and operation. It would be useful to add a similar description of the rationale that applies to Electricity Invercargill's methodology.

Table 1: Evaluation of the Pricing Methodology against the Information Disclosure Guidelines

Guideline	What is done well?	What is missing?
<p>(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</p>	<ul style="list-style-type: none"> ▪ The methodology states that there have been no material changes to the pricing methodology from the previous edition ▪ The methodology is published on Electricity Invercargill’s website 	<ul style="list-style-type: none"> ▪ The document would follow a more logical structure by defining customer groups at the start and then moving on to cost allocation and finally charging basis ▪ We would expect to see how changes to the allocation of costs to customer groups (p. 48) do not involve material changes
<p>(b) The pricing methodology disclosed should demonstrate:</p> <p>(i) How the methodology links to the pricing principles and any non-compliance</p> <p>(ii) The rationale for consumer groupings and the method for determining the allocation of consumers to the consumer groupings</p> <p>(iii) Quantification of key components of costs and revenues</p>	<ul style="list-style-type: none"> ▪ The methodology explicitly links to the pricing principles through a summary showing how each principle is incorporated into the methodology ▪ In terms of transaction costs, the methodology recognizes that there are a large number of tariff options ▪ The factors leading to each consumer category and their application to consumer groups is identified ▪ The major cost components are identified in a table on page 6 	<ul style="list-style-type: none"> ▪ We have identified some additional cases of non-alignment to pricing principles and have noted them in our pricing principles review ▪ Section 4. <i>Consumer Groups</i> does not provide a clear and complete categorization of consumers. We would expect to see clearer definitions for the categories presented in the tariff tables to understand how costs allocated to group consumers are recovered through different tariffs charged to domestic, non-domestic single phase, and non-domestic three phase group customers ▪ The methodology does not provide a rationale for grouping individual consumers and presents an incomplete rationale for group consumers. For example, we would expect that the rationale for providing a “with off peak” line charge is that it allows to pass on the lower costs of consuming off-peak to group consumers ▪ The total values presented on the target revenue table on page 48 are those of The Power Company’s methodology

Guideline	What is done well?	What is missing?
<p>(iv) An explanation of the cost allocation methodology and the rationale for the allocation to each consumer grouping</p>	<ul style="list-style-type: none"> ▪ The relationship between costs and a consumer’s characteristics is described on page 7 ▪ The key cost drivers as well as the cost allocators (consumer profile parameters) are clearly listed 	<ul style="list-style-type: none"> ▪ The methodology should show how the seven consumer profile parameters listed on page 6 are allocated to each consumer group and explain the rationale behind this allocation ▪ We would expect to see an explanation of how the allocation of costs described on page 7 links with the allocation of revenue required to consumer groups on section 8. For example, it is not clear how the percentages for winter peak and contract capacities are used to allocate costs in section 8
<p>(v) An explanation of the derivation of the tariffs to be charged to each consumer group and the rationale for the tariff design</p>	<ul style="list-style-type: none"> ▪ Section 8 provides a general idea of how charges are derived ▪ The set of tables on section 9 show the allocated costs and the fixed and variable charges for all consumer groups ▪ A reasonable rationale for the application of fixed and variable charges is provided on page 14 	<ul style="list-style-type: none"> ▪ The rationale behind the percentages with which charges are allocated across all customers should be explained, e.g. for supply charges on page 26, 70% are allocated to contract capacity because we derive most of our costs from providing capacity levels ▪ The rationale for the differential between alternative tariff options (all peak/off peak) should be explained ▪ The methodology is not clear in the way tariffs, which are clearly identified, are derived from the charges presented ▪ Page 49 refers to a peak demand charge for individual customers. However, table in section 9.1 only includes fixed and variable charges for individual customers ▪ Section 10 identifies that controlled tariffs are available for group customers but these are not clearly identified in the tariff tables of section 9
<p>(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.</p>	<ul style="list-style-type: none"> ▪ The methodology clearly lays out the financial transactions that can occur with distributed generators on a table on page 15 	
<p>(c) The pricing methodology should:</p> <p>(i) Employ industry standard terminology, where possible</p>	<ul style="list-style-type: none"> ▪ The methodology uses industry standard terminology 	

Guideline	What is done well?	What is missing?	
<p>(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.</p>	<ul style="list-style-type: none"> ▪ No changes have taken place to the pricing methodology 	<ul style="list-style-type: none"> ▪ We would expect to see the impacts to customer groups as a result of the cost allocation changes mentioned on page 48 ▪ It is not clear why individual customers cannot all be grouped into a standardized tariff 	
Key to evaluation	Does not guidelines	Partially follows guidelines	Follows guidelines

Table 2: Evaluation of the Pricing Methodology against the Pricing Principles

Pricing principles	What is done well	What is missing
<p>(a) Prices are to signal the economic costs of service provision by:</p> <p>(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</p>	<ul style="list-style-type: none"> ▪ A good definition of incremental and standalone costs is provided 	<ul style="list-style-type: none"> ▪ We would expect to see estimates for incremental and standalone costs ▪ It appears that both individual customers and new connections are subsidy free but it is not clear from the explanation on page 49 if this also applies for any other pre-existing group customer connections
<p>(ii) having regard, to the extent practicable, to the level of available service capacity</p>	<ul style="list-style-type: none"> ▪ Individual consumers have half-hour or TOU metering which encourages shifting load from peak to off-peak ▪ The variable charge of tariffs is on daytime energy only, providing a signal to consumers to utilise spare network capacity present at night 	<ul style="list-style-type: none"> ▪ The methodology should provide a description of current service capacity and how much of it is used to meet demand
<p>(iii) signalling, to the extent practicable, the impact of additional usage on future investment costs</p>	<ul style="list-style-type: none"> ▪ Domestic customers have the option to put some of their appliances on controlled tariffs to qualify for the off-peak fixed charge 	<ul style="list-style-type: none"> ▪ We would expect to see forecasts of investment needs to meet future demand ▪ The methodology should provide an analysis of peak demand growth by consumer group to illustrate the relationship between prices and future investment
<p>(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</p>	<ul style="list-style-type: none"> ▪ The methodology has a good definition of Ramsey pricing and provides a rule of thumb measure of price responsiveness 	<ul style="list-style-type: none"> ▪ It is not obvious from the document whether prices are under-recovering allowed revenues
<p>(c) Provided that prices satisfy (a) above, prices should be responsive to the requirements and circumstances of stakeholders in order to:</p> <p>(i) discourage uneconomic bypass</p>	<ul style="list-style-type: none"> ▪ The methodology states those cases where it would expect uneconomic bypass to occur ▪ The methodology addresses the risk of uneconomic bypass by negotiating pricing arrangements that reflect as closely as possible the network costs incurred by each consumer ▪ The pricing model allows customers to own their own distribution transformers, passing on the savings made by ownership 	

Pricing principles	What is done well	What is missing	
<p>(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</p>	<ul style="list-style-type: none"> ▪ Annual surveys are run asking customers' opinions on price/quality trade-offs ▪ Customers given the choice of a more reliable service at a higher cost ▪ A brief description of the approach to non-standard contracts is given on page 13 despite Electricity Invercargill not having any such contracts 		
<p>(iii) where network economics warrant, and to the extent practicable, encourage investment in transmission and distribution alternatives and technology innovation</p>	<ul style="list-style-type: none"> ▪ Individual customers are encouraged to employ demand response actions such as turning on alternative generation or load shifting during peak times to reduce their peak demands 	<ul style="list-style-type: none"> ▪ The methodology could do more to encourage distributed generation, such as not collecting variable charges from small generators 	
<p>(d) Development of prices should be transparent, promote price stability and certainty for stakeholders, and changes to prices should have regard to the impact to stakeholders</p>	<ul style="list-style-type: none"> ▪ The current price structure has been in place since 1996 ▪ Stakeholder impact is assessed through annual surveys and other channels of interaction with customers 	<ul style="list-style-type: none"> ▪ See comment in guidelines regarding changes to cost allocation ▪ The methodology should elaborate more on the last paragraph of section 3.1 to show that varying Use Charge at the end of the year aligns with this principle 	
<p>(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</p>	<ul style="list-style-type: none"> ▪ Economical equivalence between retailers is considered and maintained by applying the same tariff schedules to all retailers ▪ The methodology identifies the relevant transaction costs 	<ul style="list-style-type: none"> ▪ The fact that there are domestic tariff codes with only two customers does not appear to manage transaction costs 	
<p>Key to Assessment</p>	<p>Does not align with principles</p>	<p>Partially aligns with principles</p>	<p>Aligns with principles</p>