Submission to the Electricity Authority:

Critera for assessing alignment against the Information Disclosure Guidelines and Pricing Principles

Molly Melhuish, 18 October 2011.

This submission may be made public.

Background: Domestic power prices and investment

Relentless power price rises are a major concern for all New Zealand householders. Companies and regulators argue that these price rises are necessary to ensure new power stations are commercially viable. The same argument is embodied in the distribution pricing principles – that lines pricing "[should signal], to the extent practicable, the impact of additional usage on future investment costs."

Lines pricing is a major part of the power pricing problem. Today 37% of the average power bill pays for lines services provided by Transpower and the local networks. Transpower expects to spend over $500 million per year over the next decade on new assets. Distribution companies have assets valued at almost three times Transpower's, and their expenditure will be increasing accordingly.

Distribution pricing is set by monopolies, so it is critical that domestic consumers be given confidence that their lines prices are fair, and lead to efficient decisions whether or not to expand supply assets.

New supply assets impact on the natural environment, and supply assets that meet growing demand lead to increased CO2 emissions. In contrast, investment at end-users' premises creates many ancillary benefits including warm homes, resilience through diversity of energy supply, and local employment.

Domestic consumers therefore seek mechanisms for "contestable investment" in their own energy assets, to reduce the need to expand the asset base of electricity supply companies.

Giving choice to domestic consumers

Distribution pricing systems should give choice to all consumers, as to whether to reduce their power bills by behaviour change or investment, or whether to accept higher power bills for the convenience of not adapting to power system constraints.

Domestic consumers could reduce the need to expand electricity assets by two basic means:

- behaviour change; – switching off, or accepting reduced service, especially for space heat.
- investing to improve the efficiency of their electricity use, or to substitute alternative fuels all the time or some of the time, or investing in automatic peak-load reducing appliances.

Both types of action give only very modest rewards in reduction of power bills, and possibly no reward in reducing the lines component charge. But if these actions could target deferral of the most

costly supply-side investments, their economic value could outweigh the present consumer benefit of the lower power bills.

Load control of hot water cylinders provides great benefit by reducing costs. If truly smart meters are made available, automated load control could be extended to other high-use appliances.

Pricing systems that allow active response in real time can give even greater benefit if they were to target "critical price" times, which typically amount to less than 100 hours in a year. Many countries offer "critical peak pricing" which targets these most valuable load reduction times, but no New Zealand retailer has done so for the domestic consumer base.

The consultation paper

This paper is part of a long-standing industry debate on how to charge for network services. Domestic consumers' submissions on distribution pricing principles were rejected in the 2010 decision by the Electricity Commission, which set the pricing principles now accepted by the Authority.

Alignment of lines company pricing with pricing principles will only help domestic consumers if those principles themselves fully incorporate domestic consumers' interests.

The distribution pricing principles appear to focus on efficient revenue recovery rather than pricing to incentivise efficient consumer investment and behaviour change. . This is consistent with the definition of "electricity market", contained in the Commerce Commission's Decision paper on Electricity Governance (in 2002), as excluding markets in services that substitute for electricity, namely alternative fuels, energy efficiency, and price-responsive demand.

Principle c(iii) does address investment in alternatives – but, significantly, it is qualified by the phrase "where network economics warrant, and to the extent practicable". This gives priority to network investment over investment in alternatives.

Similarly, Information Disclosure guideline (b)(vi) is particularly relevant to contestable investment: - the disclosure should demonstrate how the value of deferred investment in network assets will be shared with investors in alternatives, "… where network economics warrant". Again, there is priority to network investment over alternatives.

Investment in home energy efficiency (insulation, efficient lighting, and non-electric heating) reduces peak demands and generally defers network investments. They also make warm dry homes affordable and reduce the carbon emissions from fossil fuel peaking generation. These benefits are explicitly excluded from the objectives of the Electricity Industry Act 2010, and implicitly excluded from the Commerce Act 1986. The consultation paper therefore does not address such benefits.

Thus criteria for assessing alignment against the guidelines and principles will remain poorly relevant so long as pricing principles favour network investment over end-use investment that might defer it.

Principle (d) is by far the most meaningful to domestic consumers: "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."

Transparency of lines pricing has been consistently called for by Grey Power, and the 2005 report of the Pricing Approaches Working Group said that lines charges were expected to be required to be disclosed. This expectation was never realised.

Demand charging of domestic consumers: The Lines Company

The Lines Company (TLC) is the only distributor that charges their domestic consumer base directly for their lines services. This appears to fulfil pricing principle (a)(iii) in its purest form, but is untempered by principles that could have softened the impact.

Though the company had the best intentions of charging precisely for cost of supply, the company did not recognise the extraordinary impact of the tariff on consumers. For the lines part of their bills, which was often half or even more of their total power bill, a single event of high demand would lead to a lines bill for the entire subsequent year that could be as much as double that of the past year. Consumers did not have the information as to which hours the demand charge would apply (that is, when load was being controlled), or what their actual demands were, as the company only reads the meters once a year.

The result was a highly publicised consumer revolt against demand charging. To their credit, the company is revising its practices, but it remains to be seen whether the changes will be sufficient to become acceptable to consumers in the district. Other companies are considering real-time demand charging; they would do well to take a far more cautious approach.

TLC's rationale for moving to demand charging is based on the special physical and social characteristics of its two districts, Waitomo and Ruapehu. Introduction of heat pumps led to sudden increases in peak demands, especially in the Ruapehu district, which is colder and lower-income. The network assets simply couldn't cope with the peaks, until publicity, followed by demand charging, brought about significant behaviour change to reduce peaks. But this has led to major social costs – some consumers were caught with major increases in demand charges, often due to a single event of very high demand, and now many are afraid to use their heat pumps in the evening.

Information disclosure is critical to design of potential responses to TLC's peak load problem. End-use investment could defer not only network asset expansion, but even transmission investment throughout the southern North Island. TLC spends about $5 million per year on transmission charges, almost a fifth of its total revenues. Any end-use investment that reduces its demand during the 100 highest half-hourly regional demand will reduce that annual transmission bill, and this saving could be shared with the consumer-investors.

Technologies for use of fuelwood to defer network investment are ideally suited to community energy projects. Tuwharetoa are already active in Warm Up New Zealand projects, and Maori throughout the TLC area could use Maori development funding to set up businesses for using wood fuels in both domestic and industrial/ commercial uses. Dual-fuel systems could allow use of wood fuel at peak times only, while the efficiency of heat pumps reduces the amount of wood fuel required. Manufacturing and installing wood burners, and agroforestry on erodible hill country for fuelwood supply, could all provide Maori training and employment.

Overcoming regulatory barriers to contestable network investment

A valuable compendium of information on commercial barriers to price-responsive demand, and energy efficiency, has been put together by the Regulatory Assistance Project: "Electricity Regulation in the U.S.: A guide" - http://www.raponline.org/document/download/id/645

> It is not usually natural for a business to try to reduce the demand for its services — yet utilities may be uniquely qualified to play a role in improving the efficiency of energy usage. They have relevant technical knowledge, and they have a business relationship with all of the energy users in their service territory. At a minimum, utilities should be involved in energy efficiency planning, because the degree to which consumers invest in efficiency affects the extent to which utilities must invest in more costly new supplies and efficiency — and this also affects the reliability of the grid. Regulators must be involved to ensure that the economic benefits of energy efficiency investment are achieved, and to ensure that the regulatory systems in place are adequate to allow timely cost-recovery even when sales diminish or decline through the utility's own efforts.

In 2006, utilities invested some $2 billion in energy efficiency programmes – by 2009, utility investment had grown to over $5 billion, over $2 billion of which was in the residential sector, and around $700 million of that in the low-income sector. This report is strongly recommended as a reference book of options for achieving cost-effective end-use investment in an electricity industry with both private and public ownership.

Conclusion

Domestic electricity users give the highest priority to reducing their power prices. With education, it is possible to focus attention on power bills as well as prices, and to use end-use investment to reduce power bills, or improve the effectiveness of electricity use, or both.

The lines charges now amount to around 37% of the average residential power bill. In rural areas this rises to up to half, or even quite a lot higher. Thus the ability to reduce peak demands at constrained periods is extremely valuable.

Already one cold rural network company has begun demand charging, and nearly caused a consumer revolt as a result. The company is now changing its charging practices and helping domestic consumers better understand their power use patterns in an attempt to reduce peaks and defer network investment.

To understand whether such efforts are worth while, consumers (or their representatives) need sufficient information to gauge the cost-effectiveness of end-use investment versus network investment. Information disclosure is essential to make such comparisons.

The existing pricing principles appear to give second priority to end-use investment compared to network investment. These priorities need to reverse if the full benefits to domestic consumers are to be realised.

A useful guide to regulatory options for promoting end-use energy efficiency and price-responsive demand is referenced above. Domestic consumer advocates are now engaging with NZ regulators to promote cost-effective options for pricing which gives consumers the choice between convenience and price-responsive demand, and promote funding options which enable low-income consumers to realise these mutual benefits.